BEFORE THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, et al., .
. Case Number 20-cv-3010
Plaintiffs, .
.
vs. .
. Washington, D.C.
GOOGLE LLC, . November 3, 2023
. 9:31 a.m.
Defendant. .
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TRANSCRIPT OF BENCH TRIAL, DAY 34
BEFORE THE HONORABLE AMIT P. MEHTA
UNITED STATES DISTRICT JUDGE

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C O N T E N T S

TESTIMONY

MARK ISRAEL Cross-Examination..... 8661

EXHIBITS RECEIVED

DXD29 and DX3243..... 8660
PSX0562..... 8732

P R O C E E D I N G S

(Call to order of the court.)

COURTROOM DEPUTY: Good morning, Your Honor. This is Civil Action 20-3010, United States of America, et al., versus Google LLC.

Kenneth Dintzer for the DOJ. Jonathan Sallet and William Cavanaugh for Plaintiff States. John Schmidtlein on behalf of Google.

THE COURT: All right. Good morning, everyone. Anything we need to discuss before we get started?

MR. SOMMER: Not a discussion, Your Honor. I neglected yesterday to offer DXD29, which was the deck I used with Dr. Israel. And I'm also re-offering DX3243, which was the chart that DOJ said they wanted to look at yet again. I don't know if there's an objection. If there is, he can be heard on it.

MR. DINTZER: We have no objection to the deck coming in as a demonstrative, which has been the normal course for these things in the trial.

The proposed exhibit, it wasn't disclosed to us exactly under the rules, but we won't oppose it for it to come in now.

MR. SOMMER: The exhibit was disclosed, I don't know, two months ago. I don't know what the issue is there. But since they're not opposing it, I won't --

MR. CAVANAUGH: Your Honor, we don't have any

objection to it, but it's the same for the Baker slides. There were a number of slides used in the deck for Professor Baker that we want offered under 106. They're currently reviewing them. So long as it works both ways, we don't have a problem with that.

MR. SCHMIDTLEIN: I think we have raised some issues with your team on the Baker exhibits, and I think our teams are conferring back and forth still on those.

THE COURT: All right. You will let me know if there's an issue to be resolved. Otherwise, we will just wait to hear from you on that issue.

(Exhibits DXD29 and DX3243 received into evidence.)

MR. SCHMIDTLEIN: One last point, Your Honor. You had asked me yesterday about scheduling for Monday.

THE COURT: Right.

MR. SCHMIDTLEIN: The first witness that we were otherwise planning to call on Monday does have a timing issue, but I would expect and hope that we would -- Dr. Israel will be done in the morning on Monday, and if that's the case and we call our witness after lunch, given the anticipated length of direct, we expect that she should be concluded by the end of the day Monday, and then our second witness doesn't have a timing issue in terms of being able to come on Tuesday.

THE COURT: Great. Okay. Let's just see where we are at the end of the day, and hopefully, that schedule holds.

Mr. Dintzer, ready when you are.

MR. DINTZER: Thank you, Your Honor.

MARK ISRAEL, WITNESS FOR THE DEFENDANT, RESUMED STAND

CROSS-EXAMINATION (Continued)

BY MR. DINTZER:

Q. Do you still have your binder there?

A. Yes.

Q. Okay. Good.

So we were talking about verticals yesterday, and you said that there are ordinary course aggregations of queries, like verticals.

Do you remember that testimony?

A. Yes.

Q. Okay. And one of the verticals -- it's not one that you showed to the Court, but one of the verticals I believe you identify in your report is the health vertical; is that right?

A. I don't think we talked about that yesterday. That may be a vertical in the report.

Q. You don't recall?

A. I don't recall which all that I listed and where. I'd want to look.

Q. Okay. You do understand that there's a health vertical?

A. I think people define a health vertical, yes.

Q. Okay. And that a query regarding cancer would be in the health vertical; right?

A. That sounds reasonable.
Q. And a query regarding a child's fever would be in the health vertical; right?
A. Yeah, I mean, there's -- it depends on the nature of these queries, but that sounds reasonable.
Q. Okay. And a query regarding cancer and one regarding a child's fever are separate searches by your definition and, therefore, may be resolved by different sets of competitors; right?
A. That's possible.
Q. A query regarding cancer and one regarding a child's fever aren't in the same vertical but still may be resolved by different sets of competitors, under your analysis?
A. I mean, there could be different competitors. Again, to be clear, I think aggregation where the competitors are similar is reasonable. So the purpose is just to identify competition.

So I would be unlikely to quibble about one competitor on the edge. The purpose is to make sure we're not missing competition.

Q. I understand, sir. But you move back and forth between your -- between talking about queries and verticals; you move back and forth between queries and verticals.

I just want to understand, you have not gone query by query and said this query belongs in this vertical, this query belongs -- that's an analysis you haven't done on any

significant set of queries; is that true?
A. Well, I have definitely grouped queries into verticals throughout the report.
Q. But you're not answering my question.
My question is, you haven't gone and said, well, this query goes to this vertical and this query goes to this.
You haven't done it on a query-by-query basis?
A. Yeah, that's not true.
Q. Okay. Show me the list of queries that you've done and where you've assigned each of the queries to a vertical.
A. For example, I showed the Court an analysis of queries in the shopping vertical and queries in the local vertical and counted the number of queries that went into different entities in those verticals.
Q. Yes. You did it in groups?
A. But that's by assigning queries. Otherwise, I wouldn't be able to count up the number of queries.
Q. That's exactly my point. Thank you.
If you actually did a query-by-query analysis, given that Google gets a billion queries every day, it would be, you will agree with me, impossible to figure out where each of those queries goes; right?
A. And that's what I'm saying I did for the queries for the week.
Q. You went through a Bing (indiscernible)?

COURT REPORTER: You went through what?

MR. DINTZER: A Bing app.

THE WITNESS: I took all the queries from that weekly sample and assigned them in the verticals.

BY MR. DINTZER:

Q. Yes, but you didn't look at each -- sir, you didn't look at each query; right?

A. I don't know what you mean by that. The queries were all in the data, and every query was assigned to a vertical.

Q. Did you personally sit down and look and read each query? You make me ask the question because you keep fuzzing it.

MR. SOMMER: Objection, Your Honor.

BY MR. DINTZER:

Q. Answer the question I'm asking, sir.

MR. SOMMER: We just don't need the --

MR. DINTZER: That's fair, Your Honor. I withdraw.

BY MR. DINTZER:

Q. Did you sit down and read each query and figure out which vertical each query individually goes into?

A. I did not personally read each one. Automated tools, with the definitions given in the report, assigned every query.

Q. Okay. And that automated definition, where did you get the automated definition in the report to assign the queries to different verticals?

A. For the most part, it came from Google's ordinary course

assignment. I also used some economic judgment in terms of shopping queries and so on, as I said to the Court, I think, to look at ones that returned PLAs.

Q. Right. So you took Google's ordinary course division of queries, and then you -- you changed them so that they fit the way that you think that they should be; right?

A. I adapted shopping, for example, to look for PLAs. You could use the ordinary course definitions of Google and get very similar results.

Q. But you didn't. You used a modified version of Google.

A. For shopping in particular, I tried to focus on where PLAs have been, because that's been a focus for shopping queries.

Q. Now, in your -- I'm sorry.

In your report, you did not offer any opinion as to how the queries might be aggregated, the precise, correct aggregation; right?

A. I think what I said is, I don't -- I don't take enough stand that there has to be one precise aggregation. They can be aggregated into things like verticals that reveal competition.

I mean, my point is, you have to look at the demand side and how people are searching, and you should do some aggregation that lets you get to a reasonable set of queries so that you can see what the competition is.

Q. Right. But in your report, you took the position that you did not formulate precise, correct aggregation of queries; is

that correct?
A. I don't think that's what I said. I think I said I'm not taking a stand that the ones that I did have to be the market definition. You could do it slightly differently and get to a reasonable market definition that way.
Q. Okay. So let's go to your deposition, and we're going to go to page 86 of your deposition. We're going to hand it up.
May we approach, Your Honor?
Page 86, sir. Let me know when you're there.
A. I see that.
Q. Okay. And the question you were asked on page 86 and the answer you gave was:
"Question: Have you done the work to figure out what aggregation is appropriate for the -- to take us out of the query-by-query analysis of product definition?
"Answer: I have not offered an opinion on the precise, correct aggregation."
You were asked that question and gave that answer; right, sir?
A. I did. And right below that, you asked me again, and I clarify. "I don't offer an opinion on whether this is or is not the correct market, but I certainly offer it as one way you might think about aggregating things."
Q. You answered my question -- the part I read back, sir, that was the correct reading of that; that correct?

A. Yeah, you read it correctly.
Q. Okay. And so you don't offer an opinion whether the verticals are the correct market; is that correct?
A. I think verticals are a reasonable way to group the market. My opinion is that you could group them in somewhat different ways and still arrive at what matters to me, which is that SVPs compete.
Q. Okay. But my question is, you don't offer an opinion whether the verticals are the correct market; am I right?
A. I'm not saying that the way I grouped them is the way that you have to do it. There are different ways you could group them and reach the same conclusion.
Q. So it's not -- the verticals are not the correct market? You're not offering that opinion?

I need a yes or a no, sir.

A. I think the verticals, as I've said, are a reasonable way to do it. I'm not saying they're the only way to do it.
Q. Okay. I see you're reading your deposition while we're talking. So you're probably already at the spot where I was going to read, sir.

You were asked this question and you gave this answer on page 87:

"Question: Okay. Other than the query-by-query analysis for search, what product market, what method of considering the product market that Google compete -- participates in for search

do you offer?

"Answer: I think that's different from your last question. You asked me if I considered any way to analyze it, and I offer analysis of verticals as an ordinary course way that would give us one form of aggregation. I don't offer an opinion on whether that is or is not the correct market. But I certainly offer it as one way you might think about aggregating things."

You were asked that question and you gave that answer; is that right, sir?

A. Yes.

Q. Okay. You can close your deposition.

And you will agree that even verticals combine queries that have different competitive conditions?

A. Yes. It's an issue when you analyze markets. There's always going to be some difference in competition. The key is that we get the reasonable aggregation so that we can reasonably figure out who the competition is.

Q. Okay. And let's go to your slides, sir.

Do you have those handy?

A. Yes.

Q. I'm going to go to slide 16. Just let me know when you're there.

A. It's up on the screen, so yeah.

Q. I'm going to try to keep it up -- do these on the screen, too, to make it easier for you.

The third bullet here, it says, "This approach naturally leads to verticals as a grouping, shopping queries likely to have similar options to each other but very different options from travel or banking queries."

Do you see that?

A. I do.

Q. Okay. And then if you turn to the next page, these are some of the verticals that you put; is that right?

A. Yes.

Q. And the jobs and education, that's one of the verticals you list; right?

A. Yes.

Q. And do you know what GreatSchools in the jobs and education vertical, what they do?

A. I don't know that one in particular. I know some other schools ones that probably have information on schools, but I'm not familiar with that one in particular.

Q. So you group something in a vertical without actually knowing what they do?

A. I mean, these were groupings based on the methodology described in the report.

Q. Okay. But answer my question. You put things in these verticals and -- when you don't know what they do; right?

A. I'm not personally familiar with that website. I know what they do based on the methodology in the report, which is --

Q. Okay.
A. -- what searches return these terms.
Q. Who put these slides together, sir?
A. I did.
Q. Who decided to put "GreatSchools" in that one?
A. I mean, it's in that vertical as defined in the report. So I put it in there. I just haven't personally been to that web page.
Q. Who put it in the report? If you don't know it, I'm asking you, who put it in the report?
A. I did, based on the methodology described in the report that grouped these based on what comes out of Google.
Q. Okay. And you will agree that "jobs and education," just the title of that vertical, those are very different things? If I'm looking for a job, I may not be looking for an education. I may have finished my education. Right?
A. I agree they are different.
Q. Okay. But you put them in one vertical?
A. I did. Some aggregation has to happen. Right? If we were debating about is it "jobs," is it "jobs and education," and that's how you had grouped it, I don't think I would have much of a quibble.

My point is, by aggregating everything, you miss competition.

Q. Okay. And so I'm just looking at the way that you did it,

sir. It's your slide.

And so you would agree that a query on "great schools," whatever that does, and LinkedIn probably are not in the same competitive market? They're not looking for the same thing; right?

A. They may be different competitive options.

Q. And if I'm looking for a book on -- let's turn to your shopping one. This is the one that you defined yourself. You didn't take Google's vertical; right?

A. I think all of these would be in Google's -- the competitors in the shopping -- no, the competitors in the shopping query would be defined based on the Google method that I described. Which particular queries I analyzed had this additional component of looking for whether they had PLAs.

Q. Okay. And so if I'm looking for the book "Good Night Moon," I might look on Amazon because I can have it shipped to me; right?

A. Yes.

Q. Okay. But if I'm looking for Good Night Moon, I'm not going to go to Home Depot. That probably wouldn't be a good choice.

A. That's probably correct.

Q. This is another example where you're grouping queries that aren't necessarily addressable by everybody in the same vertical; right?

A. I agree, there are going to be differences, but by doing it this way, we get a nice list of competitors.
Q. We do get a list, sir, but the competitive conditions are not the same for every query in each of these verticals; right?
A. So I agree they're not exactly the same, and that's why when you group things, you have to group them in reasonable ways to get you to reasonable definitions of competition.
Q. Now, we start -- sort of where we ended yesterday, we were talking about browsers and how none of them default to SVP.
Do you remember that conversation, sir?
A. I sure do, yes.
Q. And there's been testimony in the case about that; right?
A. Yes.
Q. Okay. And all the testimony in the case -- and we're putting it up here. This is UPXD059. All the testimony in the case is that everybody wants the default in a browser to be a general search engine; right?
A. I'm not sure what "everybody" means. I mean, I agree that there's been testimony that browsers are looking for a default GSE, but there's -- I mean, there's nuance to what purpose and then who you're including in "everybody."
Q. Okay. That's fair. Why don't we include John Giannandrea.
He was asked the question:
"Question: And users, when they put something in the URL bar of Safari, they have an expectation that it's going to go to

a general search engine?

"Answer: Yes."

He gave that testimony; right?

A. He did. He gave a lot of testimony about how a lot of what is typed in is actually served in other ways. But he did indicate that -- the answer to this question you have here.

Q. Okay. And Mitchell Baker, she gave the testimony:

"Question: For the Firefox default search engine, is Mozilla looking for a general search engine that responds to all different types of user queries?

"Answer: That is -- yes, that is what we have done.

"Question: A vertical provider that focuses on one category of content would not be appropriate as the default search engine for the Firefox browser; right?

"Answer: I think that's right."

So she agreed that general search engines are the only pick for browsers; right?

A. She agreed here that they are what they're looking for as the default.

Q. Okay.

A. So they are seeking out a default GSE.

Q. Have you seen any testimony -- because you asked me what do I mean by "everybody." Have you seen any testimony in this trial where somebody testified that it would be a good idea to put something other than a general search engine in a browser's

default?
A. Again, I think a lot of the Giannandrea testimony speaks to that, in the sense that I read his testimony to say Apple wants to provide the best answers they can in the default searches, like Spotlight or Siri. And in a lot of cases, they use sources far beyond GSEs.
Q. Okay. So you're saying that they send Safari queries to places other than Google in the search box? Is that your testimony?
A. I mean, his testimony will speak for itself, but my recollection and my read of it was he said that Apple intercepts a lot of queries, and when they do, they're seeking information from a wide variety of sources beyond just GSEs.
Q. Now, GSEs define themselves as answering all queries; right?
A. That sounds right in general.
Q. Browsers want GSEs in the default positions because they want a search engine that can handle all sorts of queries?
A. I think that's consistent with what I talked about yesterday. GSEs is kind of the Swiss army knife to the browser.
Q. There's a cost to the user for a null response or a useless response from a search engine?
A. I think I agree with that generally, yeah.
Q. Users don't like to get useless or null response.
We can agree on that; right?

A. I think users like to get the best response they can to their query. That's what they're seeking when they decide where to go.
Q. So if they go to a search engine and they put in a query and they get a null response or a useless response, that's something that's not helpful for them. They don't like that. Right?
A. I agree with that.
Q. Okay. And part of Google's brand is their ability to answer responses and not give a null or useless response; right?
A. I think Google is building a reputation of being able to answer, you know, all queries. Other SVPs are building a reputation of being better than Google on certain types of queries.
Q. Now, you mentioned TikTok. TikTok does not provide -- do you know what a SERP is?
A. Yes.
Q. What's a SERP?
A. It's a search engine response page.
Q. Okay. TikTok does not provide a SERP in response to a query; right?
A. I think as we usually define a SERP, that would be correct. They answer in a different form.
Q. If you're a user and you want SERPs, then TikTok doesn't provide that; right?

A. If I want the way -- I don't think most users know what a SERP is. But if I want the thing that we call a SERP, if I really like that, then TikTok wouldn't provide that.

Q. Okay. So let's make sure we're all on the same SERP page.

A SERP has those blue links or some links; right? Can we agree on that?

A. That sounds right.

Q. Okay. And it may have an answer, it may have other kinds of information, but it has it in a written form so that a user can look at it and examine the different possible results; right?

A. Yeah. Generally, it's going to have some text, maybe some pictures, but it's going to have a page that returns some results, at least some of which are links, some of which may be information boxes.

Q. Okay. And it may have links to YouTube or something? It may have some video; is that right?

A. It could.

Q. Okay.

A. It could have video on the page in some cases.

Q. If I put -- so if I wanted an auto parts store near me and I put that into a general search engine, the SERP shows the answers in milliseconds, right, hopefully in milliseconds, about auto parts stores and the like; right?

A. In general, yes.

Q. Okay. If I put that same query, "auto parts store near me" into TikTok, do you have any idea what I would get?
A. I don't know for that query what I would get from TikTok.
Q. Okay. But whatever I got, I would have to watch a video; right?
A. Yeah, I honestly don't know. TikTok is mostly about videos. So it may have links, too. TikTok is not one I use a lot. I would advance Yelp as the obvious alternative in that case.
Q. Okay. But you talked about TikTok. So TikTok does not offer a SERP with listed answers. It offers -- to any query. It offers video, where if you want to find out if you've even got a useful answer, you have to watch video; right?
A. Again, I'm not positive everything is video. It's mostly a video source. I don't think I talked much about TikTok as a search competitor, although I understand from my kids that they use it that way.
Q. Now, there are many, many Google documents in this case, a lot entered into evidence, where Google compares itself to Bing for a variety of reasons; right?
A. Yeah, I agree with that. There's lots of documents where Google compares itself to many different companies.
Q. Okay. But my question --
A. Certainly Bing is one.
Q. And Google and Bing return relevant results in response to

a broader range of queries than does Amazon; right?
A. That sounds correct.
Q. Google's interior analysis of who its competitors are is useful in identifying its competitors; right? There's some value into looking at who Google thinks it competes with on the search side. All these questions are on the search side. We're going to get to ads.
On the search side, Google's analysis is useful in figuring out who its search competitors are?
A. Broadly speaking. I mean, as long as you look at all of it and you interpret -- you know, you understand the context, but broadly speaking, as long as we look at the universe of it, it's useful.
Q. Okay. And so we're going to go to -- we're going to try not to over-binder you, but we have a lot of information.
A. I've never had that verb before, but I may use it myself.
Q. We're going to hand up a binder of exhibits.
May I approach, Your Honor.
If you go to 7001 in the binder, and we're going to put this on the screen, too.
A. 7001.
THE COURT: It's the last tab.
THE WITNESS: The last tab?
THE COURT: Yeah.
THE WITNESS: Thank you.

BY MR. DINTZER:

Q. Have you seen this document, sir?

A. I've seen documents like this.

Q. Okay. This is a summary exhibit that the plaintiffs have entered in showing -- it accumulates information from a variety of exhibits that occurred in Google over a number of years. And this was Google's measure of its share of clicks for years. And you're welcome to look through it.

My question is, for years, Google evaluated its search share when comparing itself to Bing and Yahoo!; is that right?

A. Yeah, I think -- I testified for a long time Google has had reports like this where it -- one of the reports it does is click shares of the GSEs.

Q. Right. And in these -- in all of the ones listed here, almost -- I think there might be one or two where it compares itself to Ask or one of the others, but it almost uniformly just compares itself to Bing and Yahoo!; is that right?

A. Yeah, in these tables, the comparison is to Bing and Yahoo!.

Q. And they add up to about 100 percent. So in these tables, when comparing itself to Bing and Yahoo!, Google is only comparing itself to Bing and Yahoo! regarding search click shares; right?

A. These tables, even in the notes, say these are shares of GSEs. There are lots of other documents that say lots of other

things, but these documents are computing shares among GSEs.
Q. There are lots of other documents that do say a lot of other things. But in your search analysis to the Court, you didn't cite any of them; right?
A. There certainly -- you asked me this yesterday, and I was thinking about it. There certainly are other documents cited in the slides about ways Google is investing and so on. I think the slides themselves didn't spend a lot of time on documents.
Q. Okay. And I think that's a way of saying yes, I'm right, that you did not cite any of those documents?
A. I mean, I think you're referring to documents that I'm talking about that refer to competition with Amazon or Yelp or others. Those are certainly in the report. I think you're right that I focused on data for those topics in the slides.
Q. Okay. So let's go to UPX472, which is in evidence, Your Honor.

And this is just one of the components of the 7001 document that we were just looking at. And this is where in November 2010, they're circulating their search numbers.

If you look at the CUP data, which is the first set of date, where they have Google, Bing, and Yahoo!.

Do you see that?
A. I do.
Q. Okay. And again, it adds up to 100 percent. And we asked Dr. Varian about this, and UPXD062, we can see his testimony.

He testified that they could have included Amazon or Facebook. Okay?

"Question: And if Google had wanted to and asked the CUP people to do it, they could have added Amazon and Facebook and whoever else?

"Answer: Right.

"Question: And they never did. None of the Penny Chu reports have search shares for Facebook or Amazon. Right?

"Answer: In this survey, they never -- yes, they never did that for this survey."

So Google could have said, well, how about these other people, and they chose not to compare themselves in these reports to anyone other than general search engines; right?

A. For his answer, this is the survey they did. I agree with that.

Q. Okay. And as we said at the beginning of when I started, this is some information that has to be considered in figuring out the search market; right? What Google actually did in real-time is relevant; right?

A. When I -- I think my earlier answer is what I would say. The full set of Google's competitive documents is relevant.

Q. Okay.

A. I don't think slicing them into documents on one topic or another is particularly relevant without looking at the full set of documents.

Q. Okay. Have you looked at the full set of documents?
A. It's a large record, but I've tried to review lots of documents that I've cited.
Q. Okay. So let's go -- now, from at least 2017 through 2019, Google calculated quarterly general search market shares.
Are you aware of that?
A. Yeah, I didn't recall they were quarterly, but that sounds plausible.
Q. But you knew that they were calculating these search market shares; right?
A. I knew they had been calculating these sorts of shares.
Q. Let's go to UPX0475.
Your Honor, this is in evidence, and parts of this are redacted.
So let's go to 744, sir. It's in your binder. We're not going to say the numbers.
A. Sorry. Which one am I looking at?
Q. Bates 744.
A. But within tab 475?
Q. Yes, sir.
If you would look at the top heading -- and we're not going to say the numbers because we don't have to -- you will see at the top it says "desktop search query share" and "mobile search query share."
Do you see that?

A. I do.
Q. And do you see that it shows for mobile search query share, it shows 77 -- 97 percent? Do you see that?
A. I do see that number.
Q. Okay. And for desktop, it's 84 percent?
A. I see that number, yes.
Q. And you understand that those numbers are relevant to general search engines, not including Amazon or Facebook or anything like that, because they wouldn't be those numbers if they were?
A. I actually don't know what these particular numbers are, but if that's your representation, I don't have a quarrel with it.
Q. Okay. And you don't dispute that Google has routinely created query share, search share numbers where it only compares its itself to general search engines? You're not disputing that?
A. I'm not disputing there's a set of documents that compute share -- I mean, I think I talked about it in my direct testimony, compute shares in this group.
Q. Okay. And you've never seen Google calculating market share on a query-by-query basis?
A. I don't know what that means exactly. These are counting up queries.
Q. Okay. Well, fair enough. You've never seen a document

where Google says let's look at query "how tall is the Eiffel Tower" and said okay, what's our percentage of the market for queries about how tall the Eiffel Tower is, what's our percentage of -- you haven't seen them do that, have you?

A. Not fully disaggregated like that. I've certainly seen them do a lot of analysis by vertical.

Q. Okay. And there are industry resources out in the market where you can buy measures of query share -- I'm sorry, of search share or market share for the general search engines; is that right?

A. That sounds right.

Q. Okay. So, you know, like Comscore, StatCounter, eMarketer, those are corporations that actually assemble and sell market share data; right?

A. They sell a lot of data, including share data.

I should be clear, in your earlier answer, you said for the general search engine market. Obviously, I disagree that's a thing. But they compute shares for general search engines.

Q. Okay. So another place we can look at is sort of in the industry, there are calculations out there by third parties measuring general search engines and how that -- if you don't want to call it a market, how those people divide up what they're doing; right?

A. Yeah, I agree. There's a set of firms that compete in that way, and there are people who are computing how well they're

competing within that group.
Q. And some people must be interested, because those companies wouldn't go to that effort if they didn't have somebody to sell it to; right?
A. I think people are interested in data of many, many cuts, and certainly, one interesting cut is to look at yourself versus other GSEs. Others look by vertical at your competition that exists there.
Q. But I'm talking about third parties. Third parties have an interest in looking at data about how the GSEs distribute GSE queries; right?
A. I agree that's one cut that they do. We certainly also looked at lots of third-party information that's by vertical that looks at SVPs versus GSEs. I think all of that is data that helps you understand all the elements of competition.
Q. Okay. So let's go to UPX2022.
This is in evidence, Your Honor.
Are you familiar with this document, sir?
A. I don't remember. It's -- I just don't remember.
Q. There's a lot of documents in the case. I understand, sir. You've got the binder, but we're going to try to make this easier for you and I on the screen.
A. We probably share eyes that don't work as well as they used to.
Q. Okay. And so this is a document where Google compares

itself to Bing. You can see the title. So that's a giveaway; right?

A. Yeah, this looks like a document of a comparison between Google and Bing.

Q. And if we go to the fourth page, Bates 593, and we're going to bring it up so it's easier to see.

And do you see the heading "Bing is faster in part due to our server-side latency increasing since Q3 2106"? Do you see that?

A. I do.

Q. So this would be an example where Google is comparing itself to Bing not on search share but on another avenue, latency; right?

A. Correct.

Q. Okay. And we will agree that latency is one way that Google and Bing compete against each other; right?

A. It's one way that -- yes, I think Google and Bing and many others, most websites compete on this basis.

Q. Okay. And have you seen any documents comparing Google to SVPs on latency?

A. There are lots of documents that compare Google to Amazon and other SVPs on lots of dimensions. Whether latency is one or not, I don't remember.

Q. Okay. No further questions on that document, sir.

Let's go to UPXD063. That's not in a binder. It's just

going to be a slide, although we're happy to pass them out.

May I approach, Your Honor?

THE COURT: Sure.

BY MR. DINTZER:

Q. Just to make it easier to see, sir.

And so are you familiar -- you're welcome to look through this. I know that you've been following the trial. Are you familiar with the testimony -- all the testimony that we see on this slide?

A. Generally, yes. I've read some of this more completely than others.

Q. And so we have had testimony, like from Mr. Higgins:

"Question: During your time in device marketing, has Verizon ever set a vertical search provider as the default search engine on a device?

"Answer: I'm not aware of that happening."

Mr. Weinberg:

"Question: And who does DuckDuckGo consider to be its search engine competitors?

"Answer: Really, most of our users switch to Google, so like far and away."

Mr. Tinter from Microsoft:

"Question: And thinking about the market today, who are Bing's search competitors?

"Answer: Candidly, when we talk about competition, it's

one company, it's Google."

Do you see that?

A. I do.

Q. Okay. So there was significant testimony at trial about people viewing Bing and Google and DuckDuckGo, participants in the general search market, as competitors; right?

A. I certainly agree they are competitors.

Q. Okay. And Mr. Weinberg and Mr. Tinter, they didn't identify Amazon as a search competitor?

A. Not in these answers, no. They seem to be focused here on Google.

Q. Okay. No further questions on that document.

Sir, Android -- and I know that you're not doing the conduct part of the case. So -- you are familiar roughly with the RSAs; right?

A. Yes.

Q. Okay. Android RSAs in the United States, they put restrictions on counterparties, whether they're OEMs or carriers; right?

A. Generally, that sounds right.

Q. Okay. And in the U.S., they prevent the pre-installation of, quote, alternative search services.

Are you aware of that?

A. Generally, yes.

Q. Okay. And this prohibits the pre-installation of other

general search engines like Bing that are close substitutes to Google; right?

A. Yeah, I think that's fair.

Q. Okay. The RSAs do not prohibit the pre-installation of specialized verticals like Amazon or Yelp; right?

A. That's my understanding.

Q. Right. It also does not prohibit the pre-installation of social networks, like Facebook and Instagram or TikTok; right?

A. That's also my understanding.

Q. So when Google was designing the RSA to ensure -- to protect its defaults, to get its defaults, it contractually prohibited Bing apps. but not Amazon or TikTok; right?

A. I don't think that's a complete description of how the RSAs are designed or why. I agree with your characterization of what's in them, but I don't think -- I think you give a very narrow description of what the RSAs have to accomplish.

Q. Okay. And that's fair, and that's really a conversation that I'm going to have to have with Professor Murphy. So I'm not trying to shoehorn you into the why. It's really the what.

Google said to the OEMs and to the carriers in the agreements it's okay for you to put -- we're not going to prohibit you from putting TikTok and Amazon and Facebook, we're not going to prohibit you from putting those on the devices; right?

A. That's what they say.

Q. Right. But they do prohibit and cite exclusivity regarding general search engines?

A. Yes. I mean, I have views on the why, but those aren't opinions I'm offering.

Q. And that will save both of us time. Like I said, this is a conversation we're going to have to have with Dr. Murphy.

A. Okay.

Q. Now, if I decide I don't want to use Google Search anymore, look, for whatever reason I don't want to use it anymore, maybe because I don't like their privacy policy, what's my next best option?

A. It depends on the search.

Q. Okay. And so in trying to figure it out, are you saying that if I give up Google, every time I make a search I'm going to have to say okay, where am I going to put this? There's not some other search engine out there that kind of does the same thing as Google and that I might go to instead?

A. To me, those are two different questions.

As I said clearly in my testimony, my view of common sense, I think, and the evidence is that every time a user makes a search now, they decide where to put it. So if I wasn't going to use Google anymore, when I shop, I would always start on Amazon, even if sometimes today I start on Google.

The answer would be different if I was looking -- if I was looking up presidents, I would probably start on Wikipedia. But

I think users make a decision search by search, and if they said never Google, then they would decide what to use minus Google in the consideration set.

Q. I'm writing down what you're saying, because we're going to talk about it. I may not be word for word, but every time a user does a search, they decide where to put it.

Is that roughly what you just said?

A. Yeah, there's a decision each time I query something.

Q. Right. If that was the case, then defaults would have no value at all; right? Because if every single time I said to myself where am I going to put this one, then the value of a default would be zero, because I would be, you know, every single time making that decision; right?

A. I don't see how those follow. There's been lots of testimony about the value of defaults, which is basically this sort of -- Professor Whinston even said it gives you a convenient position.

So I'm not denying that having a convenient position or a convenient app. might affect the decision each time you search. I'm just saying each time I search, at least, I think about is Google a good place for this, or am I going to find it better somewhere else.

Q. So let's go to UPX0811, which is in evidence. And there's a cover, and then there's a -- and you can tell me if you've seen it. I'm really going to be asking about the deck. So we

can go to the next -- to the first page of the deck, please, "private searching on Google."

Have you seen this?

A. I'm not recalling this one, although this is only the cover page. So --

Q. Okay. And the cover kind of gives you a tip-off about what we're going to be talking about.

This is prepared in June 2019. Do you see that?

A. I do.

Q. Okay. And so we're going to go to -- and I'll just spill the beans. This is a Google document considering a privacy mode. Okay?

A. Okay.

Q. We're going to go to page -- Bates 4416, page 16 of the deck. So this is not going to be on the slide for confidentiality reasons, but you should have it in your binder. Just let me know when you've got it.

A. Sorry. I was just using the screen.

Q. I understand, and we would like to do that, but --

A. Just remind me of the tab number.

Q. Yes, sir. It's UPX811. That's the UPX. And the Bates number that you're looking for is -- it's the seventh page, 4407.

A. I haven't even found 811.

Q. Just let me know when you're there.

A. UPX811?
Q. Yes, sir.
A. There it is. Sorry to be slow.
Q. Sorry we can't share it with you on the screen.
A. And tell me the Bates again.
Q. Okay. So then in that, you're going to go to 4416.
A. Okay.
Q. Okay. And so this is a Google document considering privacy, and Google is comparing itself to other general search engines with privacy features.

Do you see that?

A. I can barely see the page.
Q. I'm sorry we can't blow it up. Okay.

At the top, you will see Google. Do you see the really small duck? Do you see a Q for Qwant? Do you know what Qwant is?

A. I actually don't.
Q. Okay. Well, let me put it this way: In comparing itself on privacy, do you see any reference at the top to Amazon or Facebook?
A. I don't see Amazon or Facebook on this page. It's a very long document that I don't recall.
Q. Okay. No further questions on it.

Let me ask you this: Have you seen any document maybe that you can cite to the Court where Google compares itself on

privacy to something other than a general search engine?
A. I'm not recalling any. As I said, I haven't focused on privacy, per se. So I just -- I don't recall.
Q. But you agree that privacy is one of the ways, I think you said this yesterday, that general search engines compete; right? I mean, that's one of the axes of competition?
A. I think I said it seemed like a dimension of quality, but also not one that I focused on on its own terms.
Q. And that's fine. I'm not going to go deep on privacy.
Privacy is a dimension of quality, and quality is one of the ways that general search engines compete; right?
A. I mean, I think it's very much a way that all these platforms -- you know, all these platforms are worried about it. Certainly, it's been an issue for social media sites, for SVPs. Privacy has been an issue they have all focused on.
Q. They all have, including the general search engines; right?
A. That sounds right, yes.
Q. Okay. Now, you've seen evidence -- we're going to turn to Apple.
You've seen evidence that Apple has considered roles it could play as a general search engine and whether it could enter the market; is that right?
A. Generally, yes.
Q. Google has considered Apple as a potential entrant that Google has to worry about; is that right?

A. At that level, that sounds correct.
Q. And Apple has considered entry; right?
A. I mean, I guess Apple's testimony will speak better than me characterizing it exactly that way.
Considered entry? I've certainly seen testimony that Apple has investigated general search and has said it felt that it could enter if it desired to.
Q. Okay. And your idea about queries, we know that Apple answers some queries. So at least in your theory, Apple is already in competition with Google to answer any general query; right?
A. Well, I'm not sure I follow that form of the question.
Q. We can pull up an Apple home page. But I'm guessing -- I actually haven't looked, but I'm guessing that somewhere on that page --
A. Oh.
Q. -- there's going to be a -- just let me finish. There's going to be a box that can do a search; right?
A. Sorry. I wasn't trying to cut you off. I just said "oh."
Q. So if we turn to the Apple home page -- I will confess I haven't looked at it -- we can assume somewhere in that there's going to be a box that can do a search; right?
A. Apple in that sense -- that's why I said "oh," because I was realizing you meant Apple, like on their product page. Apple is a retailer basically that has a search page -- or a

search bar where you can search for products.
Q. So in that sense, they're already in competition with Google to answer queries; right?
A. I think I said -- it wasn't one that I featured or said is one of the strongest or biggest competitors in this sense, but I mentioned that retailers generally are places you can go and do some of these queries.
Q. Okay. And when Apple -- you used the word "redirects." When Apple is on Safari and redirects a query that it handles itself, it's in competition with Google? It's a query that Google doesn't get; right?
A. And I'm just thinking that one through.
I think the word I used was "intercepts." When Apple intercepts a query that doesn't go to Google, yeah, that's a query that Google doesn't get.
Again, Mr. Giannandrea's testimony will be sharpest on that, but I think that was his characterization, too. Apple wants to get those queries, and those queries don't go to the GSE.
Q. Okay. So when Apple intercepts queries from Safari, it's competing with Google?
A. I think that's a form of competition, yes.
Q. Okay. And just so we're clear, that's the Apple suggestions that I think has been discussed at trial; right?
A. I think it included Spotlight and Safari and things. I

think the general testimony was for things that you enter, Apple tries to answer itself when it can.

Again, the testimony will speak better than my memory.

Q. Okay. But you do understand that on Safari, Apple offers a service called "suggestions"; right?

A. That may be. I don't remember.

Q. Okay. Do you understand that Apple has its own index and crawls and its own data to answer questions?

A. Yes. I think some of these intercepts we're talking about, or a lot of them, was Apple's Knowledge Graph, maybe they call it, where they try to collect whatever information they can and answer a lot of things themselves.

Q. And Google has reacted to Apple's possible entry; right?

A. At that level, that sounds right.

Q. Okay. In Apple's distribution contract, which we're not going to get to the exact price, but it's priced in the billions? You're aware of that?

A. And I think of it as a revenue share that results in billions of dollars of revenue.

Q. Okay. And Apple's contract with Google affects Apple's decision regarding entry; right? It must.

THE COURT: Sorry. Can you repeat the question?

MR. DINTZER: Of course, Your Honor.

BY MR. DINTZER:

Q. Apple's contract with Google affects -- let me make it even

clearer.

Apple's ISA, where it revenue shares from Google, affects Apple's decision regarding Apple's entry; right?

MR. SOMMER: Objection to form, Your Honor.

THE COURT: I will sustain it insofar as -- are you asking him what Apple actually is -- its motivation is or his opinion about --

MR. DINTZER: The economics of it, Your Honor.

THE COURT: Okay. He can answer the question to the extent that --

MR. SOMMER: It's certainly beyond the scope of his testimony and his report.

THE COURT: Well, I don't think it's beyond the scope of his direct testimony. I think he can answer the question to the extent he has a view about the economics of it, but not a view about the evidence as to what Apple's motivations, in fact, are or are not.

MR. DINTZER: Thank you, Your Honor.

BY MR. DINTZER:

Q. Do you need the question again, sir?

A. Yes, please.

Q. Okay. Apple's contract, the ISA, with Google affects Apple's decision regarding entry into the general search engine market?

A. I struggle with it in that form. I mean, Apple is a firm,

like many firms, making what I would call a make-versus-buy decision about how to handle search. And the ability of a buyer to make a make-versus-buy decision affects the terms that they get from providers. It puts competitive pressure on Google.

And so I think those terms that they get ultimately, you know, Apple weighs its options as a matter of economics. But I would describe it as Apple having an option to make it itself affects the terms. It's sort of reverse cause and effect in the way you asked the question.

Q. Okay. And you gave me a long answer that I'm having trouble parsing. So I'm going to ask you a very simple question.

The contractual terms between Google and Apple affect Apple's decisions regarding entry; right?

MR. SOMMER: Objection; asked and answered. That's the exact same question he just answered.

THE COURT: I'll allow him to answer it one more time.

BY MR. DINTZER:

Q. It's a very simple question, sir.

A. I think the terms it gets are an outcome of competition, and ultimately, Apple got terms from Google that it accepted, and that influences the decision that it makes.

Q. Including the decision to enter?

A. Yeah, I think the make-versus-buy decision puts competitive pressure on Google, leads to terms that led Google to choose to

buy, not make.

Q. Now, I understand we're going to disagree --

THE COURT: Sorry. You mean Apple to buy, not make; right?

THE WITNESS: Yes.

BY MR. DINTZER:

Q. If -- I understand we're going to disagree about whether Google is a monopolist. So this is framed as a hypothetical.

If hypothetically Google was a monopolist, it would still have an interest in paying Apple on the ISA to keep it out of the market; right?

A. Sorry. I'm just struggling with "monopolist" there. I link that to monopoly power, which I assume means there are barriers to entry. So if Apple is a credible threat to enter such that it had to be paid a lot of money not to, then I think that fact alone means there's not monopoly power.

Q. So if -- I'm going to try again, and I will use "monopoly power" now.

If hypothetically Google had monopoly power and Apple was a potential entrant that it could enter, Google would have a financial incentive to pay Apple not to enter; right?

A. And again, I'm struggling, because to pay it a lot of money indicates that it takes that threat seriously. Right?

And the second factor we look at in monopoly power is barriers to entry. So the fact of a lot of -- if you're saying

there's a lot of payment to Apple because Apple is seen as a credible threat, I think that argues against monopoly power on its own.

Q. Because there's one possible entrant?

A. I mean, it's Apple, and if there's a large payment to them that under your hypothetical is predicated on the threat that they will enter, that factor on its own argues against monopoly power. It's not the end of the inquiry, but it argues against monopoly power.

Q. Now, in your report, you wrote, "Because any search engine is just a few keystrokes away on any desktop or a swipe away on any mobile device and because searches of different types often occur in different visits, such time costs are minimum."

I'm happy to show you your report if you would like to see that.

A. That sounds right.

Q. Okay. So you're saying that the costs of maneuvering between different search engines, whether it's clicking or -- clicking or swiping are minimal to get from one search engine to another; is that right?

A. I think that's right. Not nonexistent, but in the range of switching costs we see in cases, quite low.

Q. Okay. So let's look at UPXD065, and that will be on the screen, sir, and I will hand it out, too, just to make sure.

May I approach, Your Honor.

Do you have that, sir?
A. I do.
Q. Okay. So this is a Google Search of hiking boots.
Do you see that?
A. Yes.
Q. And so if I'm already in a browser, if I put my search term into the top, it's immediately served. I don't have to go anywhere. Right?
A. If you're inside a browser and you put your search term in the bar, yes.
Q. Okay. And so there will be some amount of time to get anyplace else, to any other place to search if I'm already in the browser.
We'll agree on that; right?
A. If you wanted to go to Zappos, you would have to put Zappos in the browser and then click. So there would be one extra step in this example.
Q. Well, let's be clear. If I put -- if I put -- if I wanted to go to Amazon, I wanted to use the app., I would have to close the browser and open up the app.
It would be at least a couple of functions there; right?
A. If I'm on a phone and I'm in any one app., whichever app. it is, I have to click on the other app.
Q. Okay. So there's some switching costs?
A. In either direction in that case, yes.

Q. Okay. But if --
A. At minimal, as I said before, but in either direction, there would be one step to click on the other app.
Q. Okay. Now, the sponsored options -- if we can please bring them up, the sponsored options, those are PLAs; right?
A. Those are examples of -- what you're showing me now is an example of a PLA.
Q. Okay. And so those include from Adidas, North Face, Palladium; right?
A. That's what's up here, yes.
Q. Okay. And if we look down below the PLAs, we see one of the blue links for REI; right?
We're going to make it bigger. This is a lot of things, but it is not a sight test.
So we have REI. Do you see that?
A. I do.
Q. Are you familiar with REI?
A. Yes.
Q. And then we have Switchback Travel. That's a website.
Do you see that?
A. I do.
Q. Those are both blue links; right?
A. They are.
Q. Okay. Now, to find out that all these websites, the three PLAs -- and there's more, of course -- and the two blue links,

to find out that all these websites had information about hiking boots would take a number of clicks; right? I'd have to visit a number of different sites?

A. I mean, it depends how you go about it. So I'm not sure I follow.

Q. Okay. On this one general search engine, I found out that I could get -- at least there's some information about hiking books from Adidas, North Face, Palladium, REI, Switchback Travel, and -- right? I mean, there's more, but we'll start with those five. Right? There's some information about all five of them; right?

A. Yes, there's some information about that set of websites.

Q. Okay. And if I wanted to get information, this same information that's on this general search engine, I would have to visit five websites?

A. I don't know what you mean by "have to." Are you asking me are there alternative ways to get this information?

Q. For these five, the specific information that I now have in front of all of us, I would have to visit multiple websites?

A. I mean, even here, I would have to visit the websites to figure out more details, but if I want a list of places that sell shoes, there are a few ways that I could do that.

Q. Right. And we'll get to that. But that's really not my question.

My question is, one of the benefits of a general search

engine is that I can get some information about a lot of different websites in one place so that it can help me make a decision about where I want to go.

So if I wanted to get the same information that Adidas has the Terrex, that North Face has the men's Vectiv, that Palladium has boots, that REI has boots, if I wanted to get all that information, that would take multiple websites; right?

A. Again, I'm not following the "would take." GSEs are one way to get information about multiple websites in one place. Lately, I found a very nice way to do it is to ask ChatGPT.

So there are different ways to do it. GSEs are one way to do it.

Q. And -- but does ChatGPT give you a SERP?

A. It gives you a list of websites. I mean, it depends on what you ask it. But lately, I found if you ask it where do I find shoes or flights, it gives me a nice list of places to go.

Q. Okay. And for this web page, for this information, specific information that I'm seeing here -- first of all, Google provided me the information that it thinks is the most responsive to the term "hiking boot"? We can agree on that; right?

A. Right. According to its ranking algorithms, that's what it determined.

Q. So if it got it right, so this is the world of good places to look, it would take multiple visits for different websites to

get this information? Yes or no.
A. I mean, that -- I guess going to other websites would be another way to do it, and I agree if you did it that way, you would have to make multiple clicks. GSEs -- for this sort of information, GSEs can do it. I think it's a nice -- it's a good use of these new AI tools. But those are the ways you could do it, maybe the app. store, depending on what you're trying to do.
But I agree, if you're trying to find a list of websites, there's a set of tools that can do that, and GSEs are certainly a good one.
Q. One of the things that GSEs do well is they give us a list of websites that have relevant information?
A. I think that's fair.
Q. Okay. And is ChatGPT -- do you know how often they refresh ChatGPT?
A. I think it depends on the service that you get. But I think the basic one that you have is the information is a year old or something.
Q. Okay. So if I'm looking for maybe something a little more up-to-date than a year old, ChatGPT would not be an option to get this type of information?
A. As the simplest form of ChatGPT stands now, that's correct.
Q. Okay. And you will agree that the information Google has given me is as current as they can make it, up to the minute, hour, something?

A. I mean, yeah, they're crawling the web. So it's current.
Q. Now, you have not done any analysis regarding how much more time it would take people to reconstruct this information that we see here, this type of information, by going SVP to SVP to gather it up?

You haven't sort of said, look -- because in your report, you say that such time costs to bounce around and find this information, you say, are minimal. But there's no analysis there to show how you've accumulated information to get to minimal.

So is there any analysis where you said, look, if we gathered the information and recreate what is on a SERP, a general search engine SERP, it would take this amount of time?
A. I haven't added it up for a particular search. I mean, my point was simply, if I wanted to buy these -- if I wanted to get a good list of shoes from a variety of vendors, I can go to Zappos, and that would be minimal cost.
Q. Right. And that would give you some information.

It wouldn't give you REI, though, would it?
A. It wouldn't give me the exact same list.
Q. But let's be specific.
A. If I wanted REI -- for REI in particular, I would just go to REI. But if I wanted -- if I know that I want a set of shoes, I could go to Zappos, and that would be minimal cost.
Q. That would. That would give you a set of shoes. But what

Google gives you is more information about a variety of vendors.

So REI-specific, that would be one piece of information that if you went to Zappos you would be missing out on, even though Google thinks that's the best response; right?

A. I mean, the response at the top are a list of shoes, and then it thinks the best -- it gives you the best place to go is REI.

Q. Okay. And that wouldn't come up if you went to Zappos. I need you to clarify that.

A. I don't know, as I sit here, if Zappos sells the REI brand or not.

Q. Okay. So you talked about one-stop shopping in your direct.

Do you remember that?

A. Yes.

Q. And you agree that one advantage a general search engine has over verticals is that it can handle virtually any type of query; right?

A. I don't know that I would call that an advantage. It's a fact.

Q. Okay. Well, browsers think it's an advantage because that's why they want them; right?

A. Right. So browsers -- we talked about this. Browsers need a backstop. So if browsers have a choice, they're giving users a Swiss army knife. But users who want to cut something don't

necessarily think the Swiss army knife is better.

Q. Okay. So let's go to slide 25 in your set.

A. I may be over-bindered now.

Q. And we may have more. If you need a hand at any time, sir, please let us know.

And just let me know when you're at slide 25, sir. And we also have it on the screen for you.

A. Oh, okay.

Q. To be clear, these are sessions, not queries; is that right?

A. These are visits.

Q. Visits. So you're comparing the number of visits, but you're definitely not counting queries, just to be clear?

A. Well, I am giving information on the number of queries per visit. That's in the text box.

Q. Right.

A. But the unit of observation is a visit, and then I'm giving various facts about visits.

Q. Okay. And so let's say I wanted to run a search about the next Nationals baseball game, which of course now won't be until next year, but maybe I want to buy ahead.

A general search engine can handle that query; right? We can agree on that?

A. As I understand it, the query is "who do they play next" or something?

Q. Sure, or just "Nationals baseball game."
A. A general search engine would give you responses to that query.
Q. Okay. And remind me -- you say at the bottom, it says, "User action separated by five minutes of inactivity"; right?
A. Yes.
Q. And just so we're clear, is inactivity, if I go and maybe I spend six minutes on the Nationals ticket site, which may take me to Ticketmaster, Nationals ticket site, and I take six minutes to buy those tickets, does that mean that we're resetting the clock on your exhibit?
A. This is Google's ordinary course definition. So I believe if you're not engaged with Google in some form for five minutes, that would be seen as another visit to Google after that.
Q. Okay. So I go to the Nationals website, and I spend six minutes, and I buy my tickets. And then I go back to the browser at the top, the URL, and I hit a new query, because it's been six minutes, this thing counts that as a whole new visit; right?
A. Right. It would see it as a separate engagement with whatever you choose to do next.
Q. So it would take us all the way back to 1; right?
A. It would -- I don't what you mean by "all the way back to 1." It would restart another visit.
Q. But what you're showing, the 1, 2, 3, 4, you're showing the

number of queries, right, in a certain amount of time?
A. This is the number of verticals reached in a single visit.
Q. The number of verticals reached in a single visit?
A. For the percent. One would say whatever this percentage is, I won't say the number, a visit has that many verticals or -- yeah.
Q. Okay. And I put it in a different way. Let me try putting it this way: The visit starts -- we start out fresh, and the visit starts, and if I go -- according to you, if I go Amazon and then within five minutes I do healthcare, then I get two within that visit; right?
A. Yeah, so if I interact with Google to go look at Amazon and then a healthcare within Google in that visit, that's two verticals.
Q. Okay. And so that would take me to the number 2 here; correct?
A. Correct.
Q. I wanted to make sure we understand.
So if I go to Google and I go to Amazon and I spend six minutes and then I go back to Google and I go to healthcare, that counts as two one-query visits; right?
A. Correct. Those are separate -- the way Google is identifying this, those are two interactions with Google. They're separate visits; they're separate interactions.
Q. So if I'm interacting with whatever the places that I go to

are for any amount of time, it will -- according to this approach, it will de-aggregate how many verticals I'm visiting, I'm actually going to, because what -- the visit length is only five minutes; right?

A. Well, the break has to be five minutes.

Q. Okay.

A. So the ordinary course logic of Google that I agree with and am using is that if there's five minutes in between the interaction, the next time you go to Google, you know, you're having a separate interaction with it.

And I take it if you did Amazon, went away for five minutes, and later you're going to go to healthcare, my point is that there's a separate decision when you go to healthcare where you get that information. And you could go back to Google, or you could go straight to WebMD, or you could go to an app. on your phone. But it's a separate decision you make some period of time later.

Q. Well, you're saying I went away. I didn't really go away.

Let's go back to 25, because what you're doing is you're drawing a conclusion from how big the number 1 bar is; right? You say that most people are only going for a single topic.

But if I go onto Google and I get my -- and I put "Nationals baseball" and I get my tickets and then I go back to the URL without going anyplace else and I want to check out the weather for the game in two days and then I futz around with

the weather website because maybe there's a hurricane and I get interested in something for six minutes and then I go back to the URL and I want to find a good place to eat near the ballpark, in reality, I've used the Google search engine repeatedly to find different things in what you call different verticals, but -- and you're breaking that up so that they all become 1.

But in the way that I experience that as a typical GSE user, I've just sat there at my computer and made a series of searches and interacted with the product at the end of the searches.

MR. SOMMER: Objection to the form.

MR. DINTZER: That may be a bit long, sir.

MR. SOMMER: Is there a question?

MR. DINTZER: That's entirely fair. Let me try to shorten that one. I was on a roll, Your Honor. I apologize. Let me simplify it.

BY MR. DINTZER:

Q. You're drawing a conclusion from the big 1 model, that people are not using a Swiss army knife, that they're just using a knife; right? You're making a conclusion from that.

A. I'm making a conclusion from the way they're interacting across different visits.

Q. Okay.

A. I mean, I can respond to your earlier question if you want

me to.

Q. We got an objection. So I -- the key here is the definition of a visit. If we change that number from five minutes to in 30 minutes, then one would go down, and the others would go up; right?

A. You would be requiring a 30-minute break between them. So this is Google's ordinary course definition, which is why I use it. But if it required a 30-minute break, then you could have places in between them where there was a ten-minute break and somebody comes back and you would count that as one interaction.

I intentionally stuck with Google's ordinary course definition to get at this idea. Implicit in your earlier question was each time you go back to the URL, which first of all is a very PC and not mobile concept, but second of all, it was a decision.

I tend to think in this case in terms of the phone. So if I'm on Google and then I go to Amazon for five minutes and then I choose what to do next, and that may be go back to Google or it may be do something else, but it's a separate decision.

Q. So I think you answered my visit question. If the visit was defined to be a longer period of time, the 1 bar on slide 25 would go down, and the others would go up?

A. I think you would be aggregating together what Google considers to be separate visits. So by aggregating, you would have that effect.

Q. Okay. And if it turns out that the way people search is that they don't -- they actually spend time on the places that they've searched before they go back to the Safari browser on their iPhone, if it turns out they do that more often, then it would make these other bars go up; correct?

A. I don't think the bars would change unless we changed the definition of a visit.

Q. You haven't done the analysis -- that's fair.

A. The bars wouldn't change unless we changed the definition of a visit.

THE COURT: I take the point. Why don't we move to the next topic.

MR. DINTZER: Okay. Thank you, Your Honor.

BY MR. DINTZER:

Q. And in your deposition, I asked you in which SVP I could search for the query "restaurant in Southwest D.C. with a red awning that sells biscuits."

Do you recall that?

MR. SOMMER: Page number, please.

MR. DINTZER: That's at 133 and 134.

MR. SOMMER: Thank you.

BY MR. DINTZER:

Q. Do you recall me asking that?

A. I didn't hear the question.

Q. I will repeat it. In your deposition, I asked you which

SVP I could search for the query "restaurant in Southwest D.C. with a red awning that sells biscuits."

A. I recall that. And I think I said Yelp.

Q. Okay. Have you actually looked at Yelp to see what kind of an answer they would give?

A. I have not.

Q. Okay. And so let's put that up on the screen.

And it says "no results for restaurants in Southwest D.C. with a red awning that sells biscuits."

So this would be a null response; right?

A. It appears to be for that particular query.

Q. Okay. And so if you don't know which SVP is the best option for your search, finding the best information could take many clicks; right?

A. Yeah, in general, if you don't know the best information to get you the best answers that you want, you might have to try more than one thing. I think that would include a GSE, too, because if you start to get into information like this, then GSEs often don't give you what you want.

Q. Can we agree that this search would probably give me some response on a GSE?

A. I'm sure it would put something up. This is only personal experience, but I find when it's specific to things like this, what I get from a GSE is not really getting me there.

Another option that I might use, thinking about it sitting

here, would be to go to Apple Maps. But my experience would be a query like this, to get something this specific would probably take some experimentation across different sources.

Q. And that would take time? You would have to drop yourself into various SVPs to get information; right?

A. Or GSEs. I don't know that you would get information from a GSE that would be this precise. You might for this query. You may have tried it. But when I'm trying to get something specific about what's on Sixth Street in D.C., a GSE doesn't always get me what I'm looking for either.

Q. But one of the problems with your vertical approach is that -- let me ask it a different way.

If I'm searching for information on SVPs and I don't know which SVP is the best one to answer it, unless I go to a GSE, I have to hunt and peck amongst SVPs; right? Those are the two options?

A. If I don't know the best source, I may have to try various ones. I'm just saying, I don't think, for a query like this, I have any sense that a GSE is necessarily the best source.

I take your point that if I don't know, I have to look, and in some cases, it might be a GSE. In other cases, I'm quite sure it's Maps or Amazon. But if I don't know, then I have to figure it out.

Q. Okay. And there's a cost to that?

A. In cases where I'm not sure who is going to give me the

best information, there's a cost to searching.
Q. Okay. So in the deposition, I asked you about if I wanted to change the oil of a 1960s Ford Mustang, what website I would go to.
A. I think you asked me about a particular year that somebody told me didn't exist.
Q. It turns out that -- I said '63.
A. Afterwards, I was criticized for not knowing there was no such thing.
Q. It turns out that '65 was the first product year. So I got that one wrong.
But do you remember the answer that you gave me?
A. I don't remember. Maybe -- I don't remember.
Q. Okay. Cars.com. And they sell cars. They don't have any information about that. Both general search engines, Bing and Google, do have information about it. Okay?
Can we pull up UPXD067 -- I'm sorry, 068. Okay.
Okay. So these are both general search engines that have the query put into the top. And both of them have blue links for something called cjponyparts.com. Okay? It turns out that that's a website that has information about how to change your classic Mustang's oil.
Do you see that?
A. Not really. The screen is very blurry.
Q. Okay. I can hand it out. I don't know that that's going

to be any better.

May I approach, Your Honor?

THE COURT: Sure.

THE WITNESS: Yeah, just the screen is blurry.

BY MR. DINTZER:

Q. So you see that the first blue link is to cjponyparts.com?

A. I do.

Q. You didn't know about the website. I didn't know about the website. But this website actually has information about how to change your classic Mustang's oil.

Do you see that?

A. I mean, I don't know what's on the -- it looks like they have some information here about that, yeah.

Q. Okay. One of the benefits of a general search engine is that it can answer a query, even if I don't know -- even if I have no idea which SVP might have information; right?

So you talked about hunting and pecking and looking around. But this is one that unless you knew to hunt down cjponyparts, this is one none of us would have thought to look at without a general search engine.

A. I wouldn't know. I'm not a car guy at all. But I agree that if you have no idea where to look, you could type into a GSE and it may give you an answer.

Q. Okay. And so -- and the other part of my question, if you have no idea where to look, if you don't use a GSE, what's your

other option?
A. Again, I think generative AI tools are becoming another option for this. I take the point, and I agree, that there are cases where people search on GSEs. I think the bigger point I was making is if you're a car person or the first time you learn about this site, if this is an SVP that has a lot of car queries, you could use it forevermore.

There are cases where the first search in a session or the first search of your life is on a GSE. Then you learn about SVPs, and then you use them. Especially in a mobile setting, what happens to me usually is the first search I do is on a GSE. The second search is on the app. store. And the third search is on the particular app.

Q. Okay. And you know what a nav query is; right?
A. Yes.
Q. What's a nav query?
A. It's a query where you're seeking to go to another site.
Q. Okay. And so a lot of people, a lot of people use a GSE to navigate, for nav purposes; right?
A. You mentioned putting it at the top. A lot of people use a GSE with the bar at the top. And a nav query is basically just whether do you type dot-com or do you let the search engine do it.
Q. Right. But if you don't put the dot-com or maybe you don't know the exact -- it's cjponyparts, and you can't remember

exactly if there's a space or a dot, so you just type "cjponyparts," that's a nav search; right?

A. That would be a query designed to take you to another site, right.

Q. So along with the people who are intentionally searching for things on Google, there are people who use Google to navigate around the Internet based on nav queries; right?

A. Yeah, for sure. We talked about navigation queries. I talked about them in the report. I mean, I think of them as another vertical where the competition probably is largely the bar itself or on a mobile phone often is the app. store.

But yeah, that's one use of a general search engine, is as this vehicle to take me to other sites.

Q. Okay. And another -- sometimes people are just wrong; right? They say, oh, I want this information, but they're wrong about the information, and so they can't find the right website; right?

I will give you an example that was actually raised in testimony by Dr. Nayak. He said -- and we can pull it up. It's UPXD98. But he offered the example of, if you wanted to know more about the TV show Survivor and you typed in NBC Survivor, the problem is that you're wrong about where it is. So if you went to the NBC website to search, you would be wrong.

And so we were talking about when you don't know where to search, but this is another example. If you're just wrong about

some of the information, one of the things -- and Mr. Nayak goes into detail about the fact that they can do this -- is that the general search engine can find you information even when you're wrong about it; right?

A. Yeah, there certainly are occasions where a GSE gives you information where you mistyped the query.

Q. Mistyped, but also, if you said "the Eiffel Tower in London," you could be looking at London Guides for a long time and not finding the Eiffel Tower. But if you go to a general search engine, they're going to clean that up for you and take you to it; right?

A. Yeah, I agree there certainly are cases where the GSE gets you there. These are examples of how it helps you navigate somewhere.

Just to be clear, I don't ever want to say these GSE services would go all the way to zero. My point is just when there are SVPs out there, once you find the right one, then it gets the rest of the queries, and that's competition.

Q. So let's talk about air fryers, UPXD070. So I put in a query "air fryer recipes" into Google and Bing. And they both -- let's wait until we have it.

May I approach, Your Honor.

We put "air fryer recipes" into Google and Bing.

Do you see that?

A. I do.

Q. And they both show allrecipes.com as a good choice.

Do you see that? We've got a green box on the screen for help.

A. I do.

Q. Okay. So both those major search engines thought allrecipes.com would be a good place to go for my air fryer recipes.

Do you see that?

A. I do.

Q. Okay. Now, when I asked you about air fryer recipes in the depo, you said food.com would be a good option.

A. Yeah, I'm not a cook. That was one that I thought of on the fly.

Q. Of course. And so neither Google nor Bing listed food.com. It's not that they don't have recipes there, but neither of them thought that was the best choice.

Do you see that?

A. It wasn't Google or Bing's top choice.

Q. Okay. And so one of the other things that Google and Bing do, besides just providing links, is they curate the list. So they both think that the best choice, not just a choice but the best choice is all foods, and for somebody who is not really into food, which I understand, is they may not know what the best choice is. They might go to food.com or some other place, and they might get a recipe.

But one of the things that a general search engine provides is what they think is the best choice of the place to go; right?

A. There's no doubt that a GSE, we talked about this, has an algorithm for putting what's first.

I think most cooks, I know many have places they go for this sort of thing. So they have their own best choice. That's really an SVP that gets a lot of queries. But Google and Bing have their algorithm that gives you their top choice.

Q. Right.

And I know we're at the break. I think I can do this in two questions, Your Honor.

The point I'm making, sir, is that one of the things that a general search engine brings to it is sifting through SVPs and not just listing any, but based on the algorithm and their machine learning, everything that they do, providing what might be, what they think is the best choice, something that if I needed to go do that on my own, I would have to flip through a lot of different choices; right?

A. I mean, they provide what they think is the best choice. In this case, I think in the food sense, there's a lot of SVPs that have their own views on the best place to get recipes. But I agree that GSEs tell you what they think is the best choice for any query that you enter.

Q. And it would take a lot of clicks for me to recreate that analysis so that I could find the best choice myself; right?

MR. SOMMER: Objection to the form.

THE WITNESS: Yeah, I don't think I could recreate --

THE COURT: I'm sorry. The objection is overruled.

THE WITNESS: I should listen to that first. Sorry.

I don't think I could recreate what Google and Bing do. If I'm a cook, I probably have my own best choice, and other sites probably give me other best choices. But I don't think I could recreate the Google and Bing algorithm.

MR. DINTZER: Okay. With that, we're ready for a break, Your Honor.

THE COURT: It's a little before 11:00. We will resume at 11:15. See everyone shortly.

(Recess taken from 10:59 a.m. to 11:17 a.m.)

BY MR. DINTZER:

Q. Sir, Google only has 20 percent commercial queries; right? I think we talked about that.

A. Roughly 20 percent of queries return ads.

Q. Okay. And then -- and some of those are plumbers and lawyers and real estate brokers and insurance; right?

A. That sounds correct.

Q. And Amazon wouldn't compete for any of those, right, plumbers, lawyers, real estate brokers, and insurance?

A. That sounds right for that list.

Q. Okay. So of that subset of the commercial queries, Amazon only competes, under your analysis, for a portion of what's left

over; right?
A. Amazon competes primarily for shopping queries.
Q. Okay. And that would be a subset of the 20 percent minus all those people who can't advertise on Amazon; right?
A. Those sound like two different questions. It would be -- the shopping queries are a subset of the commercial queries.
Q. So some number under 20 percent?
A. That sounds correct.
Q. Okay. Now let's go to slide 92 in your deck. Let me know when you're there, sir.
A. Okay.
Q. So as I understand it, this was based completely on Google's data; right?
A. I mean, this is Google panels data, but panels is not limited to use of Google.
Q. What is panels?
A. Panels is a sample of 10,000 or so U.S. users -- U.S. people. But it's not limited -- other than the fact that Google commissioned it, it's not Google data.
Q. Right. And it was a bad question.
Google owns this data. This is where the data comes from. They commission this, and it's their information?
A. This particular data is something Google has commissioned, yes.
Q. Okay. And so Google could have created this analysis

themselves, because it's their data?
A. That sounds right.
Q. Okay. There's no documents from Google that validate this analysis; right? You don't have any example where Google themselves have actually looked at this analysis or considered this analysis; right?
A. This is not based on a Google document. It's based on my analysis of the data.
Q. Okay. So you took the data from Google, and you came up with slide 92?
A. That's right.
Q. Okay. And then -- and the conclusion that you're drawing here is that people who use Google tend to use the blue bars more than the red bars; right?
A. There's more audience overlap. So from this particular picture, it would be within the same session. People who use Google show up more in the blue bars.
Q. Okay. And if I buy a car, we can agree that that would reduce my demand for a ride-sharing service like Uber or taking the bus, because now I have a car; right?
A. Yeah, I suppose. As an economist, I would say, is ownership of a car a substitute for a ride-sharing service? To some degree, yes.
Q. Okay. People who buy Toyotas, they visit the grocery store more often than they drive Hondas, right, because they own a

Toyota?
A. They visit the grocery store more often than they drive -- I guess it depends whether they also own a Honda.
Q. That's it. If a person only owns a Toyota, they go to the grocery store more than they drive a Honda, because they already have a car, the Toyota; right?
A. I mean, in general, that sounds right.
Q. Okay. But the Honda is still the closer competitor to the Toyota than the grocery store is? The fact that they visit the grocery store more often, as people who use Google do for Amazon, doesn't mean that the grocery store is a substitute for the Honda; it just means that their need for a car has already been satisfied; right?
A. If the question is about cars, then I think Toyota and Honda compete more than Toyota and grocery stores.
I've lost the connection to this case.
Q. Okay. So regularly using more than one general search engine is rare; right?
A. Yes.
Q. Okay. Even if other general search engines such as Bing were more popular, more muscular, whatever, you would expect people to primarily use only one general search engine; right?
A. I would expect relatively limited overlap between the general search engines.
Q. By contrast, it's very common for people to use both a

general search engine and Amazon; right?
A. Correct, because Amazon not only offers queries, it does a lot more.
Q. Okay. You can buy stuff on Amazon?
A. Correct.
Q. Okay. So if we go up to UPXD074, so it would not be uncommon for someone to do research on a general search engine for like a television and then -- and this is what Mr. Raghavan says -- do research on -- Prime members who in any way intend to shop on Amazon might come to Google and do a lot of research before they do that, so we will see that correlation.

Do you see that? He uses the word "correlation" between Google and Amazon.
A. I mean, I see what he says. The correlation he was describing I think was in response to a question about how much Amazon Prime users use Google. So I don't think it's a correlation. I mean, I don't think the correlation is quite the way you just said it, but I see him saying people may do research at Google and then buy at Amazon.
Q. Okay. No further questions on that slide, sir.

Because general search engines are free, search engines compete on quality and other features. I think we agreed on that; right?
A. They compete for users with whatever they compete with on things other than price.

Q. And quality is the most salient competitive variable for search, because nobody pays a price.

A. Yeah, I mean, I think we talked about this in my deposition, too. Economists have a tendency to describe the world as price and quality, and those are the two things. So when it's not competition on price, as an economist, we tend to say it's competition on quality.

But that -- the way economists talk about that, that kind of includes everything else.

Q. Have you -- are you familiar with Project Charlotte from Google?

A. I don't recall the name.

Q. Okay. Let's go to UPX344.

Have you seen this document, sir?

A. I don't recall it from the cover page.

Q. Okay. It's in evidence, and it's cited in Professor Whinston's report, and it's 2019.

Let's go to the second slide, bullet 1.

A. This continues to just be really blurry on my screen.

Q. Okay. We're going to get this --

A. Oh, okay. That's better. Thank you.

Q. Is that better?

At bullet 1, "We have found no evidence of short-term negative per-user revenue impact or a negative query volume impact or a meaningful shift in query volume of shoppy queries

away from Google resulting from the user becoming an online retail loyalty program member or being active on large online retailers."

Were you aware Google of that, sir, that Google had actually done research and concluded that people who spent a lot of time on Amazon did not harm them?

A. I don't recall the full study, if I've studied it. I would have to look at the full study to see what's being compared to what. So I can't agree from what you're showing me on the "does not harm them," but I see the statement.

Q. Okay. And you haven't looked at this, so you didn't take this into consideration in your analysis?

A. I don't recall the study. I tried to look at query competition as opposed to sort of the broader elements of what each of them do. But I'm not recalling the study.

Q. So let's go to slide 2. And the second bullet says, "In fact, engagement on large online retailers and querying on google.com are positively correlated."

You understand what "positively correlated" means; right?

A. I do.

Q. Okay. That means when one goes up, the other one goes up; right?

A. Yes.

Q. Okay. No further questions on that document, sir.

Let's go to PSX0562. Now, are you familiar with any study

on correlations between the use of Amazon app. and Google Search use?

A. Not that I'm recalling, no.

Q. Okay. So let's go to PSX0562. Let me know when you're there.

A. Oh, I was waiting on the screen.

Q. This is one we don't have prepped, sir. It's in the binder.

A. Give me the number again, then.

Q. Of course. PSX0562.

THE COURT: I don't think it's in the binder.

THE WITNESS: I see it. It's the second tab in mine.

THE COURT: PSX -- okay. I'm sorry.

BY MR. DINTZER:

Q. And there's some confidentiality limits on this one. So we're going to be careful here.

Do you see the title here? It's dated 2020. Do you see that?

A. Yes.

MR. DINTZER: Your Honor, this is a Google document. We're going to offer it. It's not in evidence yet.

MR. SOMMER: No objection.

THE COURT: It will be admitted.

(Exhibit PSX0562 received into evidence.)

BY MR. DINTZER:

Q. Okay. And do you see that the general tenor of this is regarding Amazon app. usage and Google? Do you see that?
A. I do.
Q. And are you familiar with that document?
A. I think I've seen this.
Q. Okay. Let's go to Bates number 966.
Do you see the heading on 966 regarding app. users?
A. I do.
Q. And then the first sentence below that, "as expected," do you see that?
A. I do.
Q. And so -- and then the second box -- the second statement regarding correlation, do you see that?
A. I do.
Q. So the first thing we saw was about just general --
THE COURT: Is there any particular reason we can't read -- not looking at the numbers, but the --
MR. DINTZER: Thank you. We were working with them. So this is probably more us than them.
BY MR. DINTZER:
Q. The first one says, "As expected, Amazon users are also more likely to be regular and frequent Google users"; right?
A. Yes.
Q. You don't have any reason to doubt that; right?
A. That is consistent with what I've been describing.

Q. Okay. And the second one is, "There is a slight correlation of higher Amazon app. use to higher google.com frequency."

Do you see that?

A. I do.

Q. And it says, "But in general, all Amazon app. users see higher google.com usage."

A. I see that.

Q. You don't have any reason to doubt that either, do you?

A. Again, I would think people who are shopping and buying things more are running more queries in general. So my point is never that Amazon shopping competes with queries. It's that who gets the queries is the competition.

Q. So let's go to 976. This is page 15 in the document.

THE COURT: Can I ask a question? Is it -- your definition, and I don't know whether the numbers bear this out, but say there is a increase in Google usage by those who use Amazon, or let's say there's an increase in Google usage by those who also use the Amazon app.

Would you then consider them to be competitors?

THE WITNESS: I would for the queries. I mean, there's two things. And one is, I haven't fully looked at the study. So generally, people who use the Internet more are going to use both apps. more. But assuming it's that people who use the Amazon app. more that actually increases -- I'm sure that

they're buying more stuff. So it increases the queries.

So I don't think the query function at Google or Amazon is a competitor for the buying of the item. I think --

THE COURT: My point is slightly different.

Again, I don't know if the numbers bear this out, but it seems to be the general tenor of this slide, which is that the usage of the Amazon app. actually increases the number of queries that otherwise might not be on Google.

THE WITNESS: Right.

THE COURT: So if that's the case, do they still compete in the sense that you're referring to if in fact the existence of the Amazon app. actually benefits Google?

THE WITNESS: I think the all-in app., which gives people the ability to shop, that part of it is a complement for queries, right, the shopping portion.

I think the competition is, people are entering queries to find things to shop on. Within the Amazon app., the shopping portion and the searching portion are complements for each other. Right? But the fight between Amazon and Google is at the level of who gets the query that they can advertise against. Right?

So I can enter the query on the Amazon SERP --

THE COURT: You would say that even if, in the aggregate, Google benefits by people -- people who -- you're right, on an individual query-by-query basis, there's one or the

other, I suppose.

But at least this seems to suggest that people who are using Amazon with some frequency and using Amazon in the first instance might be using Google more.

THE WITNESS: So I think I would say at that sort of broad level, of everything Amazon and Google do, there are elements of complementarity between them, and the existence of the app. might help Google. They like that shopping apps. are there.

But the thing that keeps Google on its toes as a query competitor is that if it doesn't provide good query results, that 58 percent number who start at Amazon will just go up.

So the existence of Amazon and other shopping apps. probably expands the universe of queries to be had. That's probably why Google lets Amazon be put on the phone and so on.

But Google as a query competitor needs to compete well and provide good queries, or that 58 percent number who start on Amazon will go to 100 percent. They won't use Google for the query function.

So I think there's a SERP competition between the two of them, even though the broader functions have complementarity between them.

THE COURT: An app. like Amazon, it seems to me, actually functions to increase queries or probably in some sense across the board, because people who are using it are using it

in a way to purchase differently. They're using it to purchase delivery, online, as opposed to going to a store to make that purchase.

THE WITNESS: I agree that the existence of apps. generally increases queries as a whole, and Google likes that. But Google's got to provide good queries, or people can type them in on the SERP on Amazon.

So I would say that, again, I think there's -- queries might go from 100,000 to 200,000, but Google's got to fight for that with Amazon because Amazon can serve the queries itself.

BY MR. DINTZER:

Q. Sir, if you could go to page Bates number 976 of this document, of PSX562.

A. 976?

Q. Yes, sir. At the top, it says, "Do users alter their Google usage after adopting shopping apps.?"

THE COURT: Sorry. Could you state the page again?

MR. DINTZER: Of course, Your Honor. Bates number 976, the last three digits.

THE COURT: I'm with you. I don't know if Dr. Israel --

THE WITNESS: I'm there.

BY MR. DINTZER:

Q. At the top, it says, "Do users alter their Google usage after adopting shopping apps.?"

Do you see?
A. I see.
Q. And it says six apps. were analyzed, three retail-focused apps, three nonretail-focused apps., and then it has the pictures of the six that they analyzed?
A. Yes.
Q. And it has some details about it, but if we go to the next page, 977, we get the reveal.
Do you see that?
A. I do.
Q. "No evidence of negative impact on google.com from app. adoption."
Do you see that?
A. I do.
Q. This study found that app. adopters were correlated with increased revenue and growth; is that right?
A. Right. I think this is the dialogue we were just having exactly. Apps. are good for queries, and then there's competition for who gets those queries.
Q. No further questions on that document, sir.
Let's go to your slide 47. Just let me know when you're there.
A. It's on the screen.
Q. This is a quote from Mr. Nadella; is that right?
A. Yes.

Q. And I think you referenced it about how -- about the relationship between Microsoft and Google, right, and Google coming out with its Bard after Microsoft presented ChatGPT with Bing; right?

A. I mean, that's the context of the discussion. I referenced it in a series of slides on Google innovating in response to competition.

Q. Okay. And you say "in response."

How many days after Bing came out with ChatGPT did Google come out with Bard?

A. I don't recall the number of days. I mean, Bard is something they had been working on, but I don't recall the timing of the rollouts.

Q. If I said it was just a handful of days, would you doubt that?

A. I don't doubt that.

Q. Okay. And so Google did not develop Bard in those handful of days; Google developed Bard over presumably a period of time? Right?

A. Google -- as I said, Google had been working on Bard, yeah. I mean, the rollout and the things that happened afterwards and Mr. Nadella's reference to their competition happened over time. But I would agree in general, competition is spurring Google to innovate, and that was not only the ChatGPT announcements.

Q. Okay. But competition from Bing. So Bing announced, and

within days, Google announced Bard; right?
A. Yeah. I mean, the timing, I'm not going to remember all of it. Google had a rollout soon after ChatGPT.
Q. Okay. Do you have any reason to doubt that the reason that Google announced Bard was because Bing announced ChatGPT?
A. I think Google is responding to competition from Bing here.
Q. Okay. Let's go to page 37 in your slide deck. And let me know when you're there.
A. It's on the screen. So I'm good.
Q. Okay. And you write -- this is regarding Professor Whinston. You write that he ignores all other Google documents focusing on SVPs.
Do you see that?
A. Right. It's in reference to this -- what I saw him put up in terms of Google documents.
Q. Right. And my question is, you didn't put up any; right?
A. As I said, I -- I don't recall everything. I think it was primarily data analysis. So this is a reference to the many documents on SVPs that are in my report in summary form here.
Q. Okay. But at trial, you didn't -- I mean, I just want to be fair. You say he ignores other Google documents, but you didn't show which documents you say he ignores that you have cited; right? You didn't cite any.
A. I mean, I didn't cite them in my slides. They're in my report, and I think they're in the record, but I didn't put them

up in my slides.

Q. Okay. Let's go to the next page. That's DXD38.

And you write, "The fact that SVPs advertise on GSEs does not mean that they do not compete."

Do you see that?

A. Yes.

Q. Okay. Now, one of your basic theories is people can easily navigate to SVPs; right? There's a minimum cost to moving around between SVPs; right?

A. I think I say the switching costs to go to another site are minimal. We had a discussion before about how you learn about that, and that can be different in different cases.

But my switching cost point is specific to once you have an app. or you have a website or a shortcut, those switching costs are minimal.

Q. Okay. But companies like Amazon and Expedia, they spend a lot of money, a lot of money advertising on Google; right?

A. Yes.

Q. Okay. And they do it because they think that that's the best way -- showing up on Google is the best way to get traffic; right? Otherwise, they wouldn't spend it.

A. I mean, you would have to ask them if they think it's the best way. They clearly think it's an effective way.

Q. Okay. If it turned out -- this is sort of a fly experiment. If it turned out that every single person could

with minimal costs and with great perception go to Amazon from wherever, then the value of that advertising on Google would be worthless, right, because people would just be, I've got a query for Amazon, I'll go to Amazon; right?

A. I don't think the two are directly connected. I think there's lots of things that are relatively easy to switch to that it's still useful to advertise to put them at the top of people's minds.

Q. So that people will then go to those sites?

A. You're trying to, in various ways, develop a reputation and encourage people to go to your site. So Amazon advertises in various places, one of them is on Google, trying to generally increase its usage.

Q. The search ads provide incremental usage?

A. Yeah, I think that sounds right. Advertisement wherever they advertise, I presume because they're doing it, increases their sales.

Q. Okay. Did you see Professor Varian's testimony?

A. I didn't see it. I've read it.

Q. Have you read it? Are you aware that he testified that if Google were to disappear, people would just switch to Bing?

A. I think I've seen him say that.

Q. Okay. And he actually identifies Bing as the specific alternative to Google?

A. I think that's what he said, yeah.

Q. Okay. And when he was asked about if Google and Bing were to disappear or if all general search engines were to disappear, then the Internet would be like a library without a card catalogue.

Did you see that?

A. I remember something. A comment at that level, I would want to see the testimony.

Q. Okay. Let's do that, UPXD075.

At the bottom, he was asked:

"Question: If all general purpose search engines were to disappear, the world would be like Borges' universal library with no card catalogue; right?

"Answer: Right.

A. That's what he said, yes.

Q. Okay. So at least in his take, he didn't say, well, it's okay, because people could search on SVPs or people could search on -- people would know where to go. He specifically called out that there wouldn't be a way to get around; correct?

A. I mean, yeah, you would have to ask him all of his meaning, but this is what he said. I mean, he also said there's no search market. So I'm not adopting his views on all these topics, but this is what he said.

Q. Okay. No further questions on that document.

Let's go to UPX0334. This is a speech Dr. Varian gave frequently. He testified about it. We're going to go to

page 2085. This is a chart that Dr. Varian presented apparently for years, and if we can bring that up.

So he provides across the top the product and then the different major providers, and along the left side -- and you will see that for general purpose search engines, he has Google and Microsoft.

Do you see that?

A. I do.

Q. And for special purpose search engines, which I think is what we're calling SVPs, he throws them all in.

Do you see that?

A. I don't know if he means the same thing we mean by SVPs. I don't know this document well enough. But he -- and he certainly isn't including all of the SVPs in the world, but he says these five companies all have a check there.

Q. He doesn't combine those two markets, though, does he? He has separate lines for those; right?

A. I don't think he's saying anything about markets here.

Q. Okay. No further questions on that document.

When you open up Amazon, they have some sponsored links and suggestions on the very first page; is that right?

A. That sounds correct.

Q. And let's pull up UPXD077.

May I approach, Your Honor?

THE COURT: You may.

BY MR. DINTZER:

Q. So you can buy things on Amazon without ever making a search; right?

A. Yes.

Q. If I buy a toaster on Amazon without ever doing a search, Amazon is not competing with Google on search; right?

A. Say that again.

Q. Sure. If I buy a toaster on Amazon without ever doing a search, maybe it pops up in the front and I click on it and then I get the page that has the ability to buy it and I buy it, if I go on Amazon and I don't do a single search, Amazon is not competing with Google Search; right?

A. There was no search to be competed for.

Q. Okay. And so in that case, Amazon is acting just as a complement to Google if maybe I did some search on Google before; right?

A. Well, that's a different question. Before, you said there was no search. If there was a search on Google before, then there's competition for the queries. So it's not just a complement. But if you just literally opened your Amazon app., saw one of these ads and bought it, then there was no query to be competed for.

Q. Okay. No further questions on that document, sir.

Let's go to slide 20 of your presentation.

A. Okay.

Q. Are you there?
A. It's on the screen.
Q. It says, "Shopping: Google faces greater competition for users from Amazon than from Bing."
Do you see that?
A. I do.
Q. First of all, this is a chart you made for litigation; right? No Google document develops or tracks this specific information in this way?
A. Google doesn't have access to the Amazon query data.
Q. Okay. So my -- the answer is yes; right?
A. Google certainly tracks what Amazon is doing, but it doesn't -- it can't make this chart.
Q. Okay. Now, to make this chart, you had to decide which queries were shopping queries; right?
A. Correct. There is a grouping in the shopping queries. We've talked some about that definition.
Q. Are you familiar with Pedacat, P-e-d-a-c-a-t?
A. That's a Google tool that classifies queries.
Q. And if you run queries through it, it determines what type of query it is and breaks it down into potential verticals; right?
A. It does.
Q. You didn't use the verticals as Google defined them for this analysis; right?

A. That's correct. We've talked about that.
I focused on shopping queries that have PLAs.
Q. Okay. So for the visits thing that we discussed, you used the numbers that Google provided and how they do it in the ordinary course, but for this chart, you modified it, and you used a modification of it; right?
A. Yeah, that's fair. I mean, the visits minutes cut-off, I had no other basis. Here, I had this PLA basis that I wanted to focus on.
Q. So you made your own categorizations; right?
A. Well, yeah, that's fair. The shopping query focuses on queries with PLAs.
Q. Okay. Now, you also excluded -- and you say this at the top. You excluded nav queries; is that right?
A. Yes. As we discussed, I think of nav queries as basically a different vertical.
Q. But there is no actual vertical called nav queries; right?
A. Google doesn't list -- Google identifies nav queries in the Google ordinary course. I don't think they call it a vertical.
Q. Okay. That's because in ordinary course, Google groups nav queries in with their other verticals; right?
A. I think Pedacat includes them, groups them into verticals, but there's a separate Google tool that within the vertical tells you what's nav and what's not.
Q. Right. But Pedacat said if I put in Johns Hopkins or even

Amazon, that lists it as part -- as a search done for the Amazon or the healthcare vertical; right?

A. The shopping or healthcare vertical.

Q. Shopping or healthcare vertical.

A. Pedacat puts them in verticals, and a separate tool tells you whether they're navigational or not.

Q. And Google responds to nav queries by providing a link, but they do provide an SERP for that; right?

A. Yes.

Q. Okay. If I type "Facebook" into Google, I get an organic link to Facebook; right?

A. Yes.

Q. But Google can sell ads on navigational queries; right? In fact, they do?

A. Sometimes; often, yes.

Q. Okay. And other GSEs compete with Google for answering nav queries?

A. Yeah, among other things, that sounds right.

Q. Navigational queries are a significant volume on general search engines?

A. That sounds right.

Q. Professor Whinston calculated that nearly 12 percent of all Google queries are nav queries, and I don't believe you've disputed that.

A. I don't recall the number, but I don't dispute it's a

significant source of queries.
Q. Amazon doesn't handle any nav queries at all?
A. Amazon is not a competitor for nav queries.
Q. If I type Facebook into Amazon, I'm not going to get to Facebook?
A. That's correct.
Q. And by excluding nav queries from this chart, that meant that the green box and the red box would be bigger if there were nav queries, but since Amazon doesn't answer any, their box wouldn't change; right?
A. Right. I mean, yeah, this -- again, I think the right way as an economist to think about nav queries is a separate vertical. You're right that if -- that vertical would not have a bar for Amazon. So if you added them up, it would have the effect you described.
Q. Okay. Now, the queries that are called nav queries, sometimes they are actual efforts to navigate somewhere, and sometimes they're not; right? The actual word, there's a -- sometimes, they're viewed as wanting to navigate to a specific site, and sometimes they're not that; right?
A. I'm not sure I follow.
Q. That wasn't a very good question. Let me try it again.
Google uses context to classify a given query as navigational or not; right?
A. That sounds right.

Q. Okay. So sometimes the words alone are not enough to figure out if something's a nav query. Google needs the context to know if it's a nav query; right?
A. Google's classification tool uses the information it has. I will say most words are either almost always nav queries or never nav queries, but there is some context required, and it's not 100 percent.
Q. And you altered -- not only did you leave out the nav queries, but you altered Google's actual classifications regarding nav queries.
A. Not that I'm recalling.
Q. If a given query is labeled as nonnavigational more than 80 percent of the time, you called that nonnavigational in all cases?
A. Right. I classified things by the query term. So like I said, there's a pretty big -- it's sort of very distinct. It's close to zero or close to 100. But I define things by the query term.
Q. Okay. But Google doesn't do that? Google actually uses context, and it has a more -- a more refined analysis about whether that specific term is a nav query or not?
A. It uses some context. It isn't just a query word. So again, it's pretty bimodal, it's pretty separated, but in order to have it be based on a word so that I could look at it in various data sources, I used this 80 percent rule.

Q. Okay. Let's go to slide 227 -- I'm sorry, slide 27 in your deck. And -- actually, let's skip this one. Let's go to slide 20 in your deck.

THE COURT: I think we were just there.

BY MR. DINTZER:

Q. If you had used Google's actual shopping categories, the results would have been quite different; right?

A. I think that's right. What Google calls shopping includes things like "I just want to go to the store," like an actual physical store, whether it's different competitors than there would be here.

So I agree that the results would be different. You would still see SVP competition, but if you use a definition other than this PLA definition, you would see a different mix.

Q. Right. So if you hadn't adopted the definition you did and you used Google's normal course, you wouldn't know what figure 20 would look like; right? You haven't done that analysis?

A. Not that I recall. I tried again to do the aggregations that I thought made the most sense. It certainly wouldn't change the conclusion that Amazon gets a bunch and there's SVP competition. I just think it would be somewhat less informative.

Q. So let's go to -- let me ask you this: The user's intent is important in understanding an individual query; is that

right?
A. I don't understand the question.
Q. Sure. If we look at a query and look at the words, to understand what the user's actually looking for, it helps to understand what the user's intent is in typing in those words?
A. I think my whole point here is we should be analyzing substitution on the demand side as well as we can. So we should be trying to do our best to understand what options the user had open to them, and that depends on their intent.
Q. Okay. So let's go to UPXD081. And this is Dr. Raghavan.
A. In the binder or --
Q. That will come up on the screen, sir.
This is an example he gave about the term "mousetrap." If you type in the word mousetrap, you could be looking for tickets to the long-running play in London called Mousetrap, or you could be looking for a way to catch mice.
Do you see that?
A. I do.
Q. And he writes -- or he says, "And those are things -- cases where you have to be very careful about how you take the user's query and match it to what the advertiser might be interested in."
Do you see that?
A. Correct. I talked about similar things, about why this helps SVPs be better at targeting advertising.

Q. Right. But my point is, for the specific query, whether it's one SVP or another, knowing the specific intent of the user is vital; right?

A. Right. The demand-side analysis, the demand-side substitution would be different. So the user would have choices in each case, but those choices would differ.

Q. If someone wants to look for tickets, that's not available on Amazon. If someone wants to kill vermin, then maybe Amazon may have a solution.

So knowing which of the two is important; right?

A. Right. And the user knows, and therefore, the user can choose which competitors are relevant.

Q. But your analysis says that if a word is issued on both Google and Amazon, then there's an overlap, but it may be that just because that word is issued on both, the user intent is not overlapping at all, like "mousetrap"?

A. It's -- some of the searches on Google might not actually have been for the shopping. I think that's a strength of Amazon and a weakness of Google.

I agree, in the data, you have to use the queries you have to try to do the best we can with data. But that's a strength of Amazon, that they know -- they can give the user exactly what the user wants.

Q. I just want to make sure I get a clean answer to my question, sir. And it is that, beyond the actual term that is

typed in, the fact that both Google and Amazon may have some response to it doesn't mean that their answers are overlapping. They may be providing completely different types of information; right?

A. Well --

Q. Let me try it this way, sir. Google and Amazon don't compete for the term "mousetrap" if I'm looking for tickets.

A. Other things compete with Google.

Q. But Amazon doesn't?

A. In that case, Amazon is not the relevant competitor.

Q. And so knowing what the person is looking for, the intent is relevant; right?

A. Right, and very helpful to SVPs, because they can infer more about intent than Google can.

Q. So let's go to -- we don't have to go back to your slide 20, but the data that you used for your query analysis there was broken down by individual query; is that right?

A. It's a week's query-level data.

Q. And Valentine's Day would be an individual query that was in your set; is that right?

A. Yes.

Q. Valentine's Day on Google, UPXD82, let's pull that up. The links are to Wikipedia, Britannica, history.com, and Internet Movie Database.

Do you see that?

A. I do.
Q. Okay. And I can pull up the Amazon one, but for brevity, in fact, none of those are going to show up if I put in "Valentine's Day" on Amazon; is that right?
A. I agree.
Q. Okay. So the fact that Valentine's Day is both in your red bar and -- I mean in your Amazon bar and your Google bar doesn't mean that they're actually competing for Valentine's Day searches. In fact, on this one, the one that's on the screen, the very first thing that Google provides is, what, the date, in case that that's what the person was looking for? Do you see that?
A. I see that, yeah.
Q. Okay. So the fact that there are overlapping terms between Google and Amazon on your bars doesn't mean that they're actually competing for the same term with the same intent? People clearly on Google are not looking for the same stuff that they're looking for on Amazon, because Google doesn't offer that stuff?
A. I mean, they do. Some of them might be. If you went farther down, I'm sure there are Google links for where to buy Valentine's Day things.

I agree the specific SVP -- again, we should be doing this on the demand side. The user knows what they want, and if they want flowers, then Google competes with something like FTD. If

they want, you know, chocolates to buy, Google probably competes with Amazon.

My point is only that each of those Google queries faces competition.

Q. Let's go back to your slide 20. This is the problem with the slide 20. The yellow bar in the middle, all that tells us is that Valentine's Day was both on Google and Amazon; right?

A. The yellow bar tells me it was on Amazon.

Q. Right. And the fact that it was on Amazon doesn't mean that the person who put it into Amazon had any of the same interests that the person who put it into Google. They may have completely different intents.

A. The first -- sorry.

Q. No, please.

A. The person who put it into Amazon clearly wanted to shop.

Q. Right.

A. Some of the people who put it in Google probably didn't want to shop. So the Google bar probably is too high. So Amazon is even stronger for shopping relative to Google than this says.

Q. The fact that terms are overlapping doesn't tell you anything about how -- what people thought of the terms? And I think that you said that Valentine's Day was the number 1 query in the analysis on slide 20; is that right?

A. It would depend on which. Maybe that's true for Google.

It would depend.

But another way I did slide 20 is to take the top 25 Amazon queries. Those are all shopping queries. And I said how many of them show up at Google. That's telling you how often Google gets those queries. If some of those are not shopping queries, I'm just making the GSE bar look a little higher.

But these are all -- in Amazon's case, these are all shopping queries, and Google gets a lot of shopping queries, too.

Q. Let's go to slide 18. So this is a -- you call this "usage pattern"; is that right?

A. Yes.

Q. This is only Android and only phone; right?

A. No, this includes all laptop use. On the phone side, it only includes Android.

Q. So all laptop plus Android; is that right?

A. Correct.

Q. Okay. And --

A. Or all PC plus Android.

Q. Okay. And it says "usage patterns"; right?

A. Yes.

Q. And I believe you told the Court this, but I want to make sure we get this right. This doesn't tell us anything about queries; you're not counting queries?

A. Right. Usage of a GSE is entering a query on the GSE. But

on the SVP side, I can't see what they're typing in exactly. So I tried to be clear, I hope I was, that this is using an SVP.

Q. So on flights, if I -- if I go to the flight to check my flight status, if I go to book tickets, it could have -- there could be no searches involved on the SVP side; right?

A. I guess for a given user. If you think about how you use Expedia, a fair bit of that is searching until you buy. So no searching at all would surprise me, but I would agree with the point that some final action might have been to purchase the ticket.

Q. Okay. But you haven't measured it? You have no visibility as to what people are doing on the SVP side; right?

A. Right. I have tried to do things like, you know, one version of what you do with flights includes the airline's website itself where you can do a lot of searching. But I think you're right, you probably also check your flight and so on.

So I've limited this in other versions to just things like Expedia and Travelocity, where a lot of the behavior is likely searching.

But I take the point and hope I was clear that it also could include some additional activity on the SVP.

Q. It could actually be most of the activity on the SVP, because you don't have any visibility, just to be clear.

A. I think that's quite unlikely, given how these SVPs are used, but I can't give you a number from the data.

Q. Okay. And again, this excludes nav queries; is that right?
A. I'm not recalling as I sit here.
Q. Okay. If I search Amazon on Google and then go to Amazon and buy a toaster, that counts as one for the GSE and one for the SVP; is that right?
A. Right. That would be one usage of a GSE and one usage of an SVP.
Q. Okay. Now, in your original analysis, you included banks, and you included hotels; right?
A. I mean, not on the ones that are on here, but I had a finance version and a hotel version. And there was a version, I think it was the first one, that included the banks and the hotels on the SVP side.
Q. Okay. And you withdrew those because you realized that there's such a significant amount of usage that's nonsearch that they weren't worth showing; right?
A. I wouldn't say I withdrew them. I showed it the other way, too, to show the results didn't change. If you think about -- I just gave the example of airlines. Personally, I do all of my airline searches on aa.com because -- the AA app. because that's where I'm going to go. So I did a version that included that as an SVP.

But I recognize that other people may use it in other ways, and it's not, you know, a broad -- it's not a multisite SVP. So I did a version that took it out to show that the conclusions

don't change.

Q. No further questions on that slide.

THE COURT: Just to be clear on slide 18, the SVPs refer to what I will just call sort of aggregated SVPs and doesn't include the specific airline or, for example, a specific retail merchant?

THE WITNESS: It wouldn't include -- well, I think the version that's on slide 18 includes -- includes airlines and the merchants. There's another version in the report where the basic patterns stay the same. It takes those out.

But I think the version that's here was the original version where it's everything that Google method pops up as an SVP. That would include airlines.

On the shopping side, it would be -- those are basically aggregators -- I mean, retailers. So amazon.com, walmart.com would be included.

On auto, this isn't really an issue. Auto is going to be things like cars.com and those sorts of searches.

So flights is the one where I think this version does include the airlines, but I've done a version that doesn't where you have this same basic pattern, that it's in the middle of the other two.

BY MR. DINTZER:

Q. Slide 44, sir, you talk about but-for worlds.

Do you recall?

A. Yes.
Q. Okay. And just to be clear, you have not developed a counterfactual but-for world where Google doesn't enter into the challenged contracts; is that right?
A. I have not fully specified such a but-for world. I've tried to provide information I think would be informative in thinking about it, but I have not fully specified a but-for world.
Q. You haven't articulated the elements of a -- are you offering an opinion about the conclusion in a but-for world or not, sir?
A. Can you ask that again?
Q. Sure. Let me rephrase.
You've developed no counterfactual world where Google doesn't enter into the challenged contracts; right?
A. If by developed counterfactually, you mean have I sort of done some economic modeling or presented my own version of what output would be in that world, then the answer is I have not.
Q. Okay. You did not predict Bing's quality level absent the challenged conduct; right?
A. Yeah, I mean, that would require some economic modeling that, you know, I point out here plaintiffs would need to do, but I also have not done that.
Q. You have not modeled what Google's general search engine rivals would look like absent the challenged conduct?

A. Sorry. That one went fast for me.
Q. Of course. You have not modeled what Google's general search engine rivals would look like absent the challenged conduct?
A. Yeah, again, I've provided opinions that I think are relevant, but I have not done a model of that.
Q. Let's go to slide 120.
Are you there, sir?
A. Yes. You guys get me there quickly.
Q. That's Jorge. He's doing a terrific job.
You testified that the search market and search ads market -- well, let's focus on the search market. The search market has outperformed the industry expectations.
I guess you use this for both, don't you?
A. It's advertising only, because I can use eMarketer data. So here, I present digital advertising. There's a version in the reports which is search advertising.
Q. But you didn't provide that in court; right?
A. I only presented digital advertising, because in my view that's the more relevant set of competitors.
Q. Okay. And eMarketer separately tracks -- well, you used eMarketer for the expectations in the search ad market; right?
A. These are their projections.
Q. Okay. And then what happened is they continued to make projections, and they continued to come out low; is that right?

A. In almost all cases, as I discussed, they were below what actually happened.
Q. And they could have underpredicted the growth in the search market for a number of reasons; right?
A. Yes.
Q. Okay. And you haven't done a formal analysis breaking down why they underperformed -- why eMarketer underestimated year after year; right?
A. That's correct. I'm just presenting their projections and making the comment that, you know, it's at least true that any alleged behavior hasn't pulled things below their projections, but I'm not doing more than that.
Q. And the projections cover many years under different conditions; is that right?
A. Yes.
Q. And the evidence of industry performance is not dispositive regarding monopoly power; right?
A. Yeah, I think I said that. It's a piece of evidence, but it's not the end of the inquiry.
Q. Now, if Google faced no competition hypothetically, it would still try to raise its profits; right?
A. I mean, it would try to maximize profits, yes.
Q. Well, it would try to raise them, too. If they saw an opportunity to raise their profits, even as a monopolist with no competition, they would still pursue those; right?

A. Sure. They would try to make them as high as they could.
Q. Okay. And even if Google faced no competition, it would try to raise output; right?
A. Try to raise output?
Q. Yes, if that made more profits.
A. I think you would seek to maximize profits. So in general, the characteristic of monopolies is they find it profitable to reduce output because that creates scarcity and increases profits. So a key economic characteristic of a monopoly is output reduction.

But broadly, I agree they would take the steps that would increase their profits.

Q. Right. So if certain efforts would increase Google's profits, even if it was a monopolist, it would still have a financial incentive to take those efforts; right?
A. I guess increase output relative to what?

THE COURT: Can I ask a question? Sorry to interrupt.

MR. DINTZER: No, please.

THE COURT: Your point on the ordinary monopolist and wanting to restrict output to create scarcity, I can understand that for most products.

Does that -- do you think that still holds true for a product like this in which the creation of scarcity -- well, let me put it differently.

Not creating scarcity would not -- would actually benefit

the monopolist in the sense that there's no limit in terms of what the monopolist can produce because of the nature of the product.

THE WITNESS: Right.

THE COURT: Does that make sense?

THE WITNESS: I think on the search side -- so I mean, there's -- it's not a capacity constraint issue. It's a under the allegations what can I charge for the advertising issue.

THE COURT: Right.

THE WITNESS: So the scarcity would be fewer queries or in some way less unlimited access to these things for advertisers so that I could raise the advertising price. That would be the argument.

I mean, I agree the search side is strange here in lots of ways because it's not being explicitly priced. But I think the point would be if you -- you asked yesterday if you could make fewer and fewer auctions so that you could artificially restrict the number of auctions such that you could get higher prices.

That's where I think you would look for an output restriction.

THE COURT: I guess I'm having trouble understanding why the creation of ad scarcity or search ad scarcity on Google would benefit it, if it were a monopolist. This is all, obviously, a hypothetical.

THE WITNESS: Monopolists produce to the point where

they're thinking about -- so you have to sort of think of a monopolist as it approaches -- this is why it has to be compared to a but-for world.

So imagine there's a competitive level of output, and the monopolist is thinking about should I get all the way to the competitive level of output. The thing that a monopolist thinks about that the competitive level doesn't think about is if I keep increasing output towards that level, that's going to put downward pressure on the price.

So at some point, the monopolist says it's not profitable to me anymore because I internalize the fact that it reduces the price. Whereas in a competitive market, there's lots of players. They're all producing. They don't control that output level. They all think it's worth producing one -- they're kind of price takers is a term we use.

So if it's a competitive market and I'm a price taker, I say I should sell one more because I sell one more and I get the price. If it's a monopoly market, at some point, I say if I sell one more, that drives down the price, and that's bad for me.

So the key feature of monopoly is they don't consider that last 5 percent of output to be profitable, because they think man, if I do that, prices come down. Whereas, in a competitive market, people think man, if I do that, I can capture that additional -- I can sell those, and I don't have the same effect

on price that a monopolist would, because I'm just one of many.

So the thing that makes sort of this -- sort of abstract --

THE COURT: Is part of that analysis typically the fact that the marginal cost is going to -- in a world where you're creating widgets, your marginal cost is going to -- or there's going to be a cost associated with the creation of these widgets.

It seems to me the cost associated with the publication of a new ad -- sure, there's some cost, but it's fairly low.

THE WITNESS: So suppose the marginal cost is zero. Let's just take that version. The issue is on the demand and marginal revenue side, not the marginal cost side.

So just suppose the marginal cost is zero. In a competitive market, right, people are going to just keep producing ads until the price gets driven all the way down close to zero. Now, it's not literally zero here. There are costs. So that's not what we see.

But in a monopoly market, if it's truly a monopoly, you would think about the marginal revenue, not the price, and the marginal revenue incorporates the fact that if I produce more, that drives price down.

So the issue is, a monopolist marginal revenue curve lies below the price curve, and so they produce less, because they're thinking about this effect on prices, which is why the key thing you look for is are they actually restraining output, because

that tells me that they're acting the way a monopolist would act. But it's about the fact that their marginal revenue differs from the price.

This is all pretty abstract, like, econ stuff, but that's the -- the issue is that they think -- again, it's not like I'm going to produce nothing. But as we get closer to the margin, they think if I produce more, I worry about the selling a few more -- if I could produce widgets even for free, they would still say this last 10 percent I was going to produce isn't worth it because the price-reducing effect offsets the quantity expansion effect.

THE COURT: Okay. Thanks.

MR. DINTZER: Thank you, Your Honor.

BY MR. DINTZER:

Q. Sir, even monopolists have some incentive to invest; right?

A. That's correct.

Q. Let's go to slide 46.

This is your R&D analysis; is that right?

A. Correct.

Q. Okay. And your R&D analysis regarding Google spending are mostly worldwide; right?

A. I think these are worldwide figures. I think that was -- I think that's what was available.

Q. Okay. So some of Google's R&D spending are allocated to different regions of the world not involving the United States;

right?
A. That's definitely true in general.
Q. Okay. So R&D spend on search in Egypt would not necessarily be relevant to the U.S. market; right?
A. It would have limited relevance. Maybe not none, but --
Q. Okay. Some elements of R&D relate more to certain geographies than others; is that fair?
A. I think that's fair of some. Obviously, lots of the R&D is general, but there certainly is region-specific R&D, to some extent.
Q. Okay. And you combine that Google and Alphabet are in the expenditures; right?
A. Yes.
Q. YouTube is a profitable business for Alphabet; is that right?
A. Yes.
Q. Okay. But whatever R&D is directed at YouTube, you're still putting it on this chart as something relevant for what you're trying to show on exhibit -- slide 46; right?
A. Right. We talked about this some. I'm including all Alphabet revenue intentionally, because my read of the record and experience with Google is everything they do -- or much of what they do is designed to increase Internet activity and thereby increase search.
Q. Right. And you include self-driving cars on this chart,

too; right?
A. Their statements have been quite explicit, that they see the benefit as people will spend more time on the Internet and therefore more time searching.
Q. For self-driving cars?
A. Yes.
Q. Okay. So this captures all the investment in self-driving cars, as well as anything directly related to search; right?
A. To be clear, this is all of Alphabet. You could make a decision either way, but I think a fair read of what Google says is they are, for most of what they do, hyperfocused on the effects on search.
Q. Okay. Slide 45, the one right before it.
A. Mine didn't move.
Q. We'll get it for you, sir. Okay.
This is supposed to measure output; is that right?
A. This is, as it says, "total GSE-specific query volume."
Q. You agree there's not a single correct measure of output for a general search engine?
A. I don't think there's one perfect measure of output probably in any case anyone does. This is a good one.
Q. And you will agree that increased network speeds led to more Internet usage and to more searches over this entire time?
A. Yeah, that sounds right.
Q. Okay. And more Internet usage meant more search

advertising; is that right?
A. I mean, more Internet usage likely led to more searches. Again, that's a part of why Google invests in the Internet. And more searches would lead to more search advertising, yes.
Q. Increased adoption of mobile phones over the last 15 years also led to more searches; is that right?
A. Right, I agree.
Q. And so this chart only measures output increases for the industry; they don't tease out any factors that -- you know, whether Google led to or caused any of this increase; right?
A. This chart doesn't tease out the causes. You're giving good examples of what we were discussing on the last chart about why Google invests in things like Android, because it's trying to increase Internet usage and, therefore, increase searches.
So Google has a lot to do with this, but this chart doesn't tease that out.
Q. Let's go to DXD59.
We're talking about ads now, sir. Do you see it, sir?
A. Yes.
Q. Okay. And so my understanding is what you've done here with the green arrows is show the elements that are in each of the three alleged ad markets; is that right?
A. Yes.
Q. Okay. And on the left-hand column, in the sixth row, "other SVPs," you have a red X; is that right?

A. I do.
Q. Okay. You do realize that the DOJ search advertising market had some advertising on SVPs; right?
A. My understanding would be if it was on the SERP. So you could split them all out the way I did for Amazon. I take that point. It just would make the chart very long. But I take the point that if it's on a SERP, it would be included.
Q. So that red X for "other SVPs" is just wrong? I mean, if there's a SERP, then there's a green arrow there; right?
A. I would call that a check mark. Yeah, I mean, it's an X in the sense that they're not fully included. But you're right, to the extent they're on a SERP, they would be included.
Q. And is that true with Facebook ads, too, to the extent they were the result of a search?
A. I think that's right. That's a very small percentage on Facebook, but yeah, I take that point.
Q. Okay. Let's go to UPX006.
Your Honor, this is in evidence.
Sir, you've got it in your binder, but you also have it in front of you. Do you recognize this document, sir?
A. I think so, but it's very hard to tell from just the cover page.
Q. It's in your binder. You're welcome to look at it, if you would like. It's an October 2019 document called "Search State of the Union." Just let me know when you're there, sir.

A. I'm here. I'm not sure whether I recall this. I've seen figures and charts that look like this, but I'm not sure if it was from this document.

Q. Okay. That's fine. Let's go to the fourth page, which is Bates 329. And the left-hand graph is "America's digital add spend" in billions.

Do you see that? We're going to make it bigger to make it a little easier.

Do you see that, sir?

A. I do.

Q. It breaks out search, video, and display separately; right?

A. It has a section of the bar for each of those.

Q. So their analysis, Google's analysis in this document is breaking out search and display and video as separate areas that they consider; is that correct?

A. Yeah, I mean, they're certainly well-defined areas. I think most of what I presented, I defined them as competitors but distinct forms.

Q. And then on the right, if you look at the right-hand chart, and Google breaks down its search from the rest of the industry, its search market share -- this is ads, I believe -- as compared to the rest of the industry.

Do you see that?

A. I do.

Q. And they show 79 percent in 2023.

Do you see that?
A. I do.
Q. And with respect to ads, Google Search market share percentage, you don't have any reason to disagree with these numbers; right?
A. I don't know what they're computing here. I'm not saying they did anything wrong. I just don't know what they're including.
Q. Okay. Let's go back to page 2, 327. This is the executive summary.
Do you see that, sir?
A. I do.
Q. And the first bullet -- let's see if we can make that a little bigger for you.
It says, "Google Search is expected to increase market share to 80 percent."
Do you see that?
A. I see that sentence, yes.
Q. You don't have any reason to disagree with that, do you, sir?
A. I don't know what you mean by "reason to disagree."
It seems like what someone at Google was projecting in 2019. So I guess a reason to disagree would be that in my experience, I talk about in the reports the world of digital advertising has changed dramatically in the last four years,

especially post-COVID. So I would disagree with the use of a 2019 projection as meaning much today, but I don't disagree that somebody projected this.

MR. DINTZER: No further questions on that document.

And Your Honor, I think we're at a good point.

THE COURT: All right. Dr. Israel, we will resume on Monday. Let me talk just to the parties and figure out what time we will get started.

THE WITNESS: Thank you.

THE COURT: Thank you. Have a nice weekend. And just the same reminder not to discuss your testimony with anyone. Thank you.

Mr. Dintzer, where are we in terms of timing for your examination?

MR. DINTZER: We are past Search, and we are into Search Ads, and my team tells me that I am terrible about estimating the timing.

THE COURT: I would concur with your team.

MR. DINTZER: Two hours. I'm getting that from people who are better at this than I am. That's a rough estimate, but it still brings us well under what I believe the -- anyway, two hours.

MR. SCHMIDTLEIN: No, you would be over --

MR. DINTZER: That's why I stopped.

Your Honor, we need to cover what --

THE COURT: I'm just trying to figure this out.

Mr. Cavanaugh?

MR. CAVANAUGH: About an hour, hopefully less.

THE COURT: Okay. So maybe we -- if we start with Dr. Israel Monday, maybe we finish by lunch, maybe we don't, including some time for redirect.

Say we don't -- maybe an easier way to do this, how long is your fact witness on Monday likely to take, all in?

MR. SCHMIDTLEIN: The direct is going to be no longer than an hour and a half and hopefully closer to an hour.

THE COURT: Okay. And who is it?

MR. SCHMIDTLEIN: Jennifer Fitzpatrick.

THE COURT: And she is?

MR. SCHMIDTLEIN: A current Google senior executive.

THE COURT: Okay. And I take it no closed session is expected?

MR. SCHMIDTLEIN: I don't believe so.

THE COURT: All right. So what do you all think from plaintiffs in terms of expected cross? Are both sets of plaintiffs expected to cross or just DOJ?

MR. CAVANAUGH: We do have some.

THE COURT: You will?

MR. CAVANAUGH: Yeah.

THE COURT: All right. So it sounds like we have some degree of confidence that we could start with Dr. Israel, finish

him either right before lunch or shortly after, and still get to Ms. Fitzpatrick's testimony and finish her by the end of the day.

Okay. All right. So let's do our best, and I'm sort of looking at this side of the room, to stick to that timetable on Monday, because I would like to finish Dr. Israel up and not break him up to get to Ms. Fitzpatrick. So let's try and stick to that, if we can, please.

All right. I don't have anything else. Does anybody else?

MR. SOMMER: I have one very brief thing.

This morning, we walked in to court and were handed four more documents for confidentiality review. It's impossible for us to consult with our client at 9:15 or 9:30 in the morning, particularly since people are on the West Coast. I'm begging them to try to do better. It's really becoming unfair. It's very difficult.

THE COURT: Okay.

MR. DINTZER: Your Honor, all I can say is that we hadn't -- this is cross-examination. This is not like a fact witness where we have a sense of what the witness is going to testify about. So -- and we've only used -- we've used exactly one today. So the rest we are saving until Monday.

So we're doing our best, given the -- as we watch his real-time testimony, trying to figure out what we're going to use.

MR. SOMMER: I'm sympathetic to what goes on during trial, but it's hard for me to believe they found these documents this morning. At a minimum, they had them last night.

I'm just asking them to try to do better. I know stuff comes up during trial. I get it. But they want answers from us when we walk in the courtroom, and we can't give them.

THE COURT: That's fair. I've asked both sides to make sure that this confidentiality review takes place sufficiently in advance. I've also tried to be flexible. But again, you know, once you are aware you're going to be using an exhibit that hasn't already been disclosed, just send it over, even if that means sending over multiple e-mails. At least that way, Mr. Sommer can have things sooner rather than later or any of the other counsel.

I don't think there's a -- from what I'm hearing, they would rather have the exhibits sooner rather than later, even if that means getting multiple e-mails or multiple communications that there's a new record going to be used. Okay?

MR. DINTZER: We will accommodate that, Your Honor. Just so you know, obviously, it was a late one for us.

THE COURT: I saw that the Amazon ad had the late-night score of the football game. The Amazon demonstrative, I should say.

MR. DINTZER: But we will respect that, Your Honor, and do that as we can.

THE COURT: All right. Thank you, Mr. Sommer. Anything else?

MR. DINTZER: Just one thing, Your Honor.

As I understand the way that Google is structuring next week, we now have four videos to be shown in court. Obviously, if that's the -- I mean, we're here for it if that's how they're going to structure it. The last time, we got Ms. Baker's video with very little notice, and so we had to turn it around. So we're looking at sort of the other side of things. We would like to have at least 72 hours' notice. This is something obviously they've had for a long time, for each video that we're going to have to look at and sign off on, so we don't have to run around.

THE COURT: When you say -- do you mean the finished product, or do you just mean your designations?

MR. DINTZER: No, the finished product. After we designate, we want to see what it is is going to be shown in court to make sure we don't have any issues with it, Your Honor.

THE COURT: Okay. All right.

MR. SCHMIDTLEIN: These are not -- these are not surprises like the confidentiality documents. These are depositions that have been designated extensively pretrial. We've gone back and forth on those.

What we frankly are doing, Your Honor, is trying to narrow those into shorter, almost highlight reels for you so that they

are not -- because unfortunately, some of the designations by both sides, you know, if you're not showing it in court, they're candidly way too long.

And so what we've been trying to do is actually reduce those, and we've been getting them over to them in sort of the reduced fashion so that hopefully our expectation is that they will have reduced counterdesignations, in the spirit of trying to get you something that is not longer than it needs to be.

So we are certainly getting them today.

MR. GREENBLUM: We got them all to them last night.

MR. SCHMIDTLEIN: Yes, and we certainly will not be playing any video on Monday. I think the earliest we might start showing some video potentially could be now probably Wednesday, given where we are. So I think they have plenty of time.

THE COURT: Mr. Schmidtlein, what's your thinking in terms of your case?

MR. SCHMIDTLEIN: Our last witness will be Professor Murphy, and he will be called on Monday, November the 13th. He's going to be a several-hour witness, I anticipate, but we anticipate that he will be done -- certainly, our direct will be done during the day on Monday, and depending on when the cross finishes, I would anticipate and expect that the cross will be done on Tuesday, Tuesday the 14th, at the latest.

THE COURT: Okay. All right. So I think we remain on

track, then, in terms of --

MR. SCHMIDTLEIN: Yeah, we -- obviously, we don't know the extent of this supposed rebuttal case that we're going to get. We have filed a motion with Your Honor directed at a witness who we think is an inappropriate rebuttal witness. I don't know if they're still planning on calling that witness. The last time we checked with them and asked them whether they were going to call the witness, they said it was still a possibility.

At this juncture, we haven't gotten any indication as to the breadth. I assume it's going to be Professor Whinston and potentially one other expert and then this third disputed expert, I suppose, if they're going to continue to call that witness.

THE COURT: I haven't had a chance to review the motion, but are there any representations in terms of that witness at this point?

MS. GRAY: Yes, Your Honor. This is Sara Gray for the United States.

We were going to briefly address it and ask -- we believe that the motion is premature, because we haven't really decided entirely who we're going to call in rebuttal. We would like to make clear to the Court that if we do call Mr. Davies, that it would be to rebut Professor Murphy's testimony on Monday.

We would ask that you consider delaying any sort of

consideration until after we submit our witness list on Wednesday.

THE COURT: Okay. All right. And was this -- I don't know if we need to resolve this today, but was the expert -- this expert, was he designated as a rebuttal expert in the course of discovery?

MS. GRAY: He was an affirmative expert for DOJ plaintiffs. Professor Murphy -- Mr. Davies responded directly to Professor Murphy's rebuttal report. Professor Murphy cited to Mr. Davies over 100 times, and Mr. Davies responded in his reply report.

THE COURT: Okay. Mr. Schmidtlein?

MR. SCHMIDTLEIN: Just to be clear, Mr. Davies submitted an expert report on the initial deadline. He was disclosed as an affirmative expert in the first round. They did not call him in their case-in-chief.

So for all the reasons we've set forth in the motion, he is not an appropriate rebuttal witness at this point.

THE COURT: Okay. All right. I will take a look at the motion. I would urge DOJ to be in a position to, if you do make the decision to want to call him, to have something in writing that I can take a look at before I rule. Okay?

MS. GRAY: Sure. Thank you.

THE COURT: All right. With that, is there anything else?

MR. DINTZER: Nothing from the DOJ plaintiffs, Your Honor.

MR. CAVANAUGH: Nothing further, Your Honor.

MR. SCHMIDTLEIN: Nothing further, Your Honor.

THE COURT: Thank you all very much. Have a nice weekend. We will see you all on Monday.

(Proceedings adjourned at 12:38 p.m.)

CERTIFICATE OF OFFICIAL COURT REPORTER

I, Sara A. Wick, certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

/s/ Sara A. Wick — November 4, 2023

SIGNATURE OF COURT REPORTER — DATE

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**'63** [1] - 8718:7
**'65** [1] - 8718:10

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**/s** [1] - 8784:8

0

**068** [1] - 8718:17

1

**1** [10] - 8710:22, 8710:24, 8710:25, 8712:20, 8713:7, 8713:19, 8714:21, 8730:18, 8730:23, 8756:23
**10** [1] - 8768:9
**10,000** [1] - 8726:17
**100** [6] - 8679:20, 8680:24, 8736:18, 8750:7, 8750:17, 8782:10
**100,000** [1] - 8737:9
**10019** [1] - 8657:10
**10036** [1] - 8657:5
**106** [1] - 8660:3
**10:59** [1] - 8725:13
**1100** [1] - 8656:14
**1133** [1] - 8657:4
**11:00** [1] - 8725:11
**11:15** [1] - 8725:12
**11:17** [1] - 8725:13
**12** [1] - 8748:22
**120** [1] - 8762:7
**12:38** [1] - 8783:7
**1300** [1] - 8656:20
**1301** [1] - 8657:9
**133** [1] - 8715:20
**134** [1] - 8715:20
**13th** [1] - 8780:19
**14th** [1] - 8780:24
**15** [2] - 8734:14, 8771:5
**16** [2] - 8668:21, 8692:14
**18** [3] - 8757:10, 8760:3, 8760:8
**1960s** [1] - 8718:3

2

**2** [4] - 8710:25, 8711:15, 8731:16, 8774:9
**20** [12] - 8725:15, 8725:17, 8726:3, 8726:7, 8745:24, 8751:3, 8751:17, 8754:16, 8756:5, 8756:6, 8756:24, 8757:2
**20-3010** [1] - 8659:4
**20-cv-3010** [1] - 8656:3
**200,000** [1] - 8737:9
**20001** [2] - 8656:17, 8657:14
**20005** [1] - 8656:14
**20024** [1] - 8657:7
**2010** [1] - 8680:19
**2017** [1] - 8682:4
**2019** [6] - 8682:4, 8692:8, 8730:17, 8772:24, 8774:23, 8775:2
**202-354-3284** [1] - 8657:15
**2020** [1] - 8732:17
**2023** [3] - 8656:6, 8773:25, 8784:8
**2085** [1] - 8744:1
**2106** [1] - 8686:8
**2200** [1] - 8657:4
**227** [1] - 8751:1
**25** [5] - 8709:2, 8709:6, 8712:19, 8714:21, 8757:2
**27** [1] - 8751:1

3

**3** [2] - 8656:6, 8710:25
**30** [1] - 8714:4
**30-minute** [2] - 8714:6, 8714:8
**327** [1] - 8774:9
**329** [1] - 8773:5
**333** [1] - 8657:13
**34** [1] - 8656:9
**37** [1] - 8740:7

4

**4** [2] - 8710:25, 8784:8
**40th** [1] - 8657:10
**44** [1] - 8760:24
**4407** [1] - 8692:23
**4416** [2] - 8692:14, 8693:6
**45** [1] - 8770:13
**450** [1] - 8656:16
**46** [2] - 8768:17, 8769:19
**47** [1] - 8738:21
**4704-B** [1] - 8657:14
**475** [1] - 8682:19

5

**5** [1] - 8766:22
**58** [2] - 8736:12, 8736:17
**593** [1] - 8686:5

6

**680** [1] - 8657:7

7

**7001** [3] - 8678:19, 8678:21, 8680:17
**72** [1] - 8779:10
**744** [2] - 8682:15, 8682:18
**77** [1] - 8683:3
**79** [1] - 8773:25

8

**80** [3] - 8750:13, 8750:25, 8774:16
**80203** [1] - 8656:21
**811** [1] - 8692:24
**84** [1] - 8683:5
**86** [3] - 8666:7, 8666:9, 8666:11
**8660** [1] - 8658:8
**8661** [1] - 8658:4
**87** [1] - 8667:22
**8732** [1] - 8658:8

9

**92** [2] - 8726:9, 8727:10
**966** [2] - 8733:6, 8733:7
**97** [1] - 8683:3
**976** [4] - 8734:14, 8737:12, 8737:14, 8737:19
**977** [1] - 8738:8
**9:15** [1] - 8777:13
**9:30** [1] - 8777:13
**9:31** [1] - 8656:6

A

**a.m** [3] - 8656:6, 8725:13
**AA** [1] - 8759:20
**aa.com** [1] - 8759:20
**ability** [4] - 8675:9, 8699:2, 8735:14, 8745:10
**able** [3] - 8660:23, 8663:17, 8675:11
**above-entitled** [1] - 8784:5
**absent** [3] - 8761:19, 8761:25, 8762:3
**abstract** [2] - 8767:2, 8768:4
**accepted** [1] - 8699:21
**access** [2] - 8746:10, 8765:11
**accommodate** [1] - 8778:19
**accomplish** [1] - 8689:16
**according** [3] - 8705:22, 8711:9, 8712:1
**accumulated** [1] - 8707:9
**accumulates** [1] - 8679:5
**act** [1] - 8768:2
**acting** [2] - 8745:14, 8768:1
**Action** [1] - 8659:4
**action** [2] - 8710:5, 8758:9
**active** [1] - 8731:2
**activity** [3] - 8758:21, 8758:22, 8769:23
**actual** [7] - 8747:17, 8749:17, 8749:18, 8750:9, 8751:6, 8751:9, 8753:25
**ad** [6] - 8762:22, 8765:22, 8767:9, 8771:22, 8778:21
**adapted** [1] - 8665:7
**add** [2] - 8679:20, 8773:5
**added** [3] - 8681:4, 8707:14, 8749:14
**additional** [3] - 8671:14, 8758:21, 8766:25
**address** [1] - 8781:20
**addressable** [1] - 8671:24
**adds** [1] - 8680:24
**Adidas** [3] - 8703:8, 8704:8, 8705:4
**adjourned** [1] - 8783:7
**admitted** [1] - 8732:23
**adopted** [1] - 8751:15
**adopters** [1] - 8738:15
**adopting** [3] - 8737:16, 8737:25, 8743:21
**adoption** [2] - 8738:12, 8771:5
**ads** [11] - 8678:7, 8725:17, 8742:14, 8745:21, 8748:13, 8762:11, 8767:15, 8771:18, 8772:13, 8773:21, 8774:3
**Ads** [1] - 8775:16
**advance** [2] - 8677:8, 8778:9
**advantage** [3] - 8708:16, 8708:19, 8708:21
**advertise** [5] - 8726:4, 8735:20, 8741:3, 8742:7, 8742:16
**advertisement** [1] - 8742:15
**advertiser** [1] - 8752:21
**advertisers** [1] - 8765:12
**advertises** [1] - 8742:11
**advertising** [14] - 8741:17, 8742:2, 8752:25, 8762:15, 8762:16, 8762:17, 8762:19, 8765:8, 8765:12, 8771:1, 8771:4, 8772:2, 8772:3, 8774:25
**affect** [2] - 8691:19, 8699:13
**affects** [6] - 8697:20, 8697:25, 8698:2, 8698:22, 8699:3, 8699:8
**afterwards** [2] - 8718:8, 8739:21
**aggregate** [2] - 8712:2, 8735:24
**aggregated** [3] - 8665:15, 8665:19, 8760:4
**aggregating** [5] - 8666:23, 8668:7, 8670:23, 8714:23, 8714:24
**aggregation** [10] - 8662:15, 8665:15, 8665:18, 8665:21, 8665:25, 8666:14, 8666:17, 8668:5, 8668:16, 8670:19
**aggregations** [2] - 8661:10, 8751:19
**aggregators** [1] - 8760:15

**ago** [1] - 8659:23
**agree** [47] - 8663:21, 8668:12, 8670:13, 8670:17, 8671:2, 8672:1, 8672:5, 8672:18, 8674:23, 8674:25, 8675:8, 8676:6, 8677:21, 8681:14, 8684:24, 8685:12, 8686:15, 8688:7, 8689:14, 8694:4, 8702:14, 8705:20, 8706:3, 8706:8, 8706:23, 8708:16, 8709:23, 8712:7, 8716:20, 8719:21, 8720:3, 8722:12, 8724:22, 8727:18, 8731:9, 8737:4, 8739:23, 8751:12, 8753:20, 8755:5, 8755:23, 8758:8, 8764:11, 8765:14, 8770:18, 8770:22, 8771:7
**agreed** [3] - 8673:16, 8673:18, 8729:22
**agreements** [1] - 8689:21
**ahead** [1] - 8709:21
**AI** [2] - 8706:6, 8720:2
**aided** [1] - 8657:17
**air** [5] - 8722:19, 8722:20, 8722:23, 8723:6, 8723:10
**airline** [2] - 8759:20, 8760:5
**airline's** [1] - 8758:14
**airlines** [4] - 8759:19, 8760:8, 8760:13, 8760:20
**al** [2] - 8656:3, 8659:4
**algorithm** [4] - 8724:4, 8724:8, 8724:14, 8725:8
**algorithms** [1] - 8705:22
**all-in** [1] - 8735:13
**allegations** [1] - 8765:8
**alleged** [2] - 8763:11, 8771:22
**allocated** [1] - 8768:24
**allow** [1] - 8699:17
**allrecipes.com** [2] - 8723:1, 8723:6
**almost** [5] - 8679:15, 8679:16, 8750:5, 8763:1, 8779:25
**alone** [2] - 8700:16, 8750:1
**Alphabet** [4] - 8769:11, 8769:14, 8769:21, 8770:9
**alter** [2] - 8737:15, 8737:24
**altered** [2] - 8750:8, 8750:9
**alternative** [4] - 8677:8, 8688:22, 8704:17, 8742:24
**Amazon** [113] - 8671:16, 8678:1, 8680:12, 8681:1, 8681:4, 8681:8, 8683:8, 8686:21, 8688:9, 8689:5, 8689:12, 8689:22, 8690:23, 8693:19, 8693:21, 8702:19, 8711:9, 8711:12, 8711:19, 8712:11, 8714:17, 8717:22, 8725:21, 8725:24, 8726:2, 8726:4, 8728:11, 8729:1, 8729:2, 8729:4, 8729:10, 8729:13, 8729:16, 8729:19, 8731:6, 8732:1, 8733:2, 8733:21, 8734:2, 8734:6, 8734:12, 8734:18, 8734:19, 8734:25, 8735:2, 8735:7, 8735:12, 8735:17, 8735:19, 8735:22, 8736:3, 8736:6, 8736:12, 8736:13, 8736:15, 8736:18, 8736:23, 8737:7, 8737:10, 8741:16, 8742:1, 8742:4, 8742:11, 8744:20, 8745:2, 8745:5, 8745:6, 8745:8, 8745:11, 8745:14, 8745:20, 8746:4, 8746:10, 8746:12, 8748:1, 8749:2, 8749:3, 8749:4, 8749:9, 8749:14, 8751:21, 8753:8, 8753:14, 8753:18, 8753:22, 8754:1, 8754:6, 8754:9, 8754:10, 8755:2, 8755:4, 8755:7, 8755:15, 8755:18, 8756:2, 8756:7, 8756:8, 8756:9, 8756:10, 8756:15, 8756:19, 8757:2, 8759:3, 8772:5, 8778:21, 8778:22
**Amazon's** [1] - 8757:7
**amazon.com** [1] - 8760:15
**AMERICA** [1] - 8656:3
**America** [1] - 8659:4
**America's** [1] - 8773:5
**Americas** [2] - 8657:4, 8657:9
**AMIT** [1] - 8656:9
**amount** [5] - 8702:11, 8707:13, 8711:1, 8712:1, 8759:15
**analysis** [38] - 8662:13, 8662:25, 8663:11, 8663:19, 8666:15, 8667:23, 8668:4, 8678:3, 8678:8, 8680:3, 8684:6, 8707:2, 8707:8, 8707:11, 8715:8, 8724:25, 8725:25, 8726:25, 8727:4, 8727:5, 8727:6, 8727:8, 8731:12, 8740:18, 8746:25, 8750:20, 8751:18, 8753:4, 8753:13, 8754:16, 8756:24, 8759:8, 8763:6, 8767:3, 8768:18, 8768:20, 8773:13
**analyze** [2] - 8668:3, 8668:14
**analyzed** [3] - 8671:13, 8738:3, 8738:5
**analyzing** [1] - 8752:6
**Android** [7] - 8688:13, 8688:17, 8757:13, 8757:15, 8757:16, 8757:19, 8771:13
**announced** [4] - 8739:25, 8740:1, 8740:5
**announcements** [1] - 8739:24
**answer** [34] - 8664:14, 8666:12, 8666:18, 8667:21, 8668:8, 8669:22, 8673:6, 8675:10, 8675:12, 8675:23, 8676:8, 8677:13, 8681:14, 8681:20, 8684:16, 8690:24, 8695:10, 8696:3, 8697:2, 8697:8, 8697:12, 8698:9, 8698:14, 8699:10, 8699:17, 8716:5, 8717:14, 8718:12, 8719:15, 8719:23, 8746:11, 8749:9, 8753:24, 8761:18
**Answer** [11] - 8666:16, 8668:2, 8673:2, 8673:11, 8673:15, 8681:6, 8681:9, 8687:16, 8687:20, 8687:25, 8743:13
**answered** [4] - 8666:24, 8699:15, 8699:16, 8714:20
**answering** [3] - 8663:4, 8674:14, 8748:16
**answers** [8] - 8674:4, 8676:23, 8677:11, 8688:10, 8695:9, 8716:16, 8754:2, 8778:5
**anticipate** [3] - 8780:20, 8780:21, 8780:23
**anticipated** [1] - 8660:20
**Antitrust** [1] - 8656:20
**anyplace** [2] - 8702:12, 8712:24
**anyway** [1] - 8775:21
**apologize** [1] - 8713:16
**app** [31] - 8664:2, 8691:19, 8702:19, 8702:20, 8702:22, 8702:23, 8703:3, 8706:7, 8712:15, 8720:12, 8720:13, 8721:11, 8732:1, 8733:2, 8733:7, 8734:2, 8734:6, 8734:19, 8734:25, 8735:7, 8735:12, 8735:13, 8735:17, 8736:8, 8736:23, 8738:11, 8738:15, 8741:14, 8745:20, 8759:20
**APPEARANCES** [2] - 8656:12, 8657:1
**Apple** [38] - 8674:3, 8674:11, 8694:19, 8694:20, 8694:24, 8695:2, 8695:5, 8695:8, 8695:9, 8695:13, 8695:20, 8695:23, 8695:24, 8695:25, 8696:8, 8696:9, 8696:13, 8696:17, 8696:20, 8696:23, 8697:1, 8697:4, 8697:7, 8698:6, 8698:25, 8699:6, 8699:7, 8699:13, 8699:21, 8700:3, 8700:10, 8700:14, 8700:19, 8700:21, 8701:1, 8701:5, 8717:1
**Apple's** [14] - 8695:3, 8697:10, 8697:13, 8697:15, 8697:20, 8697:25, 8698:2, 8698:3, 8698:16, 8698:22, 8698:23, 8699:14
**approach** [10] - 8666:8, 8669:1, 8678:18, 8687:2, 8701:25, 8712:2, 8717:11, 8719:2, 8722:22, 8744:24
**approaches** [1] - 8766:2
**appropriate** [3] - 8666:14, 8673:13, 8782:18
**apps** [11] - 8689:12, 8734:24, 8736:8, 8736:13, 8737:4, 8737:16, 8737:25, 8738:3, 8738:4, 8738:18
**areas** [2] - 8773:14, 8773:16
**argues** [3] - 8701:2, 8701:7, 8701:8
**argument** [1] - 8765:13
**army** [4] - 8674:20, 8708:25, 8709:1, 8713:20
**arrive** [1] - 8667:6
**arrow** [1] - 8772:9
**arrows** [1] - 8771:21
**articulated** [1] - 8761:9
**artificially** [1] - 8765:17
**assemble** [1] - 8684:13
**assign** [1] - 8664:23
**assigned** [4] -

8663:10, 8664:4, 8664:9, 8664:21
**assigning** [1] - 8663:16
**assignment** [1] - 8665:1
**associated** [2] - 8767:6, 8767:8
**assume** [3] - 8695:21, 8700:13, 8781:11
**assuming** [1] - 8734:24
**auctions** [2] - 8765:17, 8765:18
**audience** [1] - 8727:15
**auto** [5] - 8676:21, 8676:24, 8677:1, 8760:17
**automated** [3] - 8664:20, 8664:22, 8664:23
**available** [2] - 8753:7, 8768:23
**avenue** [1] - 8686:12
**Avenue** [4] - 8657:4, 8657:7, 8657:9, 8657:13
**aware** [7] - 8682:6, 8687:16, 8688:23, 8697:17, 8731:4, 8742:20, 8778:10
**awning** [3] - 8715:17, 8716:2, 8716:9
**axes** [1] - 8694:6

## B

**backstop** [1] - 8708:24
**bad** [2] - 8726:20, 8766:19
**Baker** [4] - 8660:1, 8660:2, 8660:7, 8673:7
**Baker's** [1] - 8779:7
**ballpark** [1] - 8713:4
**banking** [1] - 8669:4
**banks** [2] - 8759:8, 8759:12
**bar** [16] - 8672:25, 8696:1, 8702:10, 8712:20, 8714:21, 8720:21, 8721:11, 8749:14, 8755:7, 8756:6, 8756:8, 8756:18, 8757:6, 8773:12
**Bard** [8] - 8739:3, 8739:10, 8739:11, 8739:17, 8739:18, 8739:20, 8740:1, 8740:5
**barely** [1] - 8693:12
**barriers** [2] - 8700:14, 8700:25
**bars** [7] - 8715:5, 8715:6, 8715:9, 8727:13, 8727:14, 8727:17, 8755:15
**baseball** [3] - 8709:20, 8710:1, 8712:23
**based** [11] - 8669:20, 8669:25, 8670:11, 8670:12, 8671:12, 8721:7, 8724:14, 8726:12, 8727:7, 8750:24
**basic** [4] - 8706:17, 8741:7, 8760:10, 8760:21
**basis** [6] - 8663:7, 8683:22, 8686:18, 8735:25, 8747:8
**Bates** [9] - 8682:18, 8686:5, 8692:14, 8692:21, 8693:5, 8733:6, 8737:12, 8737:18, 8773:5
**beans** [1] - 8692:11
**bear** [2] - 8734:16, 8735:5
**become** [1] - 8713:7
**becoming** [3] - 8720:2, 8731:1, 8777:15
**BEFORE** [2] - 8656:1, 8656:9
**begging** [1] - 8777:14
**beginning** [1] - 8681:16
**behalf** [1] - 8659:7
**behavior** [2] - 8758:18, 8763:11
**Belknap** [1] - 8657:3
**belongs** [2] - 8662:24, 8662:25
**below** [6] - 8666:20, 8703:11, 8733:9, 8763:1, 8763:11, 8767:23
**BENCH** [1] - 8656:9
**benefit** [3] - 8764:25, 8765:23, 8770:3
**benefits** [4] - 8704:25, 8719:14, 8735:12, 8735:24
**best** [34] - 8674:4, 8675:1, 8690:10, 8708:4, 8708:6, 8716:12, 8716:13, 8716:15, 8716:16, 8717:14, 8717:17, 8717:19, 8718:1, 8723:16, 8723:21, 8723:22, 8723:24, 8724:2, 8724:6, 8724:16, 8724:19, 8724:21, 8724:22, 8724:25, 8725:6, 8725:7, 8741:20, 8741:23, 8752:8, 8753:21, 8777:4, 8777:23
**better** [12] - 8675:13, 8691:21, 8695:3, 8697:3, 8709:1, 8719:1, 8730:21, 8730:22, 8752:25, 8775:20, 8777:15, 8778:4
**between** [19] - 8662:20, 8662:21, 8662:22, 8686:3, 8699:13, 8701:18, 8712:8, 8714:6, 8714:9, 8728:23, 8729:12, 8732:1, 8735:19, 8736:7, 8736:20, 8736:22, 8739:2, 8741:9, 8755:14
**beyond** [5] - 8674:6, 8674:13, 8698:11, 8698:13, 8753:25
**big** [3] - 8712:20, 8713:19, 8750:16
**bigger** [5] - 8703:13, 8720:4, 8749:8, 8773:7, 8774:14
**biggest** [1] - 8696:5
**billion** [1] - 8663:20
**billions** [3] - 8697:17, 8697:19, 8773:6
**bimodal** [1] - 8750:23
**binder** [13] - 8661:6, 8678:15, 8678:17, 8678:19, 8682:15, 8685:21, 8686:25, 8692:16, 8732:8, 8732:11, 8752:11, 8772:19, 8772:23
**bindered** [1] - 8709:3
**Bing** [39] - 8663:25, 8664:2, 8677:19, 8677:24, 8677:25, 8679:10, 8679:17, 8679:18, 8679:21, 8679:22, 8680:21, 8686:1, 8686:4, 8686:7, 8686:12, 8686:16, 8686:17, 8688:5, 8689:1, 8689:12, 8718:15, 8722:20, 8722:23, 8723:14, 8723:19, 8724:7, 8725:5, 8725:8, 8728:20, 8739:4, 8739:9, 8739:25, 8740:5, 8740:6, 8742:21, 8742:23, 8743:1, 8746:4
**Bing's** [3] - 8687:24, 8723:18, 8761:19
**biscuits** [3] - 8715:17, 8716:2, 8716:9
**bit** [2] - 8713:13, 8758:7
**blow** [1] - 8693:13
**blue** [8] - 8676:5, 8703:12, 8703:22, 8703:25, 8718:19, 8719:6, 8727:13, 8727:17
**blurry** [3] - 8718:24, 8719:4, 8730:19
**board** [1] - 8736:25
**book** [3] - 8671:7, 8671:15, 8758:4
**books** [1] - 8704:8
**boot** [1] - 8705:20
**boots** [4] - 8702:3, 8704:2, 8705:6
**Borges'** [1] - 8743:11
**bottom** [2] - 8710:4, 8743:9
**bought** [1] - 8745:21
**bounce** [1] - 8707:7
**box** [9] - 8674:8, 8695:18, 8695:22, 8709:15, 8723:2, 8733:12, 8749:8, 8749:9
**boxes** [1] - 8676:15
**brand** [2] - 8675:9, 8708:10
**breadth** [1] - 8781:11
**break** [7] - 8712:5, 8714:6, 8714:8, 8714:9, 8724:10, 8725:10, 8777:7
**breaking** [3] - 8713:6, 8763:6, 8773:14
**breaks** [3] - 8746:21, 8773:11, 8773:20
**brevity** [1] - 8755:2
**brief** [1] - 8777:10
**briefly** [1] - 8781:20
**bring** [3] - 8686:6, 8703:4, 8744:2
**brings** [2] - 8724:13, 8775:21
**Britannica** [1] - 8754:23
**broad** [2] - 8736:6, 8759:24
**broader** [3] - 8678:1, 8731:14, 8736:21
**broadly** [3] - 8678:10, 8678:12, 8764:11
**Broadway** [1] - 8656:20
**broken** [1] - 8754:17
**brokers** [2] - 8725:19, 8725:22
**browser** [10] - 8672:16, 8673:14, 8674:20, 8702:6, 8702:9, 8702:13, 8702:16, 8702:20, 8710:17, 8715:3
**browser's** [1] - 8673:25
**browsers** [8] - 8672:9, 8672:19, 8673:17, 8674:17, 8708:21, 8708:23, 8708:24
**building** [2] - 8675:11, 8675:12
**bullet** [5] - 8669:1, 8730:18, 8730:23, 8731:16, 8774:13
**bunch** [1] - 8751:21
**bus** [1] - 8727:20
**business** [1] - 8769:14
**but-for** [6] - 8760:24, 8761:3, 8761:5, 8761:7, 8761:10, 8766:3
**buy** [23] - 8684:8, 8699:1, 8699:3, 8699:24, 8700:1, 8700:3, 8707:15, 8709:21, 8710:10, 8710:16, 8727:18, 8727:24, 8729:4, 8729:19, 8745:2, 8745:5, 8745:8, 8745:10, 8755:21, 8756:1, 8758:7, 8759:4
**buyer** [1] - 8699:2
**buying** [3] - 8734:10, 8735:1, 8735:3
**BY** [24] - 8661:5, 8664:5, 8664:13, 8664:17, 8679:1, 8687:4, 8697:24,

8698:19, 8699:18, 8700:6, 8713:18, 8715:14, 8715:22, 8719:5, 8725:14, 8732:14, 8732:25, 8733:20, 8737:11, 8737:23, 8745:1, 8751:5, 8760:23, 8768:14

## C

**calculated** [2] - 8682:5, 8748:22
**calculating** [3] - 8682:9, 8682:11, 8683:21
**calculations** [1] - 8684:20
**cancer** [3] - 8661:24, 8662:6, 8662:11
**candidly** [2] - 8687:25, 8780:3
**capacity** [1] - 8765:7
**capture** [1] - 8766:24
**captures** [1] - 8770:7
**car** [8] - 8719:21, 8720:5, 8720:6, 8727:18, 8727:20, 8727:22, 8728:6, 8728:12
**card** [2] - 8743:3, 8743:12
**careful** [2] - 8732:16, 8752:20
**carriers** [2] - 8688:19, 8689:20
**cars** [5] - 8718:14, 8728:14, 8769:25, 8770:5, 8770:8
**cars.com** [2] - 8718:14, 8760:18
**case** [23] - 8660:19, 8672:12, 8672:14, 8672:16, 8677:9, 8677:18, 8685:20, 8688:14, 8691:9, 8702:25, 8714:16, 8724:20, 8728:16, 8735:10, 8745:14, 8753:6, 8754:10, 8755:11, 8757:7, 8770:21, 8780:17, 8781:3, 8782:16
**Case** [1] - 8656:3
**case-in-chief** [1] - 8782:16
**cases** [13] - 8674:5, 8676:20, 8701:22, 8717:21, 8717:25, 8720:4, 8720:8, 8722:12, 8741:12, 8750:14, 8752:19, 8763:1
**catalogue** [2] - 8743:4, 8743:12
**catch** [1] - 8752:16
**categories** [1] - 8751:6
**categorizations** [1] - 8747:10
**category** [1] - 8673:13
**caused** [1] - 8771:10
**causes** [1] - 8771:11
**Cavanaugh** [2] - 8659:7, 8776:2
**CAVANAUGH** [6] - 8657:3, 8659:25, 8776:3, 8776:21, 8776:23, 8783:3
**certain** [4] - 8675:13, 8711:1, 8764:13, 8769:6
**certainly** [24] - 8666:22, 8668:6, 8677:24, 8680:5, 8680:6, 8680:13, 8684:5, 8685:6, 8685:12, 8688:7, 8694:14, 8695:5, 8698:11, 8706:9, 8722:5, 8722:12, 8744:14, 8746:12, 8751:20, 8769:9, 8773:16, 8780:9, 8780:11, 8780:21
**CERTIFICATE** [1] - 8784:1
**certify** [1] - 8784:3
**challenged** [5] - 8761:4, 8761:15, 8761:20, 8761:25, 8762:3
**chance** [1] - 8781:15
**change** [10] - 8714:3, 8715:6, 8715:9, 8718:3, 8718:21, 8719:10, 8749:10, 8751:21, 8759:18, 8760:1
**changed** [4] - 8665:5, 8715:6, 8715:9, 8774:25
**characteristic** [2] - 8764:7, 8764:9
**characterization** [2] - 8689:14, 8696:17
**characterizing** [1] - 8695:4
**charge** [1] - 8765:8
**Charlotte** [1] - 8730:10
**chart** [15] - 8659:14, 8744:1, 8746:7, 8746:13, 8746:14, 8747:5, 8749:7, 8769:18, 8769:25, 8771:8, 8771:11, 8771:12, 8771:15, 8772:6, 8773:19
**charts** [1] - 8773:2
**ChatGPT** [11] - 8705:10, 8705:13, 8706:14, 8706:15, 8706:20, 8706:22, 8739:3, 8739:9, 8739:24, 8740:3, 8740:5
**check** [5] - 8712:24, 8744:15, 8758:3, 8758:16, 8772:10
**checked** [1] - 8781:7
**chief** [1] - 8782:16
**child's** [3] - 8662:2, 8662:7, 8662:11
**chocolates** [1] - 8756:1
**choice** [17] - 8671:21, 8708:24, 8723:1, 8723:16, 8723:18, 8723:21, 8723:22, 8723:24, 8724:2, 8724:6, 8724:8, 8724:16, 8724:19, 8724:22, 8724:25, 8725:6
**choices** [4] - 8724:18, 8725:7, 8753:5, 8753:6
**choose** [4] - 8699:25, 8710:21, 8714:18, 8753:12
**chose** [1] - 8681:12
**Chu** [1] - 8681:7
**circulating** [1] - 8680:19
**cite** [6] - 8680:4, 8680:10, 8690:1, 8693:25, 8740:23, 8740:24
**cited** [5] - 8680:6, 8682:3, 8730:16, 8740:23, 8782:9
**Civil** [1] - 8659:4
**cjponyparts** [3] - 8719:18, 8720:25, 8721:2
**cjponyparts.com** [2] - 8718:20, 8719:6
**clarify** [2] - 8666:21, 8708:9
**classic** [2] - 8718:22, 8719:10
**classification** [1] - 8750:4
**classifications** [1] - 8750:9
**classified** [1] - 8750:15
**classifies** [1] - 8746:19
**classify** [1] - 8749:23
**clean** [2] - 8722:10, 8753:24
**clear** [16] - 8662:15, 8684:16, 8696:23, 8702:18, 8709:9, 8709:13, 8710:7, 8722:15, 8758:2, 8758:20, 8758:23, 8760:3, 8761:2, 8770:9, 8781:23, 8782:13
**clearer** [1] - 8698:1
**clearly** [4] - 8690:19, 8741:23, 8755:17, 8756:15
**click** [6] - 8679:13, 8679:22, 8702:16, 8702:23, 8703:3, 8745:9
**clicking** [2] - 8701:18, 8701:19
**clicks** [5] - 8679:7, 8704:2, 8706:4, 8716:14, 8724:24
**client** [1] - 8777:13
**clock** [1] - 8710:11
**close** [6] - 8668:11, 8689:1, 8702:19, 8750:17, 8767:15
**closed** [1] - 8776:15
**closer** [3] - 8728:8, 8768:6, 8776:10
**Coast** [1] - 8777:14
**collect** [1] - 8697:11
**Colorado** [4] - 8656:18, 8656:19, 8656:21, 8657:2
**COLUMBIA** [1] - 8656:1
**column** [1] - 8771:24
**com** [2] - 8720:22, 8720:24
**combine** [3] - 8668:12, 8744:16, 8769:11
**coming** [2] - 8659:17, 8739:3
**comment** [2] - 8743:6, 8763:10
**commercial** [3] - 8725:15, 8725:24, 8726:6
**commission** [1] - 8726:22
**commissioned** [2] - 8726:19, 8726:23
**common** [2] - 8690:19, 8728:25
**communications** [1] - 8778:17
**companies** [4] - 8677:22, 8685:2, 8741:16, 8744:15
**company** [1] - 8688:1
**compare** [2] - 8681:12, 8686:21
**compared** [3] - 8731:8, 8766:2, 8773:21
**compares** [7] - 8677:19, 8677:22, 8679:15, 8679:17, 8683:15, 8685:25, 8693:25
**comparing** [8] - 8679:10, 8679:21, 8679:22, 8686:11, 8686:19, 8693:9, 8693:18, 8709:12
**comparison** [2] - 8679:18, 8686:3
**compete** [18] - 8667:7, 8667:25, 8684:24, 8686:16, 8686:18, 8694:5, 8694:11, 8725:21, 8728:15, 8729:22, 8729:24, 8735:11, 8736:16, 8741:4, 8748:16, 8754:7, 8754:8
**competed** [2] - 8745:13, 8745:22
**competes** [6] - 8678:5, 8725:25, 8726:2, 8734:12, 8755:25, 8756:1
**competing** [6] - 8685:1, 8696:21, 8745:6, 8745:12, 8755:8, 8755:16
**competition** [40] - 8662:16, 8662:19, 8665:19, 8665:23, 8668:15, 8668:17, 8670:24, 8672:7, 8680:12, 8685:7, 8685:15, 8687:25, 8694:6, 8695:10,

8696:2, 8696:10, 8696:22, 8699:20, 8721:10, 8722:18, 8730:6, 8730:7, 8731:14, 8734:13, 8735:16, 8736:20, 8738:19, 8739:7, 8739:22, 8739:23, 8739:25, 8740:6, 8745:19, 8746:3, 8751:13, 8751:22, 8756:4, 8763:20, 8763:25, 8764:2
**competitive** [15] - 8668:13, 8671:4, 8671:6, 8672:3, 8681:21, 8699:4, 8699:24, 8730:1, 8766:4, 8766:6, 8766:7, 8766:12, 8766:16, 8766:23, 8767:14
**competitor** [9] - 8662:17, 8677:16, 8688:9, 8728:8, 8735:3, 8736:11, 8736:16, 8749:3, 8754:10
**competitors** [20] - 8662:8, 8662:13, 8662:14, 8662:15, 8671:11, 8672:2, 8678:3, 8678:4, 8678:9, 8687:19, 8687:24, 8688:6, 8688:7, 8696:5, 8734:20, 8751:10, 8753:12, 8762:20, 8773:17
**complement** [3] - 8735:14, 8745:15, 8745:20
**complementarity** [2] - 8736:7, 8736:21
**complements** [1] - 8735:18
**complete** [1] - 8689:13
**completely** [4] - 8687:10, 8726:12, 8754:3, 8756:12
**component** [1] - 8671:14
**components** [1] - 8680:17
**compute** [3] - 8683:18, 8683:20, 8684:18
**computer** [2] - 8657:17, 8713:9
**computer-aided** [1] - 8657:17
**computing** [3] - 8680:1, 8684:25, 8774:6
**Comscore** [1] - 8684:12
**concept** [1] - 8714:14
**concluded** [2] - 8660:21, 8731:5
**conclusion** [8] - 8667:12, 8712:20, 8713:19, 8713:21, 8713:22, 8727:12, 8751:21, 8761:10
**conclusions** [1] - 8759:25
**concur** [1] - 8775:18
**conditions** [3] - 8668:13, 8672:3, 8763:14
**conduct** [4] - 8688:14, 8761:20, 8761:25, 8762:4
**conferring** [1] - 8660:8
**confess** [1] - 8695:20
**confidence** [1] - 8776:25
**confidentiality** [5] - 8692:16, 8732:15, 8777:12, 8778:8, 8779:21
**connected** [1] - 8742:5
**connection** [1] - 8728:16
**Connolly** [1] - 8657:6
**consider** [5] - 8687:18, 8734:20, 8766:21, 8773:15, 8781:25
**consideration** [3] - 8691:3, 8731:12, 8782:1
**considered** [7] - 8668:3, 8681:17, 8694:20, 8694:24, 8695:2, 8695:5, 8727:5
**considering** [3] - 8667:24, 8692:11, 8693:8
**considers** [1] - 8714:24
**consistent** [2] - 8674:19, 8733:25
**Constitution** [1] - 8657:13
**constraint** [1] - 8765:7
**consult** [1] - 8777:13
**Consumer** [1] - 8656:19
**content** [1] - 8673:13
**context** [7] - 8678:11, 8739:5, 8749:23, 8750:2, 8750:6, 8750:20, 8750:22
**continue** [1] - 8781:13
**Continued** [1] - 8661:4
**continued** [3] - 8656:24, 8762:24, 8762:25
**CONTINUED** [1] - 8657:1
**continues** [1] - 8730:19
**contract** [4] - 8697:15, 8697:20, 8697:25, 8698:22
**contracts** [2] - 8761:4, 8761:15
**contractual** [1] - 8699:13
**contractually** [1] - 8689:11
**contrast** [1] - 8728:25
**control** [1] - 8766:13
**convenient** [3] - 8691:17, 8691:18, 8691:19
**conversation** [3] - 8672:10, 8689:17, 8690:6
**cook** [2] - 8723:12, 8725:6
**cooks** [1] - 8724:5
**corporations** [1] - 8684:13
**correct** [39] - 8665:15, 8665:25, 8666:1, 8666:17, 8666:22, 8666:25, 8667:3, 8667:9, 8667:13, 8668:6, 8671:22, 8675:22, 8678:2, 8686:14, 8695:1, 8706:22, 8711:16, 8711:17, 8711:22, 8715:5, 8725:20, 8726:8, 8729:2, 8729:5, 8743:18, 8744:22, 8746:16, 8747:1, 8749:6, 8752:24, 8757:17, 8763:9, 8768:16, 8768:19, 8770:18, 8773:15, 8784:4
**correctly** [1] - 8667:1
**correlated** [3] - 8731:18, 8731:19, 8738:15
**correlation** [7] - 8729:11, 8729:12, 8729:14, 8729:17, 8733:13, 8734:2
**correlations** [1] - 8732:1
**cost** [15] - 8674:21, 8707:17, 8707:24, 8717:24, 8718:1, 8741:8, 8741:13, 8767:4, 8767:5, 8767:6, 8767:8, 8767:9, 8767:10, 8767:12, 8767:13
**costs** [9] - 8701:13, 8701:17, 8701:22, 8702:24, 8707:7, 8741:10, 8741:14, 8742:1, 8767:16
**counsel** [1] - 8778:14
**count** [2] - 8663:17, 8714:10
**counted** [1] - 8663:13
**counterdesignations** [1] - 8780:7
**counterfactual** [2] - 8761:3, 8761:14
**counterfactually** [1] - 8761:16
**counterparties** [1] - 8688:18
**counting** [3] - 8683:23, 8709:13, 8757:24
**counts** [3] - 8710:18, 8711:21, 8759:4
**couple** [1] - 8702:21
**course** [22] - 8659:18, 8661:10, 8664:25, 8665:4, 8665:8, 8668:4, 8697:23, 8703:25, 8709:20, 8710:12, 8712:7, 8714:7, 8714:11, 8723:14, 8732:10, 8737:18, 8747:5, 8747:19, 8747:20, 8751:16, 8762:2, 8782:6
**COURT** [67] - 8656:1, 8659:9, 8660:9, 8660:15, 8660:24, 8664:1, 8678:22, 8678:24, 8687:3, 8697:22, 8698:5, 8698:9, 8698:13, 8699:17, 8700:3, 8715:11, 8719:3, 8725:3, 8725:11, 8732:11, 8732:13, 8732:23, 8733:16, 8734:15, 8735:4, 8735:10, 8735:23, 8736:23, 8737:17, 8737:20, 8744:25, 8751:4, 8760:3, 8764:17, 8764:19, 8765:5, 8765:9, 8765:21, 8767:3, 8768:12, 8775:6, 8775:10, 8775:18, 8776:1, 8776:4, 8776:11, 8776:13, 8776:15, 8776:18, 8776:22, 8776:24, 8777:17, 8778:7, 8778:21, 8779:1, 8779:14, 8779:19, 8780:16, 8780:25, 8781:15, 8782:3, 8782:12, 8782:19, 8782:24, 8783:5, 8784:1, 8784:9
**court** [6] - 8659:2, 8762:18, 8777:11, 8779:5, 8779:18, 8780:2
**Court** [8] - 8657:13, 8661:15, 8663:11, 8665:2, 8680:3, 8693:25, 8757:22, 8781:23
**courtroom** [1] - 8778:6
**COURTROOM** [1] - 8659:3
**cover** [7] - 8691:24, 8692:4, 8692:6, 8730:15, 8763:13, 8772:21, 8775:25
**COVID** [1] - 8775:1
**crawling** [1] - 8707:1
**crawls** [1] - 8697:8
**create** [1] - 8764:20
**created** [2] - 8683:15, 8726:25
**creates** [1] - 8764:8
**creating** [2] - 8764:25, 8767:5
**creation** [3] - 8764:23, 8765:22, 8767:6
**credible** [2] - 8700:14, 8701:2
**criticized** [1] - 8718:8
**cross** [5] - 8776:19, 8776:20, 8777:19, 8780:22, 8780:23

**CROSS** [1] - 8661:4
**Cross** [1] - 8658:4
**cross-examination** [1] - 8777:19
**CROSS-EXAMINATION** [1] - 8661:4
**Cross-Examination..... .....** [1] - 8658:4
**CRR** [1] - 8657:13
**CUP** [2] - 8680:20, 8681:3
**curate** [1] - 8723:20
**current** [3] - 8706:24, 8707:1, 8776:14
**curve** [2] - 8767:22, 8767:23
**cut** [5] - 8685:6, 8685:12, 8695:19, 8708:25, 8747:7
**cut-off** [1] - 8747:7
**cuts** [1] - 8685:5

## D

**D.C** [9] - 8656:5, 8656:14, 8656:17, 8657:7, 8657:14, 8715:16, 8716:1, 8716:8, 8717:9
**data** [28] - 8664:9, 8680:14, 8680:20, 8684:14, 8684:15, 8685:5, 8685:10, 8685:14, 8697:8, 8726:13, 8726:14, 8726:19, 8726:21, 8726:23, 8727:1, 8727:8, 8727:9, 8740:18, 8746:10, 8750:25, 8753:20, 8753:21, 8754:16, 8754:18, 8758:25, 8762:15
**Database** [1] - 8754:24
**date** [3] - 8680:21, 8706:20, 8755:10
**DATE** [1] - 8784:9
**dated** [1] - 8732:17
**Davies** [5] - 8781:23, 8782:8, 8782:10, 8782:13
**DAY** [1] - 8656:9
**days** [6] - 8712:25, 8739:9, 8739:11, 8739:14, 8739:18, 8740:1
**de** [1] - 8712:2
**de-aggregate** [1] - 8712:2
**deadline** [1] - 8782:14
**debating** [1] - 8670:20
**decide** [6] - 8675:2, 8690:8, 8690:21, 8691:2, 8691:6, 8746:14
**decided** [2] - 8670:5, 8781:21
**decision** [19] - 8691:1, 8691:8, 8691:13, 8691:19, 8697:21, 8698:3, 8698:23, 8699:2, 8699:3, 8699:22, 8699:23, 8699:24, 8705:3, 8712:13, 8712:16, 8714:15, 8714:19, 8770:10, 8782:21
**decisions** [1] - 8699:14
**deck** [10] - 8659:12, 8659:17, 8660:2, 8691:25, 8692:1, 8692:15, 8726:9, 8740:7, 8751:2, 8751:3
**deep** [1] - 8694:9
**default** [12] - 8672:9, 8672:16, 8672:19, 8673:8, 8673:13, 8673:19, 8673:21, 8674:1, 8674:4, 8674:17, 8687:14, 8691:12
**defaults** [4] - 8689:11, 8691:9, 8691:15
**DEFENDANT** [1] - 8661:3
**Defendant** [2] - 8656:7, 8657:6
**define** [4] - 8661:23, 8674:14, 8675:22, 8750:17
**defined** [7] - 8670:6, 8671:8, 8671:12, 8714:21, 8746:24, 8773:16, 8773:17
**definitely** [3] - 8663:2, 8709:13, 8769:2
**definition** [17] - 8662:7, 8664:22, 8664:23, 8666:4, 8666:5, 8666:15, 8710:12, 8714:3, 8714:7, 8714:12, 8715:7, 8715:9, 8734:16, 8746:17, 8751:13, 8751:14, 8751:15
**definitions** [3] - 8664:21, 8665:8, 8672:7
**degree** [2] - 8727:23, 8776:25
**delaying** [1] - 8781:25
**delivery** [1] - 8737:2
**demand** [7] - 8665:20, 8727:19, 8752:7, 8753:4, 8755:24, 8767:11
**demand-side** [2] - 8753:4
**demonstrative** [2] - 8659:18, 8778:22
**Denver** [1] - 8656:21
**denying** [1] - 8691:18
**Department** [3] - 8656:13, 8656:16, 8656:19
**depo** [1] - 8723:11
**deposition** [8] - 8666:6, 8666:7, 8667:18, 8668:11, 8715:15, 8715:25, 8718:2, 8730:4
**depositions** [1] - 8779:22
**Depot** [1] - 8671:20
**DEPUTY** [1] - 8659:3
**describe** [2] - 8699:7, 8730:4
**described** [4] - 8669:21, 8670:11, 8671:13, 8749:15
**describing** [2] - 8729:15, 8733:25
**description** [2] - 8689:13, 8689:16
**designate** [1] - 8779:17
**designated** [2] - 8779:22, 8782:5
**designations** [2] - 8779:15, 8780:1
**designed** [3] - 8689:14, 8721:3, 8769:23
**designing** [1] - 8689:10
**desired** [1] - 8695:7
**desktop** [3] - 8682:23, 8683:5, 8701:11
**detail** [1] - 8722:2
**details** [2] - 8704:21, 8738:7
**determined** [1] - 8705:23
**determines** [1] - 8746:20
**develop** [2] - 8739:17, 8742:10
**developed** [4] - 8739:18, 8761:2, 8761:14, 8761:16
**develops** [1] - 8746:8
**device** [3] - 8687:13, 8687:15, 8701:12
**devices** [1] - 8689:23
**dialogue** [1] - 8738:17
**differ** [1] - 8753:6
**difference** [1] - 8668:15
**differences** [1] - 8672:1
**different** [49] - 8662:8, 8662:13, 8662:14, 8663:13, 8664:24, 8667:5, 8667:11, 8668:2, 8668:13, 8669:3, 8670:14, 8670:17, 8671:6, 8673:10, 8675:23, 8676:10, 8677:22, 8690:18, 8690:24, 8701:12, 8701:13, 8701:18, 8704:3, 8705:2, 8705:11, 8705:25, 8711:7, 8713:5, 8713:23, 8717:3, 8717:12, 8724:18, 8726:5, 8735:4, 8741:12, 8744:4, 8745:17, 8747:16, 8751:7, 8751:10, 8751:12, 8751:14, 8753:5, 8754:3, 8756:12, 8763:13, 8768:25
**differently** [3] - 8666:4, 8737:1, 8764:24
**differs** [1] - 8768:3
**difficult** [1] - 8777:16
**digital** [4] - 8762:16, 8762:19, 8773:5, 8774:24
**digits** [1] - 8737:19
**dimension** [2] - 8694:7, 8694:10
**dimensions** [1] - 8686:22
**DINTZER** [52] - 8656:13, 8659:17, 8661:2, 8661:5, 8664:2, 8664:5, 8664:13, 8664:16, 8664:17, 8679:1, 8687:4, 8697:23, 8697:24, 8698:8, 8698:18, 8698:19, 8699:18, 8700:6, 8713:13, 8713:15, 8713:18, 8715:13, 8715:14, 8715:20, 8715:22, 8719:5, 8725:9, 8725:14, 8732:14, 8732:20, 8732:25, 8733:18, 8733:20, 8737:11, 8737:18, 8737:23, 8745:1, 8751:5, 8760:23, 8764:18, 8768:13, 8768:14, 8775:4, 8775:15, 8775:19, 8775:24, 8777:18, 8778:19, 8778:24, 8779:3, 8779:16, 8783:1
**Dintzer** [3] - 8659:6, 8661:1, 8775:13
**direct** [6] - 8660:21, 8683:19, 8698:14, 8708:13, 8776:9, 8780:21
**directed** [2] - 8769:17, 8781:4
**direction** [2] - 8702:25, 8703:2
**directly** [3] - 8742:5, 8770:8, 8782:8
**disaggregated** [1] - 8684:5
**disagree** [9] - 8684:17, 8700:2, 8700:7, 8774:4, 8774:19, 8774:21, 8774:23, 8775:1, 8775:2
**disappear** [4] - 8742:21, 8743:2, 8743:11
**disclosed** [4] - 8659:20, 8659:22, 8778:11, 8782:15
**discovery** [1] - 8782:6
**discuss** [2] - 8659:10, 8775:11
**discussed** [4] - 8696:24, 8747:3, 8747:15, 8763:1
**discussing** [1] - 8771:12
**discussion** [3] - 8659:11, 8739:5, 8741:11
**display** [2] - 8773:11, 8773:14
**dispositive** [1] - 8763:16

**dispute** [2] - 8683:14, 8748:25
**disputed** [2] - 8748:24, 8781:12
**disputing** [2] - 8683:16, 8683:18
**distinct** [2] - 8750:16, 8773:18
**distribute** [1] - 8685:10
**distribution** [1] - 8697:15
**DISTRICT** [3] - 8656:1, 8656:1, 8656:10
**divide** [1] - 8684:22
**division** [1] - 8665:4
**document** [30] - 8679:2, 8680:17, 8683:25, 8685:18, 8685:25, 8686:3, 8686:24, 8688:12, 8692:11, 8693:8, 8693:22, 8693:24, 8727:7, 8730:14, 8731:24, 8732:20, 8733:4, 8734:14, 8737:13, 8738:20, 8743:23, 8744:13, 8744:19, 8745:23, 8746:8, 8772:20, 8772:24, 8773:3, 8773:13, 8775:4
**documents** [28] - 8677:18, 8677:21, 8679:3, 8679:25, 8680:1, 8680:2, 8680:6, 8680:8, 8680:10, 8680:11, 8681:21, 8681:23, 8681:25, 8682:1, 8682:3, 8683:18, 8685:20, 8686:19, 8686:21, 8727:3, 8740:11, 8740:15, 8740:19, 8740:21, 8740:22, 8777:12, 8778:3, 8779:21
**DOJ** [8] - 8656:13, 8659:6, 8659:14, 8772:2, 8776:20, 8782:7, 8782:20, 8783:1
**dollars** [1] - 8697:19
**done** [20] - 8660:19, 8662:25, 8663:7, 8663:9, 8666:13, 8673:11, 8707:2, 8715:8, 8731:5, 8748:1, 8751:17, 8760:20, 8761:17, 8761:23, 8762:6, 8763:6, 8771:20, 8780:21, 8780:22, 8780:24
**dot** [3] - 8720:22, 8720:24, 8721:1
**dot-com** [2] - 8720:22, 8720:24
**doubt** [6] - 8724:3, 8733:24, 8734:9, 8739:14, 8739:16, 8740:4
**down** [16] - 8664:10, 8664:18, 8691:4, 8703:11, 8714:4, 8714:22, 8719:18, 8746:21, 8754:17, 8755:21, 8763:6, 8766:19, 8766:23, 8767:15, 8767:21, 8773:20
**downward** [1] - 8766:9
**Dr** [13] - 8659:13, 8660:18, 8680:25, 8690:6, 8721:19, 8737:21, 8743:24, 8744:1, 8752:10, 8775:6, 8776:5, 8776:25, 8777:6
**dramatically** [1] - 8774:25
**drawing** [3] - 8712:20, 8713:19, 8727:12
**drive** [3] - 8727:25, 8728:2, 8728:5
**driven** [1] - 8767:15
**drives** [2] - 8766:19, 8767:21
**driving** [3] - 8769:25, 8770:5, 8770:7
**drop** [1] - 8717:4
**duck** [1] - 8693:15
**DuckDuckGo** [2] - 8687:18, 8688:5
**due** [1] - 8686:7
**during** [4] - 8687:13, 8778:1, 8778:5, 8780:22
**DX3243** [2] - 8659:13, 8660:12
**DX3243**..... [1] - 8658:8
**DXD29** [3] - 8658:8, 8659:12, 8660:12
**DXD38** [1] - 8741:2
**DXD59** [1] - 8771:17

## E

**e-mails** [2] - 8778:12, 8778:17
**earliest** [1] - 8780:12
**easier** [6] - 8668:25, 8685:22, 8686:6, 8687:5, 8773:8, 8776:7
**easily** [1] - 8741:7
**easy** [1] - 8742:6
**eat** [1] - 8713:3
**econ** [1] - 8768:4
**economic** [4] - 8665:1, 8761:17, 8761:21, 8764:9
**economics** [3] - 8698:8, 8698:15, 8699:6
**economist** [3] - 8727:21, 8730:6, 8749:12
**economists** [2] - 8730:4, 8730:8
**edge** [1] - 8662:18
**education** [6] - 8669:10, 8669:13, 8670:13, 8670:15, 8670:16, 8670:20
**effect** [7] - 8699:8, 8714:25, 8749:15, 8766:25, 8767:24, 8768:10, 8768:11
**effective** [1] - 8741:23
**effects** [1] - 8770:12
**effort** [1] - 8685:3
**efforts** [3] - 8749:17, 8764:13, 8764:15
**Egypt** [1] - 8769:3
**Eiffel** [4] - 8684:1, 8684:3, 8722:7, 8722:9
**either** [7] - 8702:25, 8703:2, 8717:10, 8734:9, 8750:5, 8770:10, 8777:1
**elements** [6] - 8685:15, 8731:14, 8736:7, 8761:9, 8769:6, 8771:21
**eMarketer** [5] - 8684:12, 8762:15, 8762:21, 8762:22, 8763:7
**encourage** [1] - 8742:11
**end** [6] - 8660:21, 8660:25, 8701:8, 8713:10, 8763:19, 8777:2
**ended** [1] - 8672:8
**engaged** [1] - 8710:13
**engagement** [2] - 8710:20, 8731:17
**engine** [43] - 8672:17, 8673:1, 8673:8, 8673:9, 8673:14, 8673:25, 8674:18, 8674:22, 8675:4, 8675:19, 8676:22, 8684:17, 8687:15, 8687:19, 8690:16, 8694:1, 8694:21, 8698:23, 8701:10, 8701:19, 8704:6, 8704:14, 8705:1, 8707:13, 8708:16, 8709:22, 8710:2, 8713:4, 8719:14, 8719:20, 8720:22, 8721:12, 8722:3, 8722:10, 8724:1, 8724:13, 8728:18, 8728:22, 8729:1, 8729:7, 8761:24, 8762:3, 8770:19
**engines** [26] - 8673:16, 8681:13, 8683:8, 8683:16, 8684:9, 8684:18, 8684:21, 8689:1, 8690:2, 8693:10, 8694:5, 8694:11, 8694:16, 8701:18, 8718:15, 8718:18, 8723:5, 8728:20, 8728:24, 8729:21, 8743:2, 8743:10, 8744:5, 8744:9, 8748:20
**ensure** [1] - 8689:10
**enter** [12] - 8694:21, 8695:7, 8697:1, 8699:23, 8700:14, 8700:20, 8700:21, 8701:7, 8724:23, 8735:22, 8761:3, 8761:15
**entered** [2] - 8677:19, 8679:5
**entering** [2] - 8735:16, 8757:25
**entire** [1] - 8770:23
**entirely** [2] - 8713:15, 8781:22
**entities** [1] - 8663:13
**entitled** [1] - 8784:5
**entrant** [3] - 8694:24, 8700:20, 8701:4
**entry** [9] - 8695:2, 8695:5, 8697:13, 8697:21, 8698:3, 8698:23, 8699:14, 8700:14, 8700:25
**especially** [2] - 8720:10, 8775:1
**ESQ** [6] - 8656:13, 8656:15, 8656:18, 8657:3, 8657:6, 8657:8
**estate** [2] - 8725:19, 8725:22
**estimate** [1] - 8775:20
**estimating** [1] - 8775:17
**et** [2] - 8656:3, 8659:4
**evaluated** [1] - 8679:9
**evidence** [18] - 8660:12, 8677:19, 8680:15, 8682:13, 8685:17, 8690:20, 8691:23, 8694:18, 8694:20, 8698:16, 8730:16, 8730:23, 8732:21, 8732:24, 8738:11, 8763:16, 8763:18, 8772:18
**exact** [4] - 8697:16, 8699:16, 8707:20, 8720:25
**exactly** [10] - 8659:20, 8663:18, 8672:5, 8683:23, 8695:4, 8721:1, 8738:18, 8753:22, 8758:1, 8777:21
**EXAMINATION** [1] - 8661:4
**examination** [2] - 8775:14, 8777:19
**Examination**..... [1] - 8658:4
**examine** [1] - 8676:10
**example** [13] - 8663:11, 8665:7, 8671:23, 8686:11, 8702:17, 8703:7, 8721:18, 8721:20, 8721:25, 8727:4, 8752:13, 8759:19, 8760:5
**examples** [3] - 8703:6, 8722:13, 8771:12
**excluded** [2] - 8747:13, 8747:14
**excludes** [1] - 8759:1
**excluding** [1] - 8749:7
**exclusivity** [1] - 8690:1
**executive** [2] - 8774:9,

8776:14
**exhibit** [6] - 8659:20, 8659:22, 8679:4, 8710:11, 8769:19, 8778:11
**Exhibit** [1] - 8732:24
**exhibits** [4] - 8660:7, 8678:17, 8679:6, 8778:16
**EXHIBITS** [1] - 8658:7
**Exhibits** [1] - 8660:12
**exist** [1] - 8718:6
**existence** [4] - 8735:12, 8736:7, 8736:13, 8737:4
**exists** [1] - 8685:8
**expands** [1] - 8736:14
**expansion** [1] - 8768:11
**expect** [5] - 8660:18, 8660:21, 8728:21, 8728:23, 8780:23
**expectation** [2] - 8672:25, 8780:6
**expectations** [2] - 8762:13, 8762:22
**expected** [6] - 8733:9, 8733:21, 8774:15, 8776:16, 8776:19, 8776:20
**Expedia** [3] - 8741:16, 8758:7, 8758:18
**expenditures** [1] - 8769:12
**experience** [5] - 8713:8, 8716:23, 8717:1, 8769:22, 8774:24
**experiment** [1] - 8741:25
**experimentation** [1] - 8717:3
**expert** [8] - 8781:12, 8781:13, 8782:4, 8782:5, 8782:7, 8782:14, 8782:15
**explicit** [1] - 8770:2
**explicitly** [1] - 8765:15
**extensively** [1] - 8779:22
**extent** [6] - 8698:10, 8698:15, 8769:10, 8772:12, 8772:13, 8781:3
**extra** [1] - 8702:16
**eyes** [1] - 8685:23

## F

**Face** [3] - 8703:8, 8704:8, 8705:5
**Facebook** [14] - 8681:1, 8681:4, 8681:8, 8683:8, 8689:8, 8689:22, 8693:20, 8693:21, 8748:10, 8748:11, 8749:4, 8749:5, 8772:13, 8772:16
**faced** [2] - 8763:20, 8764:2
**faces** [2] - 8746:3, 8756:3
**fact** [24] - 8698:16, 8700:16, 8700:25, 8708:20, 8722:2, 8726:18, 8728:9, 8731:17, 8735:11, 8741:3, 8748:14, 8754:1, 8755:3, 8755:6, 8755:9, 8755:14, 8756:9, 8756:21, 8766:11, 8767:4, 8767:20, 8768:2, 8776:8, 8777:19
**factor** [2] - 8700:24, 8701:7
**factors** [1] - 8771:9
**facts** [1] - 8709:18
**fair** [16] - 8664:16, 8672:22, 8683:25, 8689:3, 8689:17, 8706:13, 8713:15, 8715:8, 8740:21, 8747:7, 8747:11, 8758:7, 8769:7, 8769:8, 8770:10, 8778:7
**fairly** [1] - 8767:9
**familiar** [11] - 8669:17, 8669:24, 8685:18, 8687:6, 8687:8, 8688:14, 8703:17, 8730:10, 8731:25, 8733:4, 8746:18
**far** [2] - 8674:6, 8687:21
**fashion** [1] - 8780:6
**fast** [1] - 8762:1
**faster** [1] - 8686:7
**feature** [1] - 8766:21
**featured** [1] - 8696:4
**features** [2] - 8693:10, 8729:22
**felt** [1] - 8695:6
**fever** [3] - 8662:2, 8662:7, 8662:11
**few** [3] - 8701:11, 8704:22, 8768:7
**fewer** [3] - 8765:10, 8765:17
**Fifth** [1] - 8656:16
**fight** [2] - 8735:19, 8737:9
**figure** [12] - 8663:21, 8664:18, 8666:13, 8668:17, 8690:13, 8704:21, 8717:23, 8750:2, 8751:17, 8775:7, 8776:1, 8777:24
**figures** [2] - 8768:22, 8773:2
**figuring** [2] - 8678:8, 8681:17
**filed** [1] - 8781:4
**final** [1] - 8758:9
**finance** [1] - 8759:11
**financial** [2] - 8700:21, 8764:15
**fine** [2] - 8694:9, 8773:4
**finish** [5] - 8695:17, 8776:5, 8776:25, 8777:2, 8777:6
**finished** [3] - 8670:16, 8779:14, 8779:16
**finishes** [1] - 8780:23
**Firefox** [2] - 8673:8, 8673:14
**firm** [1] - 8698:25
**firms** [2] - 8684:24, 8699:1
**first** [24] - 8660:16, 8680:20, 8692:1, 8705:18, 8714:13, 8718:10, 8719:6, 8720:5, 8720:8, 8720:9, 8720:11, 8724:4, 8725:4, 8733:9, 8733:15, 8733:21, 8736:3, 8744:21, 8746:7, 8755:10, 8756:13, 8759:12, 8774:13, 8782:15
**fit** [1] - 8665:5
**Fitzpatrick** [2] - 8776:12, 8777:7
**Fitzpatrick's** [1] - 8777:2
**five** [14] - 8704:10, 8704:11, 8704:15, 8704:18, 8710:5, 8710:13, 8711:10, 8712:4, 8712:5, 8712:8, 8712:11, 8714:3, 8714:17, 8744:15
**flexible** [1] - 8778:9
**flight** [3] - 8758:3, 8758:4, 8758:16
**flights** [4] - 8705:16, 8758:3, 8758:14, 8760:19
**flip** [1] - 8724:17
**Floor** [2] - 8656:21, 8657:10
**flowers** [1] - 8755:25
**fly** [2] - 8723:13, 8741:24
**focus** [4] - 8665:11, 8665:12, 8747:9, 8762:12
**focused** [8] - 8680:14, 8688:10, 8694:2, 8694:8, 8694:15, 8738:3, 8738:4, 8747:2
**focuses** [2] - 8673:12, 8747:11
**focusing** [1] - 8740:12
**follow** [4] - 8691:14, 8695:12, 8704:5, 8749:21
**following** [2] - 8687:7, 8705:8
**food** [2] - 8723:23, 8724:20
**food.com** [3] - 8723:11, 8723:14, 8723:24
**foods** [1] - 8723:22
**football** [1] - 8778:22
**FOR** [2] - 8656:1, 8661:3
**Ford** [1] - 8718:3
**foregoing** [1] - 8784:3
**forevermore** [1] - 8720:7
**form** [12] - 8668:5, 8675:23, 8676:9, 8695:12, 8696:22, 8698:4, 8698:25, 8706:22, 8710:13, 8713:12, 8725:1, 8740:19
**formal** [1] - 8763:6
**forms** [1] - 8773:18
**formulate** [1] - 8665:25
**forth** [5] - 8660:8, 8662:20, 8662:22, 8779:23, 8782:17
**four** [3] - 8774:25, 8777:11, 8779:5
**fourth** [2] - 8686:5, 8773:4
**framed** [1] - 8700:8
**frankly** [1] - 8779:24
**free** [2] - 8729:21, 8768:8
**frequency** [2] - 8734:3, 8736:3
**frequent** [1] - 8733:22
**frequently** [1] - 8743:25
**fresh** [1] - 8711:8
**front** [3] - 8704:19, 8745:9, 8772:20
**fryer** [4] - 8722:20, 8722:23, 8723:6, 8723:10
**fryers** [1] - 8722:19
**FTD** [1] - 8755:25
**full** [5] - 8681:21, 8681:24, 8682:1, 8731:7, 8731:8
**fully** [5] - 8684:5, 8734:22, 8761:5, 8761:7, 8772:11
**function** [2] - 8735:2, 8736:19
**functions** [3] - 8702:21, 8736:21, 8736:24
**futz** [1] - 8712:25
**fuzzing** [1] - 8664:11

## G

**game** [4] - 8709:20, 8710:1, 8712:25, 8778:22
**gather** [1] - 8707:5
**gathered** [1] - 8707:12
**general** [70] - 8672:17, 8673:1, 8673:9, 8673:16, 8673:25, 8674:16, 8676:22, 8676:25, 8681:13, 8682:5, 8683:8, 8683:16, 8684:9, 8684:17, 8684:18, 8684:21, 8688:6, 8689:1, 8690:2, 8693:9, 8694:1, 8694:5, 8694:11, 8694:16, 8694:21, 8695:6, 8695:10, 8697:1, 8698:23, 8704:6, 8704:14, 8704:25, 8707:13, 8708:16, 8709:22, 8710:2, 8716:15, 8718:15, 8718:18, 8719:14, 8719:20, 8721:12, 8722:3, 8722:9, 8724:1,

8724:13, 8728:7, 8728:17, 8728:20, 8728:22, 8728:24, 8729:1, 8729:7, 8729:21, 8733:1, 8733:15, 8734:6, 8734:11, 8735:6, 8739:23, 8743:2, 8743:10, 8744:5, 8748:19, 8761:24, 8762:2, 8764:6, 8769:2, 8769:9, 8770:19
**generally** [10] - 8674:23, 8676:12, 8687:10, 8688:20, 8688:24, 8694:23, 8696:6, 8734:23, 8737:5, 8742:12
**generative** [1] - 8720:2
**geographies** [1] - 8769:7
**Giannandrea** [2] - 8672:22, 8674:2
**Giannandrea's** [1] - 8696:16
**giveaway** [1] - 8686:1
**given** [10] - 8660:20, 8663:19, 8664:21, 8706:24, 8749:23, 8750:12, 8758:6, 8758:24, 8777:23, 8780:14
**Goodrich** [1] - 8657:9
**GOOGLE** [1] - 8656:6
**Google** [254] - 8659:5, 8659:8, 8663:20, 8665:8, 8665:10, 8667:25, 8670:12, 8671:12, 8674:8, 8675:11, 8675:13, 8677:18, 8677:19, 8677:22, 8677:25, 8678:5, 8679:6, 8679:9, 8679:11, 8679:21, 8680:7, 8680:21, 8681:3, 8681:11, 8681:18, 8682:5, 8683:14, 8683:21, 8684:1, 8685:25, 8686:4, 8686:11, 8686:16, 8686:17, 8686:19, 8686:21, 8687:20, 8688:1, 8688:5, 8688:11, 8689:2, 8689:10, 8689:20, 8690:8, 8690:14, 8690:17, 8690:22, 8690:23, 8691:2, 8691:21, 8692:2, 8692:11, 8693:8, 8693:9, 8693:14, 8693:25, 8694:24, 8694:25, 8695:10, 8696:3, 8696:10, 8696:11, 8696:14, 8696:15, 8696:21, 8697:13, 8697:20, 8697:25, 8698:2, 8698:22, 8699:4, 8699:13, 8699:21, 8699:25, 8700:8, 8700:9, 8700:19, 8700:20, 8702:3, 8705:19, 8706:23, 8708:1, 8708:4, 8710:13, 8710:14, 8711:12, 8711:13, 8711:19, 8711:20, 8711:22, 8711:23, 8712:7, 8712:9, 8712:14, 8712:22, 8713:4, 8714:17, 8714:18, 8714:23, 8718:16, 8721:6, 8722:20, 8722:23, 8723:14, 8723:18, 8723:19, 8724:7, 8725:5, 8725:8, 8725:15, 8726:14, 8726:15, 8726:18, 8726:19, 8726:21, 8726:23, 8726:25, 8727:3, 8727:4, 8727:7, 8727:9, 8727:13, 8727:17, 8728:10, 8729:10, 8729:13, 8729:16, 8729:19, 8730:11, 8731:1, 8731:4, 8732:1, 8732:20, 8733:2, 8733:22, 8734:17, 8734:18, 8735:2, 8735:8, 8735:12, 8735:19, 8735:24, 8736:4, 8736:6, 8736:8, 8736:10, 8736:15, 8736:16, 8736:18, 8737:5, 8737:16, 8737:24, 8739:2, 8739:6, 8739:9, 8739:17, 8739:18, 8739:20, 8739:23, 8740:1, 8740:3, 8740:5, 8740:6, 8740:11, 8740:15, 8740:21, 8741:17, 8741:20, 8742:2, 8742:12, 8742:21, 8742:24, 8743:1, 8744:5, 8745:6, 8745:12, 8745:15, 8745:18, 8746:3, 8746:8, 8746:10, 8746:12, 8746:19, 8746:24, 8747:4, 8747:18, 8747:19, 8747:20, 8747:23, 8748:7, 8748:10, 8748:13, 8748:16, 8748:23, 8749:23, 8750:2, 8750:19, 8751:8, 8753:14, 8753:17, 8753:19, 8754:1, 8754:6, 8754:8, 8754:14, 8754:22, 8755:7, 8755:10, 8755:15, 8755:17, 8755:18, 8755:21, 8755:25, 8756:1, 8756:3, 8756:7, 8756:11, 8756:17, 8756:18, 8756:19, 8756:25, 8757:4, 8757:8, 8759:3, 8760:12, 8761:3, 8761:14, 8763:20, 8764:2, 8765:22, 8768:20, 8769:11, 8769:22, 8770:10, 8771:3, 8771:10, 8771:13, 8771:15, 8773:20, 8774:3, 8774:15, 8774:22, 8776:14, 8779:4
**Google's** [24] - 8664:25, 8665:4, 8671:9, 8671:10, 8675:9, 8678:3, 8678:8, 8679:7, 8681:21, 8710:12, 8714:7, 8714:11, 8726:13, 8737:6, 8737:9, 8750:4, 8750:9, 8751:6, 8751:16, 8761:24, 8762:2, 8764:13, 8768:24, 8773:13
**google.com** [4] - 8731:18, 8734:2, 8734:7, 8738:11
**graph** [1] - 8773:5
**Graph** [1] - 8697:10
**Gray** [1] - 8781:18
**GRAY** [4] - 8656:15, 8781:18, 8782:7, 8782:23
**great** [3] - 8660:24, 8671:2, 8742:1
**greater** [1] - 8746:3
**GreatSchools** [2] - 8669:13, 8670:5
**green** [4] - 8723:2, 8749:8, 8771:21, 8772:9
**GREENBLUM** [1] - 8780:10
**grocery** [7] - 8727:24, 8728:2, 8728:5, 8728:9, 8728:10, 8728:11, 8728:15
**group** [8] - 8667:4, 8667:5, 8667:11, 8669:18, 8672:6, 8683:20, 8685:1
**grouped** [4] - 8663:2, 8667:10, 8670:12, 8670:21
**grouping** [3] - 8669:2, 8671:23, 8746:16
**groupings** [1] - 8669:20
**groups** [3] - 8663:15, 8747:20, 8747:22
**growth** [2] - 8738:16, 8763:3
**GSE** [29] - 8672:20, 8673:21, 8685:10, 8696:19, 8713:8, 8716:17, 8716:21, 8716:24, 8717:7, 8717:9, 8717:14, 8717:19, 8717:21, 8719:23, 8719:25, 8720:9, 8720:11, 8720:18, 8720:21, 8722:5, 8722:12, 8722:15, 8724:3, 8757:6, 8757:25, 8759:4, 8759:6, 8770:17
**GSE-specific** [1] - 8770:17
**GSEs** [23] - 8674:6, 8674:13, 8674:14, 8674:17, 8674:20, 8679:13, 8679:25, 8680:1, 8685:7, 8685:10, 8685:14, 8705:8, 8705:11, 8706:4, 8706:5, 8706:9, 8706:11, 8716:19, 8717:6, 8720:4, 8724:22, 8741:3, 8748:16
**guess** [8] - 8695:3, 8706:2, 8728:3, 8758:6, 8762:14, 8764:16, 8765:21, 8774:23
**guessing** [2] - 8695:13, 8695:14
**Guides** [1] - 8722:8
**guy** [1] - 8719:21
**guys** [1] - 8762:9

## H

**half** [1] - 8776:10
**hand** [8] - 8666:7, 8678:17, 8701:24, 8709:4, 8718:25, 8771:24, 8773:5, 8773:19
**handed** [1] - 8777:11
**handful** [2] - 8739:14, 8739:17
**handle** [5] - 8674:18, 8699:2, 8708:17, 8709:22, 8749:2
**handles** [1] - 8696:9
**handy** [1] - 8668:19
**happy** [2] - 8687:1, 8701:14
**hard** [2] - 8772:21, 8778:2
**harm** [2] - 8731:6, 8731:10
**heading** [3] - 8682:21, 8686:7, 8733:7
**health** [5] - 8661:16, 8661:22, 8661:23, 8661:25, 8662:3
**healthcare** [8] - 8711:10, 8711:13, 8711:20, 8712:12, 8712:13, 8748:2, 8748:3, 8748:4
**hear** [2] - 8660:11, 8715:24
**heard** [1] - 8659:15
**hearing** [1] - 8778:15
**help** [3] - 8705:2, 8723:3, 8736:8
**helpful** [2] - 8675:6, 8754:13
**helps** [4] - 8685:15, 8722:13, 8752:4, 8752:25
**Higgins** [1] - 8687:12
**high** [2] - 8756:18, 8764:1
**higher** [5] - 8734:2, 8734:7, 8757:6, 8765:18
**highlight** [1] - 8779:25
**hiking** [4] - 8702:3,

8704:1, 8704:7, 8705:20
**history.com** [1] - 8754:23
**hit** [1] - 8710:17
**holds** [2] - 8660:25, 8764:22
**Home** [1] - 8671:20
**home** [2] - 8695:13, 8695:20
**Honda** [5] - 8728:3, 8728:5, 8728:8, 8728:12, 8728:15
**Hondas** [1] - 8727:25
**honestly** [1] - 8677:6
**Honor** [42] - 8659:3, 8659:11, 8659:25, 8660:13, 8661:2, 8664:12, 8664:16, 8666:8, 8678:18, 8680:16, 8682:13, 8685:17, 8687:2, 8697:23, 8698:4, 8698:8, 8698:18, 8701:25, 8713:16, 8715:13, 8719:2, 8722:22, 8724:11, 8725:10, 8732:20, 8737:18, 8744:24, 8768:13, 8772:18, 8775:5, 8775:25, 8777:18, 8778:19, 8778:24, 8779:3, 8779:18, 8779:24, 8781:4, 8781:18, 8783:2, 8783:3, 8783:4
**HONORABLE** [1] - 8656:9
**hope** [3] - 8660:18, 8758:2, 8758:20
**hopefully** [5] - 8660:25, 8676:23, 8776:3, 8776:10, 8780:6
**Hopkins** [1] - 8747:25
**hotel** [1] - 8759:11
**hotels** [2] - 8759:9, 8759:13
**hour** [5] - 8706:25, 8776:3, 8776:10, 8780:20
**hours** [2] - 8775:19, 8775:22
**hours'** [1] - 8779:10
**hunt** [2] - 8717:15, 8719:18
**hunting** [1] - 8719:17
**hurricane** [1] - 8713:1
**hyperfocused** [1] - 8770:11
**hypothetical** [3] - 8700:8, 8701:6, 8765:24
**hypothetically** [3] - 8700:9, 8700:19, 8763:20

**I**

**idea** [7] - 8673:24, 8677:2, 8695:8, 8714:12, 8719:16, 8719:22, 8719:25
**identifies** [2] - 8742:23, 8747:18
**identify** [3] - 8661:16, 8662:16, 8688:9
**identifying** [2] - 8678:4, 8711:23
**ignores** [3] - 8740:11, 8740:21, 8740:22
**imagine** [1] - 8766:4
**immediately** [1] - 8702:7
**impact** [3] - 8730:24, 8730:25, 8738:11
**implicit** [1] - 8714:12
**important** [2] - 8751:25, 8753:10
**impossible** [2] - 8663:21, 8777:12
**inactivity** [2] - 8710:5, 8710:7
**inappropriate** [1] - 8781:5
**incentive** [3] - 8700:21, 8764:15, 8768:15
**include** [9] - 8672:22, 8703:8, 8716:17, 8758:21, 8760:5, 8760:7, 8760:13, 8760:20, 8769:25
**included** [10] - 8681:1, 8696:25, 8759:8, 8759:9, 8759:12, 8759:21, 8760:16, 8772:7, 8772:11, 8772:12
**includes** [8] - 8730:9, 8747:22, 8751:8, 8757:14, 8757:15, 8758:14, 8760:8
**including** [9] - 8672:21, 8683:8, 8684:15, 8694:16, 8699:23, 8744:14, 8769:20, 8774:8, 8776:6
**incorporates** [1] - 8767:20
**increase** [13] - 8734:17, 8734:18, 8736:24, 8742:13, 8764:12, 8764:13, 8764:16, 8769:23, 8769:24, 8771:10, 8771:14, 8774:15
**increased** [3] - 8738:16, 8770:22, 8771:5
**increases** [7] - 8734:25, 8735:1, 8735:7, 8737:5, 8742:16, 8764:8, 8771:8
**increasing** [2] - 8686:8, 8766:8
**incremental** [1] - 8742:14
**index** [1] - 8697:7
**indicate** [1] - 8673:6
**indicates** [1] - 8700:23
**indication** [1] - 8781:10
**indiscernible** [1] - 8663:25
**individual** [4] - 8735:25, 8751:25, 8754:17, 8754:19
**individually** [1] - 8664:19
**industry** [7] - 8684:7, 8684:20, 8762:13, 8763:16, 8771:9, 8773:20, 8773:22
**infer** [1] - 8754:13
**influences** [1] - 8699:22
**information** [63] - 8669:16, 8674:12, 8676:9, 8676:15, 8678:15, 8679:5, 8681:17, 8685:13, 8697:11, 8704:1, 8704:7, 8704:10, 8704:12, 8704:13, 8704:14, 8704:17, 8704:18, 8705:1, 8705:4, 8705:7, 8705:9, 8705:17, 8705:18, 8705:19, 8706:1, 8706:5, 8706:12, 8706:17, 8706:21, 8706:23, 8707:3, 8707:4, 8707:8, 8707:9, 8707:12, 8707:18, 8708:1, 8708:2, 8709:14, 8712:14, 8716:13, 8716:15, 8716:18, 8717:5, 8717:6, 8717:13, 8718:1, 8718:15, 8718:16, 8718:21, 8719:9, 8719:13, 8719:16, 8721:15, 8721:16, 8722:1, 8722:3, 8722:6, 8726:22, 8746:9, 8750:4, 8754:3, 8761:6
**informative** [2] - 8751:23, 8761:6
**initial** [1] - 8782:14
**innovate** [1] - 8739:24
**innovating** [1] - 8739:6
**inquiry** [2] - 8701:8, 8763:19
**inside** [1] - 8702:9
**insofar** [1] - 8698:5
**Instagram** [1] - 8689:8
**installation** [4] - 8688:21, 8688:25, 8689:4, 8689:7
**instance** [1] - 8736:4
**instead** [1] - 8690:17
**insurance** [2] - 8725:19, 8725:22
**intend** [1] - 8729:9
**intent** [8] - 8751:24, 8752:5, 8752:9, 8753:2, 8753:15, 8754:11, 8754:14, 8755:16
**intentionally** [3] - 8714:11, 8721:5, 8769:21
**intents** [1] - 8756:12
**interact** [1] - 8711:12
**interacted** [1] - 8713:10
**interacting** [2] - 8711:25, 8713:22
**interaction** [3] - 8712:9, 8712:10, 8714:10
**interactions** [2] - 8711:23, 8711:24
**intercepts** [5] - 8674:11, 8696:13, 8696:14, 8696:20, 8697:9
**interest** [2] - 8685:10, 8700:10
**interested** [4] - 8685:2, 8685:5, 8713:2, 8752:21
**interesting** [1] - 8685:6
**interests** [1] - 8756:11
**interior** [1] - 8678:3
**internalize** [1] - 8766:11
**Internet** [11] - 8721:7, 8734:23, 8743:3, 8754:23, 8769:23, 8770:3, 8770:23, 8770:25, 8771:2, 8771:3, 8771:14
**interpret** [1] - 8678:11
**interrupt** [1] - 8764:17
**invest** [1] - 8768:15
**investigated** [1] - 8695:6
**investing** [1] - 8680:7
**investment** [1] - 8770:7
**invests** [2] - 8771:3, 8771:13
**involved** [1] - 8758:5
**involving** [1] - 8768:25
**iPhone** [1] - 8715:4
**ISA** [3] - 8698:2, 8698:22, 8700:10
**ISRAEL** [2] - 8658:4, 8661:3
**Israel** [7] - 8659:13, 8660:18, 8737:21, 8775:6, 8776:5, 8776:25, 8777:6
**issue** [14] - 8659:23, 8660:10, 8660:11, 8660:17, 8660:23, 8668:14, 8694:14, 8694:15, 8760:17, 8765:7, 8765:8, 8767:11, 8767:22, 8768:5
**issued** [2] - 8753:13, 8753:15
**issues** [2] - 8660:6, 8779:18
**item** [1] - 8735:3
**itself** [20] - 8674:10, 8677:19, 8677:22, 8679:10, 8679:16, 8679:17, 8679:21, 8679:22, 8683:16, 8686:1, 8686:12, 8693:9, 8693:18, 8693:25, 8696:10, 8697:2, 8699:7, 8721:11, 8737:10, 8758:15

## J

**Jennifer** [1] - 8776:12
**job** [2] - 8670:15, 8762:10
**jobs** [5] - 8669:10, 8669:13, 8670:13, 8670:20
**John** [2] - 8659:7, 8672:22
**JOHN** [1] - 8657:6
**Johns** [1] - 8747:25
**JONATHAN** [1] - 8656:18
**Jonathan** [1] - 8659:6
**Jorge** [1] - 8762:10
**JR** [1] - 8657:3
**JUDGE** [1] - 8656:10
**judgment** [1] - 8665:1
**juncture** [1] - 8781:10
**June** [1] - 8692:8
**Justice** [2] - 8656:13, 8656:16

## K

**keep** [5] - 8664:11, 8668:24, 8700:10, 8766:8, 8767:14
**keeps** [1] - 8736:10
**Kenneth** [1] - 8659:6
**KENNETH** [1] - 8656:13
**key** [5] - 8668:15, 8714:2, 8764:9, 8766:21, 8767:24
**keystrokes** [1] - 8701:11
**kids** [1] - 8677:16
**kill** [1] - 8753:8
**kind** [6] - 8674:20, 8690:16, 8692:6, 8716:4, 8730:8, 8766:14
**kinds** [1] - 8676:8
**knife** [5] - 8674:20, 8708:25, 8709:1, 8713:20, 8713:21
**knowing** [5] - 8669:19, 8718:8, 8753:2, 8753:10, 8754:11
**Knowledge** [1] - 8697:10
**knows** [2] - 8753:11, 8755:24

## L

**labeled** [1] - 8750:12
**laptop** [2] - 8757:14, 8757:16
**large** [4] - 8682:2, 8701:5, 8731:2, 8731:17
**largely** [1] - 8721:10
**last** [15] - 8660:13, 8668:2, 8678:22, 8678:23, 8737:19, 8766:22, 8768:9, 8771:5, 8771:12, 8774:25, 8778:3, 8779:7, 8780:10, 8780:18, 8781:7
**late** [2] - 8778:20, 8778:21
**lately** [2] - 8705:10, 8705:15
**latency** [5] - 8686:8, 8686:13, 8686:15, 8686:20, 8686:22
**latest** [1] - 8780:24
**Law** [1] - 8656:19
**lawyers** [2] - 8725:19, 8725:22
**lead** [1] - 8771:4
**leads** [2] - 8669:2, 8699:25
**learn** [3] - 8720:5, 8720:9, 8741:11
**learning** [1] - 8724:15
**least** [11] - 8676:14, 8682:4, 8691:20, 8695:9, 8702:21, 8704:7, 8736:2, 8743:15, 8763:10, 8778:12, 8779:10
**leave** [1] - 8750:8
**led** [5] - 8699:25, 8770:22, 8771:2, 8771:6, 8771:10
**left** [4] - 8725:25, 8744:4, 8771:24, 8773:5
**left-hand** [2] - 8771:24, 8773:5
**length** [2] - 8660:20, 8712:3
**less** [4] - 8751:22, 8765:11, 8767:23, 8776:3
**level** [12] - 8695:1, 8697:14, 8735:20, 8736:6, 8743:6, 8754:18, 8761:19, 8766:4, 8766:6, 8766:7, 8766:8, 8766:14
**library** [2] - 8743:3, 8743:11
**lies** [1] - 8767:22
**life** [1] - 8720:9
**likely** [5] - 8669:2, 8733:22, 8758:18, 8771:2, 8776:8
**limit** [1] - 8765:1
**limited** [5] - 8726:15, 8726:18, 8728:23, 8758:17, 8769:5
**limits** [1] - 8732:15
**lines** [1] - 8744:17
**link** [4] - 8700:13, 8719:6, 8748:7, 8748:11
**LinkedIn** [1] - 8671:3
**links** [13] - 8676:5, 8676:14, 8676:16, 8677:7, 8703:12, 8703:22, 8703:25, 8718:19, 8723:20, 8744:20, 8754:23, 8755:21
**list** [16] - 8663:9, 8669:11, 8672:2, 8672:3, 8704:21, 8705:14, 8705:16, 8706:8, 8706:11, 8707:16, 8707:20, 8708:5, 8723:20, 8725:23, 8747:18, 8782:1
**listed** [4] - 8661:20, 8677:11, 8679:14, 8723:14
**listen** [1] - 8725:4
**listing** [1] - 8724:14
**lists** [1] - 8748:1
**literally** [2] - 8745:20, 8767:16
**litigation** [1] - 8746:7
**LLC** [2] - 8656:6, 8659:5
**LLP** [2] - 8657:3, 8657:6
**local** [1] - 8663:12
**logic** [1] - 8712:7
**London** [3] - 8722:8, 8752:15
**long-running** [1] - 8752:15
**look** [50] - 8659:14, 8661:21, 8664:6, 8664:10, 8665:3, 8665:7, 8665:20, 8671:16, 8676:10, 8678:10, 8678:12, 8679:8, 8680:20, 8682:21, 8684:1, 8684:19, 8685:6, 8685:7, 8687:6, 8690:9, 8700:24, 8701:23, 8703:11, 8705:25, 8707:6, 8707:11, 8711:12, 8717:20, 8719:19, 8719:22, 8719:25, 8731:8, 8731:13, 8750:24, 8751:17, 8752:3, 8753:7, 8757:6, 8761:25, 8762:3, 8765:19, 8767:25, 8772:23, 8773:2, 8773:19, 8779:12, 8782:19, 8782:22
**looked** [8] - 8682:1, 8685:13, 8695:14, 8695:21, 8716:4, 8727:5, 8731:11, 8734:22
**looking** [34] - 8670:15, 8670:25, 8671:4, 8671:7, 8671:14, 8671:15, 8671:19, 8672:19, 8673:9, 8673:18, 8678:5, 8680:18, 8681:24, 8682:17, 8685:10, 8690:24, 8690:25, 8692:22, 8706:19, 8717:10, 8719:17, 8722:8, 8733:17, 8752:4, 8752:14, 8752:16, 8754:7, 8754:11, 8755:11, 8755:17, 8755:18, 8777:5, 8779:9
**looks** [3] - 8685:14, 8686:3, 8719:12
**lost** [1] - 8728:16
**low** [3] - 8701:22, 8762:25, 8767:9
**loyalty** [1] - 8731:2
**lunch** [3] - 8660:20, 8776:5, 8777:1

## M

**machine** [1] - 8724:15
**mails** [2] - 8778:12, 8778:17
**Maine** [1] - 8657:7
**major** [2] - 8723:5, 8744:4
**make-versus-buy** [3] - 8699:1, 8699:3, 8699:24
**man** [2] - 8766:23, 8766:24
**maneuvering** [1] - 8701:17
**Maps** [2] - 8717:1, 8717:22
**margin** [1] - 8768:6
**marginal** [10] - 8767:4, 8767:5, 8767:10, 8767:12, 8767:13, 8767:19, 8767:20, 8767:22, 8768:2
**mark** [1] - 8772:10
**MARK** [2] - 8658:4, 8661:3
**market** [44] - 8666:3, 8666:5, 8666:22, 8667:3, 8667:4, 8667:9, 8667:13, 8667:24, 8667:25, 8668:6, 8671:4, 8681:18, 8682:5, 8682:9, 8683:21, 8684:2, 8684:7, 8684:9, 8684:13, 8684:17, 8684:22, 8687:23, 8688:6, 8694:22, 8698:24, 8700:11, 8743:21, 8762:11, 8762:12, 8762:13, 8762:22, 8763:4, 8766:12, 8766:16, 8766:18, 8766:24, 8767:14, 8767:18, 8769:4, 8772:3, 8773:21, 8774:3, 8774:15
**marketing** [1] - 8687:13
**markets** [4] - 8668:14, 8744:16, 8744:18, 8771:22
**match** [1] - 8752:21
**matter** [2] - 8699:6, 8784:5
**matters** [1] - 8667:6
**maximize** [2] - 8763:22, 8764:6
**mean** [76] - 8662:4, 8662:14, 8664:8, 8665:20, 8669:20, 8670:6, 8672:18, 8672:20, 8673:23, 8674:10, 8678:10, 8680:11, 8683:19, 8690:3, 8694:6, 8694:12, 8695:3, 8698:25, 8700:3, 8701:5, 8704:4, 8704:9, 8704:16, 8704:20, 8705:14, 8706:2, 8707:1, 8707:14, 8708:5,

8710:10, 8710:23, 8713:25, 8719:12, 8721:9, 8724:19, 8726:14, 8728:7, 8728:11, 8729:14, 8729:17, 8730:3, 8734:21, 8739:5, 8739:11, 8739:21, 8740:2, 8740:20, 8740:24, 8741:4, 8741:22, 8743:19, 8743:20, 8744:12, 8747:7, 8749:11, 8754:2, 8755:7, 8755:8, 8755:15, 8755:20, 8756:9, 8759:10, 8760:15, 8761:16, 8761:21, 8763:22, 8765:6, 8765:14, 8771:2, 8772:8, 8772:10, 8773:16, 8774:21, 8779:6, 8779:14, 8779:15
**meaning** [2] - 8743:19, 8775:2
**meaningful** [1] - 8730:25
**means** [10] - 8672:18, 8683:23, 8700:13, 8700:16, 8728:12, 8731:19, 8731:21, 8744:12, 8778:12, 8778:17
**meant** [3] - 8695:24, 8749:7, 8770:25
**measure** [4] - 8679:7, 8770:16, 8770:18, 8770:20
**measured** [1] - 8758:11
**measures** [2] - 8684:8, 8771:8
**measuring** [1] - 8684:21
**media** [1] - 8694:14
**MEHTA** [1] - 8656:9
**member** [1] - 8731:2
**members** [1] - 8729:9
**memory** [1] - 8697:3
**men's** [1] - 8705:5
**mentioned** [3] - 8675:15, 8696:6, 8720:20
**merchant** [1] - 8760:6
**merchants** [1] - 8760:9
**method** [3] - 8667:24, 8671:12, 8760:12
**methodology** [3] - 8669:20, 8669:25, 8670:11
**mice** [1] - 8752:16
**MICHAEL** [1] - 8657:8
**Microsoft** [4] - 8687:22, 8739:2, 8739:3, 8744:6
**middle** [2] - 8756:6, 8760:21
**might** [25] - 8665:15, 8666:23, 8668:7, 8671:16, 8679:15, 8690:17, 8691:19, 8716:16, 8716:25, 8717:7, 8717:21, 8719:16, 8723:24, 8723:25, 8724:15, 8729:10, 8735:8, 8736:4, 8736:8, 8737:9, 8752:21, 8753:17, 8755:20, 8758:9, 8780:12
**milliseconds** [2] - 8676:23
**minds** [1] - 8742:8
**mine** [2] - 8732:12, 8770:14
**minimal** [9] - 8701:19, 8703:2, 8707:8, 8707:10, 8707:17, 8707:24, 8741:11, 8741:15, 8742:1
**minimum** [3] - 8701:13, 8741:8, 8778:3
**minus** [2] - 8691:2, 8726:3
**minute** [2] - 8706:24, 8714:9
**minutes** [17] - 8710:5, 8710:8, 8710:10, 8710:13, 8710:16, 8710:18, 8711:10, 8711:20, 8712:4, 8712:5, 8712:8, 8712:12, 8713:2, 8714:4, 8714:17, 8747:7
**miss** [1] - 8670:23
**missing** [2] - 8662:18, 8708:3
**mistyped** [2] - 8722:6, 8722:7
**Mitchell** [1] - 8673:7
**mix** [1] - 8751:14
**mobile** [7] - 8682:23, 8683:2, 8701:12, 8714:14, 8720:10, 8721:11, 8771:5
**mode** [1] - 8692:12
**model** [2] - 8713:19, 8762:6
**modeled** [2] - 8761:24, 8762:2
**modeling** [2] - 8761:17, 8761:21
**modification** [1] - 8747:6
**modified** [2] - 8665:10, 8747:5
**Monday** [14] - 8660:14, 8660:17, 8660:19, 8660:22, 8775:7, 8776:5, 8776:8, 8777:6, 8777:22, 8780:12, 8780:19, 8780:22, 8781:24, 8783:6
**money** [4] - 8700:15, 8700:22, 8741:17
**monopolies** [1] - 8764:7
**monopolist** [16] - 8700:8, 8700:9, 8700:12, 8763:24, 8764:14, 8764:19, 8765:1, 8765:2, 8765:23, 8766:2, 8766:5, 8766:6, 8766:10, 8767:1, 8767:22, 8768:1
**monopolists** [2] - 8765:25, 8768:15
**monopoly** [14] - 8700:13, 8700:16, 8700:17, 8700:19, 8700:24, 8701:2, 8701:7, 8701:9, 8763:17, 8764:9, 8766:18, 8766:21, 8767:18
**months** [1] - 8659:23
**Moon** [2] - 8671:16, 8671:19
**morning** [6] - 8659:3, 8659:9, 8660:19, 8777:11, 8777:13, 8778:3
**most** [14] - 8664:25, 8676:1, 8686:18, 8687:20, 8705:19, 8712:21, 8724:5, 8730:1, 8750:5, 8751:20, 8758:22, 8764:21, 8770:11, 8773:17
**mostly** [3] - 8677:6, 8677:14, 8768:21
**motion** [5] - 8781:4, 8781:16, 8781:21, 8782:17, 8782:20
**motivation** [1] - 8698:6
**motivations** [1] - 8698:16
**mousetrap** [4] - 8752:13, 8752:14, 8753:16, 8754:7
**Mousetrap** [1] - 8752:15
**move** [4] - 8662:20, 8662:21, 8715:11, 8770:14
**Movie** [1] - 8754:24
**moving** [1] - 8741:8
**Mozilla** [1] - 8673:9
**MR** [86] - 8659:11, 8659:17, 8659:22, 8659:25, 8660:6, 8660:13, 8660:16, 8661:2, 8661:5, 8664:2, 8664:5, 8664:12, 8664:13, 8664:15, 8664:16, 8664:17, 8679:1, 8687:4, 8697:23, 8697:24, 8698:4, 8698:8, 8698:11, 8698:18, 8698:19, 8699:15, 8699:18, 8700:6, 8713:12, 8713:13, 8713:14, 8713:15, 8713:18, 8715:13, 8715:14, 8715:19, 8715:20, 8715:21, 8715:22, 8719:5, 8725:1, 8725:9, 8725:14, 8732:14, 8732:20, 8732:22, 8732:25, 8733:18, 8733:20, 8737:11, 8737:18, 8737:23, 8745:1, 8751:5, 8760:23, 8764:18, 8768:13, 8768:14, 8775:4, 8775:15, 8775:19, 8775:23, 8775:24, 8776:3, 8776:9, 8776:12, 8776:14, 8776:17, 8776:21, 8776:23, 8777:10, 8777:18, 8778:1, 8778:19, 8778:24, 8779:3, 8779:16, 8779:20, 8780:10, 8780:11, 8780:18, 8781:2, 8782:13, 8783:1, 8783:3, 8783:4
**MS** [3] - 8781:18, 8782:7, 8782:23
**multiple** [8] - 8704:19, 8705:7, 8705:9, 8705:25, 8706:4, 8778:12, 8778:17
**multisite** [1] - 8759:24
**Murphy** [5] - 8689:18, 8690:6, 8780:19, 8782:8, 8782:9
**Murphy's** [2] - 8781:24, 8782:9
**muscular** [1] - 8728:21
**must** [2] - 8685:2, 8697:21
**Mustang** [1] - 8718:3
**Mustang's** [2] - 8718:22, 8719:10

## N

**Nadella** [1] - 8738:24
**Nadella's** [1] - 8739:22
**name** [1] - 8730:12
**narrow** [2] - 8689:16, 8779:24
**Nationals** [6] - 8709:20, 8710:1, 8710:8, 8710:9, 8710:15, 8712:23
**naturally** [1] - 8669:1
**nature** [2] - 8662:4, 8765:2
**nav** [29] - 8720:14, 8720:16, 8720:19, 8720:21, 8721:2, 8721:7, 8747:14, 8747:15, 8747:17, 8747:18, 8747:20, 8747:24, 8748:7, 8748:16, 8748:23, 8749:2, 8749:3, 8749:7, 8749:9, 8749:12, 8749:16, 8750:2, 8750:3, 8750:5, 8750:6, 8750:8, 8750:10, 8750:21, 8759:1
**navigate** [6] - 8720:19, 8721:7, 8722:13, 8741:8, 8749:17, 8749:19
**navigation** [1] - 8721:8
**navigational** [4] - 8748:6, 8748:13, 8748:19, 8749:24
**Nayak** [2] - 8721:19,

8722:1
**NBC** [2] - 8721:21, 8721:23
**near** [3] - 8676:21, 8677:1, 8713:3
**nearly** [1] - 8748:22
**Nebraska** [1] - 8657:3
**necessarily** [4] - 8671:24, 8709:1, 8717:19, 8769:4
**need** [11] - 8659:10, 8664:15, 8667:15, 8698:20, 8708:9, 8708:23, 8709:4, 8728:12, 8761:22, 8775:25, 8782:4
**needed** [1] - 8724:17
**needs** [3] - 8736:16, 8750:2, 8780:8
**negative** [3] - 8730:24, 8738:11
**neglected** [1] - 8659:12
**network** [1] - 8770:22
**networks** [1] - 8689:8
**never** [9] - 8678:16, 8681:7, 8681:9, 8683:21, 8683:25, 8691:2, 8734:12, 8750:6
**New** [4] - 8657:5, 8657:10
**new** [5] - 8706:6, 8710:17, 8710:18, 8767:9, 8778:18
**next** [13] - 8669:7, 8690:10, 8692:1, 8709:20, 8709:21, 8709:24, 8710:21, 8712:9, 8714:18, 8715:12, 8738:7, 8741:2, 8779:4
**nice** [6] - 8672:2, 8705:10, 8705:16, 8706:5, 8775:10, 8783:5
**night** [3] - 8778:3, 8778:22, 8780:10
**Night** [2] - 8671:15, 8671:19
**nobody** [1] - 8730:2
**none** [5] - 8672:9, 8681:7, 8719:19, 8755:3, 8769:5
**nonexistent** [1] - 8701:21
**nonnavigational** [2] - 8750:12, 8750:13
**nonretail** [1] - 8738:4
**nonretail-focused** [1] - 8738:4
**nonsearch** [1] - 8759:15
**normal** [2] - 8659:18, 8751:16
**North** [3] - 8703:8, 8704:8, 8705:5
**Northwest** [3] - 8656:14, 8656:16, 8657:13
**notes** [1] - 8679:24
**nothing** [4] - 8768:6, 8783:1, 8783:3, 8783:4
**notice** [2] - 8779:8, 8779:10
**November** [4] - 8656:6, 8680:18, 8780:19, 8784:8
**nuance** [1] - 8672:20
**null** [5] - 8674:21, 8674:24, 8675:5, 8675:10, 8716:10
**number** [34] - 8660:2, 8663:13, 8663:17, 8679:6, 8683:4, 8683:6, 8692:20, 8692:22, 8704:2, 8704:3, 8709:12, 8709:14, 8711:1, 8711:2, 8711:3, 8711:5, 8711:15, 8712:20, 8714:3, 8715:19, 8726:7, 8732:9, 8733:6, 8735:7, 8736:12, 8736:17, 8737:12, 8737:18, 8739:11, 8748:25, 8756:23, 8758:25, 8763:4, 8765:18
**Number** [1] - 8656:3
**numbers** [12] - 8680:19, 8682:16, 8682:22, 8683:7, 8683:9, 8683:11, 8683:15, 8733:17, 8734:16, 8735:5, 8747:4, 8774:5

## O

**objection** [11] - 8659:15, 8659:17, 8660:1, 8664:12, 8698:4, 8699:15, 8713:12, 8714:2, 8725:1, 8725:3, 8732:22
**observation** [1] - 8709:17
**obvious** [1] - 8677:8
**obviously** [7] - 8684:17, 8765:24, 8769:8, 8778:20, 8779:5, 8779:11, 8781:2
**occasions** [1] - 8722:5
**occur** [1] - 8701:13
**occurred** [1] - 8679:6
**October** [1] - 8772:24
**OEMs** [2] - 8688:18, 8689:20
**OF** [5] - 8656:1, 8656:3, 8656:9, 8784:1, 8784:9
**offer** [13] - 8659:12, 8665:14, 8666:21, 8666:22, 8667:2, 8667:8, 8668:1, 8668:3, 8668:5, 8668:6, 8677:11, 8732:21, 8755:18
**offered** [3] - 8660:3, 8666:16, 8721:20
**offering** [4] - 8659:13, 8667:14, 8690:4, 8761:10
**offers** [4] - 8677:11, 8677:12, 8697:4, 8729:2
**Official** [1] - 8657:13
**OFFICIAL** [1] - 8784:1
**offsets** [1] - 8768:10
**often** [10] - 8701:12, 8706:14, 8715:4, 8716:19, 8721:11, 8727:25, 8728:2, 8728:10, 8748:15, 8757:4
**oil** [3] - 8718:3, 8718:22, 8719:10
**old** [2] - 8706:18, 8706:20
**once** [3] - 8722:17, 8741:13, 8778:10
**one** [120] - 8660:13, 8661:14, 8661:15, 8662:6, 8662:11, 8662:17, 8664:20, 8665:18, 8666:22, 8668:5, 8668:7, 8669:10, 8669:15, 8669:17, 8670:5, 8670:18, 8671:8, 8673:12, 8677:7, 8677:24, 8679:12, 8679:15, 8679:16, 8680:17, 8681:23, 8682:17, 8685:6, 8685:12, 8686:15, 8686:17, 8686:22, 8688:1, 8691:11, 8692:4, 8694:4, 8694:6, 8694:8, 8694:10, 8696:4, 8696:5, 8696:12, 8699:17, 8701:4, 8701:19, 8702:16, 8702:22, 8703:3, 8703:11, 8704:6, 8704:25, 8705:2, 8705:8, 8705:9, 8705:11, 8706:10, 8706:11, 8706:17, 8708:2, 8708:12, 8708:16, 8711:4, 8711:21, 8713:16, 8714:4, 8714:10, 8716:17, 8717:11, 8717:14, 8718:11, 8719:14, 8719:18, 8719:19, 8721:12, 8722:1, 8722:17, 8723:12, 8723:19, 8724:1, 8724:12, 8728:17, 8728:22, 8731:21, 8732:7, 8732:15, 8733:21, 8734:1, 8734:22, 8735:25, 8741:7, 8742:12, 8745:21, 8751:2, 8753:2, 8755:2, 8755:9, 8758:13, 8759:4, 8759:6, 8759:12, 8760:19, 8762:1, 8766:14, 8766:17, 8766:19, 8767:1, 8770:13, 8770:20, 8770:21, 8777:10, 8777:22, 8778:20, 8779:3, 8781:12
**one-query** [1] - 8711:21
**one-stop** [1] - 8708:12
**ones** [6] - 8665:3, 8666:3, 8669:16, 8679:14, 8717:18, 8759:10
**online** [4] - 8731:1, 8731:2, 8731:17, 8737:2
**open** [3] - 8702:20, 8744:20, 8752:9
**opened** [1] - 8745:20
**opinion** [10] - 8665:14, 8666:16, 8666:21, 8667:2, 8667:5, 8667:8, 8667:14, 8668:5, 8698:7, 8761:10
**opinions** [2] - 8690:4, 8762:5
**opportunity** [1] - 8763:24
**oppose** [1] - 8659:21
**opposed** [2] - 8731:14, 8737:2
**opposing** [1] - 8659:24
**option** [8] - 8690:11, 8699:7, 8706:20, 8716:13, 8716:25, 8720:1, 8720:3, 8723:11
**options** [8] - 8669:3, 8671:6, 8699:6, 8703:4, 8703:5, 8717:16, 8752:8
**order** [2] - 8659:2, 8750:23
**ordinary** [13] - 8661:10, 8664:25, 8665:4, 8665:8, 8668:4, 8710:12, 8712:7, 8714:7, 8714:11, 8747:5, 8747:19, 8747:20, 8764:19
**organic** [1] - 8748:10
**original** [2] - 8759:8, 8760:11
**otherwise** [5] - 8660:10, 8660:17, 8663:16, 8735:8, 8741:21
**outcome** [1] - 8699:20
**outperformed** [1] - 8762:13
**output** [18] - 8761:18, 8764:3, 8764:4, 8764:8, 8764:10, 8764:16, 8764:20, 8765:19, 8766:4, 8766:6, 8766:8, 8766:13, 8766:22, 8767:25, 8770:16, 8770:18, 8770:20, 8771:8
**over-binder** [1] - 8678:15
**over-bindered** [1] - 8709:3
**overlap** [3] - 8727:15, 8728:23, 8753:14
**overlapping** [4] - 8753:16, 8754:2, 8755:14, 8756:21

**overruled** [1] - 8725:3
**own** [13] - 8694:8, 8697:7, 8697:8, 8701:3, 8701:7, 8724:6, 8724:17, 8724:21, 8725:6, 8727:25, 8728:3, 8747:10, 8761:17
**ownership** [1] - 8727:22
**owns** [2] - 8726:21, 8728:4

**P**

**p.m** [1] - 8783:7
**page** [38] - 8666:7, 8666:9, 8666:11, 8667:22, 8669:7, 8670:8, 8675:19, 8676:4, 8676:13, 8676:20, 8686:5, 8692:1, 8692:5, 8692:14, 8692:22, 8693:12, 8693:21, 8695:13, 8695:15, 8695:20, 8695:24, 8695:25, 8705:17, 8715:19, 8730:15, 8734:14, 8737:12, 8737:17, 8738:8, 8740:7, 8741:2, 8744:1, 8744:21, 8745:10, 8772:22, 8773:4, 8774:9
**paid** [1] - 8700:15
**Palladium** [3] - 8703:9, 8704:8, 8705:5
**panels** [4] - 8726:14, 8726:16, 8726:17
**parsing** [1] - 8699:11
**part** [10] - 8664:25, 8666:24, 8675:9, 8686:7, 8688:14, 8719:24, 8735:14, 8748:1, 8767:3, 8771:3
**participants** [1] - 8688:5
**participates** [1] - 8667:25
**particular** [13] - 8665:11, 8669:15, 8669:17, 8671:13, 8683:11, 8707:14, 8707:22, 8716:11, 8718:5, 8720:13, 8726:23, 8727:15, 8733:16
**particularly** [2] - 8681:24, 8777:14
**parties** [4] - 8684:20, 8685:9, 8775:7
**parts** [4] - 8676:21, 8676:24, 8677:1, 8682:13
**party** [1] - 8685:13
**pass** [1] - 8687:1
**past** [1] - 8775:15
**pattern** [2] - 8757:11, 8760:21
**patterns** [2] - 8757:20, 8760:10
**Patterson** [1] - 8657:3
**pay** [2] - 8700:21, 8700:22
**paying** [1] - 8700:10
**payment** [2] - 8701:1, 8701:5
**pays** [1] - 8730:2
**PC** [2] - 8714:14, 8757:19
**peck** [1] - 8717:15
**pecking** [1] - 8719:17
**Pedacat** [4] - 8746:18, 8747:22, 8747:25, 8748:5
**PEDACAT** [1] - 8746:18
**Penny** [1] - 8681:7
**people** [58] - 8661:23, 8665:21, 8681:4, 8681:12, 8684:22, 8684:25, 8685:2, 8685:5, 8688:5, 8707:3, 8712:21, 8713:20, 8715:1, 8720:4, 8720:18, 8720:20, 8721:5, 8721:6, 8721:14, 8726:4, 8726:18, 8727:13, 8727:16, 8727:24, 8728:10, 8728:22, 8728:25, 8729:18, 8731:5, 8734:10, 8734:23, 8734:24, 8735:14, 8735:16, 8735:24, 8736:2, 8736:25, 8737:6, 8741:7, 8742:3, 8742:9, 8742:11, 8742:21, 8743:16, 8743:17, 8755:17, 8756:17, 8756:22, 8758:12, 8759:23, 8766:24, 8767:14, 8770:3, 8775:19, 8777:14
**people's** [1] - 8742:8
**per** [3] - 8694:3, 8709:14, 8730:24
**per-user** [1] - 8730:24
**percent** [20] - 8679:20, 8680:24, 8683:3, 8683:5, 8711:4, 8725:15, 8725:17, 8726:3, 8726:7, 8736:12, 8736:17, 8736:18, 8748:22, 8750:7, 8750:13, 8750:25, 8766:22, 8768:9, 8773:25, 8774:16
**percentage** [5] - 8684:2, 8684:4, 8711:4, 8772:15, 8774:4
**perception** [1] - 8742:1
**perfect** [1] - 8770:20
**performance** [1] - 8763:16
**period** [3] - 8712:16, 8714:21, 8739:18
**person** [8] - 8720:5, 8728:4, 8741:25, 8754:11, 8755:11, 8756:10, 8756:11, 8756:15
**personal** [1] - 8716:22
**personally** [5] - 8664:10, 8664:20, 8669:24, 8670:7, 8759:19
**phone** [7] - 8702:22, 8712:16, 8714:16, 8721:11, 8736:15, 8757:13, 8757:14
**phones** [1] - 8771:5
**physical** [1] - 8751:10
**pick** [1] - 8673:16
**picture** [1] - 8727:16
**pictures** [2] - 8676:13, 8738:5
**piece** [2] - 8708:2, 8763:18
**PLA** [3] - 8703:7, 8747:8, 8751:14
**place** [12] - 8684:19, 8691:21, 8702:12, 8705:2, 8705:9, 8708:6, 8713:3, 8723:6, 8723:24, 8724:2, 8724:21, 8778:8
**places** [10] - 8674:8, 8696:6, 8704:21, 8705:16, 8705:24, 8711:25, 8714:9, 8715:2, 8724:5, 8742:12
**Plaintiff** [2] - 8656:18, 8659:7
**plaintiffs** [6] - 8679:4, 8761:22, 8776:19, 8776:20, 8782:8, 8783:1
**Plaintiffs** [3] - 8656:4, 8656:13, 8657:2
**planning** [2] - 8660:17, 8781:6
**PLAs** [9] - 8665:3, 8665:7, 8665:11, 8671:14, 8703:5, 8703:11, 8703:25, 8747:2, 8747:12
**platforms** [2] - 8694:13
**plausible** [1] - 8682:8
**play** [3] - 8694:21, 8709:24, 8752:15
**players** [1] - 8766:13
**playing** [1] - 8780:12
**plenty** [1] - 8780:14
**plumbers** [2] - 8725:18, 8725:22
**plus** [2] - 8757:16, 8757:19
**point** [32] - 8660:13, 8663:18, 8665:20, 8670:23, 8707:15, 8712:12, 8715:11, 8717:20, 8720:3, 8720:4, 8722:16, 8724:12, 8734:11, 8735:4, 8741:13, 8752:6, 8753:1, 8756:3, 8758:9, 8758:20, 8761:22, 8764:19, 8765:16, 8765:25, 8766:10, 8766:18, 8772:6, 8772:7, 8772:16, 8775:5, 8781:17, 8782:18
**policy** [1] - 8690:10
**pops** [2] - 8745:9, 8760:12
**popular** [1] - 8728:21
**portion** [4] - 8725:25, 8735:15, 8735:18
**position** [4] - 8665:24, 8691:17, 8691:18, 8782:20
**positions** [1] - 8674:17
**positive** [1] - 8677:14
**positively** [2] - 8731:18, 8731:19
**possibility** [1] - 8781:9
**possible** [4] - 8662:10, 8676:10, 8697:13, 8701:4
**post** [1] - 8775:1
**post-COVID** [1] - 8775:1
**potential** [3] - 8694:24, 8700:20, 8746:21
**potentially** [2] - 8780:13, 8781:12
**power** [9] - 8700:13, 8700:16, 8700:18, 8700:19, 8700:24, 8701:2, 8701:8, 8701:9, 8763:17
**pre** [4] - 8688:21, 8688:25, 8689:4, 8689:7
**pre-installation** [4] - 8688:21, 8688:25, 8689:4, 8689:7
**precise** [5] - 8665:15, 8665:18, 8665:25, 8666:16, 8717:7
**predicated** [1] - 8701:6
**predict** [1] - 8761:19
**premature** [1] - 8781:21
**prepared** [1] - 8692:8
**prepped** [1] - 8732:7
**present** [1] - 8762:16
**presentation** [1] - 8745:24
**presented** [5] - 8739:3, 8744:1, 8761:17, 8762:19, 8773:17
**presenting** [1] - 8763:9
**presidents** [1] - 8690:25
**pressure** [3] - 8699:4, 8699:25, 8766:9
**presumably** [1] - 8739:18
**presume** [1] - 8742:16
**pretrial** [1] - 8779:22
**pretty** [4] - 8750:16, 8750:23, 8768:4
**prevent** [1] - 8688:21
**price** [19] - 8697:16, 8729:25, 8730:2, 8730:5, 8730:6, 8765:12, 8766:9, 8766:12, 8766:15, 8766:16, 8766:18,

8766:19, 8767:1, 8767:15, 8767:19, 8767:21, 8767:23, 8768:3, 8768:10
**price-reducing** [1] - 8768:10
**priced** [2] - 8697:16, 8765:15
**prices** [3] - 8765:18, 8766:23, 8767:24
**primarily** [3] - 8726:2, 8728:22, 8740:18
**Prime** [2] - 8729:9, 8729:16
**privacy** [11] - 8690:10, 8692:11, 8693:9, 8693:10, 8693:19, 8694:1, 8694:3, 8694:4, 8694:9, 8694:10, 8694:15
**private** [1] - 8692:2
**problem** [3] - 8660:4, 8721:22, 8756:5
**problems** [1] - 8717:11
**Proceedings** [2] - 8657:16, 8783:7
**proceedings** [1] - 8784:4
**produce** [8] - 8765:2, 8765:25, 8767:20, 8767:23, 8768:6, 8768:7, 8768:8, 8768:9
**produced** [1] - 8657:17
**producing** [3] - 8766:13, 8766:14, 8767:15
**product** [11] - 8666:15, 8667:24, 8667:25, 8695:24, 8713:10, 8718:10, 8744:3, 8764:23, 8765:3, 8779:15, 8779:16
**products** [2] - 8696:1, 8764:21
**Professor** [13] - 8660:2, 8689:18, 8691:16, 8730:16, 8740:10, 8742:18, 8748:22, 8780:18, 8781:11, 8781:24, 8782:8, 8782:9
**profitable** [4] - 8764:7, 8766:10, 8766:22, 8769:14
**profits** [8] - 8763:21, 8763:22, 8763:24, 8764:5, 8764:6, 8764:9, 8764:12, 8764:14
**program** [1] - 8731:2
**prohibit** [5] - 8689:4, 8689:7, 8689:22, 8689:23, 8690:1
**prohibited** [1] - 8689:12
**prohibits** [1] - 8688:25
**Project** [1] - 8730:10
**projected** [1] - 8775:3
**projecting** [1] - 8774:22
**projection** [1] - 8775:2
**projections** [5] - 8762:23, 8762:25, 8763:9, 8763:11, 8763:13
**proposed** [1] - 8659:20
**protect** [1] - 8689:11
**Protection** [1] - 8656:19
**provide** [13] - 8674:4, 8675:15, 8675:20, 8675:25, 8676:3, 8724:19, 8736:11, 8736:17, 8737:6, 8742:14, 8748:8, 8761:6, 8762:18
**provided** [3] - 8705:19, 8747:4, 8762:5
**provider** [2] - 8673:12, 8687:14
**providers** [2] - 8699:4, 8744:4
**provides** [3] - 8724:1, 8744:3, 8755:10
**providing** [4] - 8723:20, 8724:15, 8748:7, 8754:3
**PSX** [1] - 8732:13
**PSX0562** [4] - 8731:25, 8732:4, 8732:10, 8732:24
**PSX0562**..... ..... [1] - 8658:8
**PSX562** [1] - 8737:13
**publication** [1] - 8767:8
**pull** [6] - 8695:13, 8718:17, 8721:19, 8744:23, 8754:22, 8755:2
**pulled** [1] - 8763:11
**purchase** [4] - 8737:1, 8737:3, 8758:9
**purpose** [6] - 8662:16, 8662:18, 8672:20, 8743:10, 8744:5, 8744:9
**purposes** [1] - 8720:19
**pursue** [1] - 8763:25
**put** [48] - 8669:8, 8669:22, 8670:3, 8670:5, 8670:7, 8670:9, 8670:10, 8670:18, 8672:24, 8673:25, 8675:4, 8676:21, 8676:22, 8677:1, 8678:19, 8688:17, 8689:21, 8690:15, 8690:21, 8691:6, 8691:11, 8693:18, 8702:6, 8702:9, 8702:15, 8702:18, 8711:7, 8712:23, 8716:7, 8716:22, 8718:19, 8720:24, 8722:19, 8722:23, 8736:15, 8740:14, 8740:16, 8740:25, 8742:7, 8747:25, 8755:3, 8756:10, 8756:11, 8756:15, 8756:17, 8764:24, 8766:8
**puts** [3] - 8699:4, 8699:24, 8748:5
**putting** [7] - 8672:15, 8689:22, 8689:23, 8711:7, 8720:20, 8724:4, 8769:18

## Q

**Q3** [1] - 8686:8
**quality** [8] - 8694:7, 8694:10, 8729:22, 8730:1, 8730:5, 8730:7, 8761:19
**quantity** [1] - 8768:10
**quarrel** [1] - 8683:12
**quarterly** [2] - 8682:5, 8682:7
**queries** [125] - 8661:10, 8662:5, 8662:21, 8662:22, 8663:1, 8663:2, 8663:9, 8663:10, 8663:11, 8663:12, 8663:13, 8663:16, 8663:17, 8663:20, 8663:22, 8663:23, 8664:3, 8664:8, 8664:23, 8665:2, 8665:5, 8665:12, 8665:15, 8665:22, 8665:25, 8668:12, 8669:2, 8669:4, 8671:13, 8671:23, 8673:10, 8674:7, 8674:12, 8674:14, 8674:18, 8675:12, 8675:14, 8678:1, 8683:24, 8684:3, 8685:11, 8695:8, 8695:9, 8696:3, 8696:7, 8696:18, 8696:20, 8709:9, 8709:13, 8709:14, 8711:1, 8720:7, 8721:7, 8721:8, 8722:18, 8724:7, 8725:15, 8725:17, 8725:24, 8726:2, 8726:6, 8729:2, 8730:25, 8734:11, 8734:12, 8734:13, 8734:21, 8735:1, 8735:8, 8735:15, 8735:16, 8736:14, 8736:17, 8736:24, 8737:5, 8737:6, 8737:8, 8737:10, 8738:18, 8738:19, 8745:19, 8746:15, 8746:16, 8746:19, 8746:20, 8747:2, 8747:12, 8747:14, 8747:15, 8747:17, 8747:18, 8747:21, 8748:7, 8748:13, 8748:17, 8748:19, 8748:23, 8749:1, 8749:2, 8749:3, 8749:7, 8749:9, 8749:12, 8749:16, 8750:5, 8750:6, 8750:9, 8750:10, 8753:20, 8756:3, 8757:3, 8757:5, 8757:8, 8757:24, 8759:1, 8765:10
**query** [105] - 8661:24, 8662:2, 8662:6, 8662:11, 8662:23, 8662:24, 8663:5, 8663:6, 8663:7, 8663:19, 8664:7, 8664:9, 8664:10, 8664:18, 8664:19, 8664:21, 8666:15, 8667:23, 8671:2, 8671:12, 8672:4, 8675:2, 8675:4, 8675:21, 8677:1, 8677:3, 8677:11, 8682:23, 8682:24, 8683:2, 8683:15, 8683:22, 8684:1, 8684:8, 8691:8, 8695:10, 8696:9, 8696:10, 8696:14, 8696:15, 8708:18, 8709:22, 8709:24, 8710:3, 8710:17, 8711:21, 8715:16, 8716:1, 8716:11, 8717:2, 8717:7, 8717:18, 8718:19, 8719:15, 8720:14, 8720:16, 8720:17, 8720:21, 8721:3, 8722:6, 8722:20, 8724:23, 8730:24, 8730:25, 8731:13, 8735:2, 8735:20, 8735:22, 8735:25, 8736:10, 8736:11, 8736:16, 8736:19, 8742:3, 8745:21, 8746:10, 8746:21, 8747:11, 8749:23, 8750:2, 8750:3, 8750:12, 8750:15, 8750:17, 8750:21, 8750:22, 8751:25, 8752:3, 8752:21, 8753:1, 8754:16, 8754:17, 8754:18, 8754:19, 8756:23, 8757:25, 8770:17
**query-by-query** [6] - 8663:7, 8663:19, 8666:15, 8667:23, 8683:22, 8735:25
**query-level** [1] - 8754:18
**querying** [1] - 8731:17
**questions** [16] - 8678:6, 8686:24, 8688:12, 8690:18, 8693:23, 8697:8, 8724:11, 8726:5, 8729:20, 8731:24, 8738:20, 8743:23, 8744:19, 8745:23, 8760:2, 8775:4
**quibble** [2] - 8662:17, 8670:22
**quickly** [1] - 8762:9
**quite** [6] - 8701:22, 8717:21, 8729:17, 8751:7, 8758:24, 8770:2
**quote** [2] - 8688:22,

8738:24
**Qwant** [2] - 8693:15

## R

**R&D** [8] - 8768:18, 8768:20, 8768:24, 8769:3, 8769:6, 8769:8, 8769:9, 8769:17
**Raghavan** [2] - 8729:8, 8752:10
**raise** [6] - 8763:21, 8763:23, 8763:24, 8764:3, 8764:4, 8765:12
**raised** [2] - 8660:6, 8721:18
**range** [2] - 8678:1, 8701:21
**ranking** [1] - 8705:22
**rare** [1] - 8728:18
**rather** [3] - 8778:13, 8778:16
**re** [1] - 8659:13
**re-offering** [1] - 8659:13
**reach** [1] - 8667:12
**reached** [2] - 8711:2, 8711:3
**reacted** [1] - 8697:13
**read** [14] - 8664:10, 8664:18, 8664:20, 8666:24, 8667:1, 8667:20, 8674:3, 8674:11, 8687:10, 8733:17, 8742:19, 8742:20, 8769:21, 8770:10
**reading** [2] - 8666:25, 8667:18
**ready** [2] - 8661:1, 8725:9
**real** [4] - 8681:19, 8725:19, 8725:22, 8777:24
**real-time** [2] - 8681:19, 8777:24
**reality** [1] - 8713:4
**realize** [1] - 8772:2
**realized** [1] - 8759:14
**realizing** [1] - 8695:24
**really** [16] - 8676:3, 8687:20, 8689:17, 8689:19, 8691:25, 8693:14, 8704:23, 8712:18, 8716:24, 8718:24, 8723:22, 8724:7, 8730:19, 8760:17, 8777:15, 8781:21
**reason** [10] - 8690:9, 8733:16, 8733:24, 8734:9, 8740:4, 8774:4, 8774:19, 8774:21, 8774:23
**reasonable** [10] - 8662:1, 8662:5, 8662:16, 8665:22, 8666:5, 8667:4, 8667:16, 8668:16, 8672:6, 8672:7
**reasonably** [1] - 8668:16
**reasons** [4] - 8677:20, 8692:16, 8763:4, 8782:17
**rebut** [1] - 8781:24
**rebuttal** [6] - 8781:3, 8781:5, 8781:22, 8782:5, 8782:9, 8782:18
**recalling** [6] - 8692:4, 8694:2, 8731:15, 8732:3, 8750:11, 8759:2
**received** [2] - 8660:12, 8732:24
**RECEIVED** [1] - 8658:7
**Recess** [1] - 8725:13
**recipe** [1] - 8723:25
**recipes** [6] - 8722:20, 8722:23, 8723:7, 8723:10, 8723:15, 8724:21
**recognize** [2] - 8759:23, 8772:20
**recollection** [1] - 8674:11
**reconstruct** [1] - 8707:3
**record** [5] - 8682:2, 8740:25, 8769:21, 8778:18, 8784:4
**recorded** [1] - 8657:16
**recreate** [5] - 8707:12, 8724:24, 8725:2, 8725:5, 8725:8
**red** [8] - 8715:16, 8716:2, 8716:9, 8727:14, 8749:8, 8755:6, 8771:25, 8772:8
**redacted** [1] - 8682:14
**redirect** [1] - 8776:6
**redirects** [2] - 8696:8, 8696:9
**reduce** [3] - 8727:19, 8764:8, 8780:4
**reduced** [2] - 8780:6, 8780:7
**reduces** [1] - 8766:11
**reducing** [1] - 8768:10
**reduction** [1] - 8764:10
**reels** [1] - 8779:25
**refer** [2] - 8680:12, 8760:4
**reference** [4] - 8693:19, 8739:22, 8740:14, 8740:18
**referenced** [2] - 8739:1, 8739:5
**referring** [2] - 8680:11, 8735:11
**refined** [1] - 8750:20
**refresh** [1] - 8706:14
**regarding** [20] - 8661:24, 8662:2, 8662:6, 8662:11, 8679:22, 8690:1, 8697:21, 8698:3, 8698:23, 8699:14, 8707:2, 8733:2, 8733:7, 8733:13, 8740:10, 8750:10, 8763:17, 8768:20
**region** [1] - 8769:9
**region-specific** [1] - 8769:9
**regions** [1] - 8768:25
**regular** [1] - 8733:22
**regularly** [1] - 8728:17
**REI** [12] - 8703:12, 8703:15, 8703:17, 8704:8, 8705:6, 8707:19, 8707:22, 8707:23, 8708:2, 8708:7, 8708:10
**REI-specific** [1] - 8708:2
**relate** [1] - 8769:6
**related** [1] - 8770:8
**relationship** [1] - 8739:2
**relative** [2] - 8756:19, 8764:16
**relatively** [2] - 8728:23, 8742:6
**relevance** [1] - 8769:5
**relevant** [13] - 8677:25, 8681:19, 8681:21, 8681:24, 8683:7, 8706:12, 8753:12, 8754:10, 8754:12, 8762:6, 8762:20, 8769:4, 8769:18
**remain** [1] - 8780:25
**remember** [13] - 8661:12, 8672:10, 8685:19, 8686:23, 8697:6, 8708:14, 8718:12, 8718:13, 8720:25, 8740:2, 8743:6
**remind** [2] - 8692:20, 8710:4
**reminder** [1] - 8775:11
**repeat** [2] - 8697:22, 8715:25
**repeatedly** [1] - 8713:5
**rephrase** [1] - 8761:13
**reply** [1] - 8782:11
**report** [26] - 8661:16, 8661:18, 8663:3, 8664:21, 8664:23, 8665:14, 8665:24, 8669:21, 8669:25, 8670:6, 8670:9, 8670:10, 8670:11, 8680:13, 8698:12, 8701:10, 8701:14, 8707:6, 8721:9, 8730:17, 8740:19, 8740:25, 8760:9, 8782:9, 8782:11, 8782:14
**REPORTER** [3] - 8664:1, 8784:1, 8784:9
**Reporter** [1] - 8657:13
**reports** [6] - 8679:12, 8681:8, 8681:13, 8762:17, 8774:24
**representation** [1] - 8683:12
**representations** [1] - 8781:16
**reputation** [3] - 8675:11, 8675:13, 8742:10
**require** [1] - 8761:21
**required** [2] - 8714:8, 8750:6
**requiring** [1] - 8714:6
**research** [5] - 8729:7, 8729:9, 8729:10, 8729:19, 8731:5
**resetting** [1] - 8710:11
**resolve** [1] - 8782:4
**resolved** [3] - 8660:10, 8662:8, 8662:12
**resources** [1] - 8684:7
**respect** [2] - 8774:3, 8778:24
**respond** [1] - 8713:25
**responded** [2] - 8782:8, 8782:10
**responding** [1] - 8740:6
**responds** [2] - 8673:9, 8748:7
**response** [18] - 8674:21, 8674:22, 8674:24, 8675:1, 8675:5, 8675:10, 8675:19, 8675:20, 8677:25, 8708:4, 8708:5, 8716:10, 8716:21, 8729:15, 8739:6, 8739:8, 8754:2
**responses** [2] - 8675:10, 8710:2
**responsive** [1] - 8705:20
**rest** [4] - 8722:18, 8773:20, 8773:22, 8777:22
**restart** [1] - 8710:24
**restaurant** [2] - 8715:16, 8716:1
**restaurants** [1] - 8716:8
**restraining** [1] - 8767:25
**restrict** [2] - 8764:20, 8765:17
**restriction** [1] - 8765:20
**restrictions** [1] - 8688:18
**result** [1] - 8772:14
**resulting** [1] - 8731:1
**results** [10] - 8665:9, 8676:10, 8676:14, 8677:25, 8697:18, 8716:8, 8736:11, 8751:7, 8751:12, 8759:18
**resume** [2] - 8725:12, 8775:6
**RESUMED** [1] - 8661:3
**retail** [3] - 8731:2, 8738:3, 8760:6
**retail-focused** [1] - 8738:3
**retailer** [1] - 8695:25
**retailers** [4] - 8696:6, 8731:3, 8731:17, 8760:15
**return** [3] - 8670:2, 8677:25, 8725:17
**returned** [1] - 8665:3
**returns** [1] - 8676:13

**reveal** [2] - 8665:19, 8738:8
**revenue** [11] - 8697:18, 8697:19, 8698:2, 8730:24, 8738:16, 8767:12, 8767:19, 8767:20, 8767:22, 8768:2, 8769:21
**reverse** [1] - 8699:8
**review** [4] - 8682:2, 8777:12, 8778:8, 8781:15
**reviewing** [1] - 8660:3
**ride** [2] - 8727:19, 8727:22
**ride-sharing** [2] - 8727:19, 8727:22
**right-hand** [1] - 8773:19
**rivals** [2] - 8761:25, 8762:3
**roles** [1] - 8694:20
**roll** [1] - 8713:16
**rollout** [2] - 8739:21, 8740:3
**rollouts** [1] - 8739:13
**Room** [1] - 8657:14
**room** [1] - 8777:5
**Rosati** [1] - 8657:9
**rough** [1] - 8775:20
**roughly** [3] - 8688:14, 8691:7, 8725:17
**round** [1] - 8782:15
**routinely** [1] - 8683:14
**row** [1] - 8771:25
**RPR** [1] - 8657:13
**RSA** [1] - 8689:10
**RSAs** [5] - 8688:15, 8688:17, 8689:4, 8689:13, 8689:16
**rule** [2] - 8750:25, 8782:22
**rules** [1] - 8659:21
**run** [3] - 8709:19, 8746:20, 8779:13
**running** [2] - 8734:11, 8752:15

## S

**Safari** [7] - 8672:25, 8674:7, 8696:9, 8696:20, 8696:25, 8697:4, 8715:3
**sales** [1] - 8742:17
**salient** [1] - 8730:1
**SALLET** [1] - 8656:18
**Sallet** [1] - 8659:6
**sample** [2] - 8664:4, 8726:17
**Sara** [3] - 8781:18, 8784:3, 8784:8
**SARA** [2] - 8656:15, 8657:13
**sat** [1] - 8713:9
**satisfied** [1] - 8728:13
**save** [1] - 8690:5
**saving** [1] - 8777:22
**saw** [5] - 8733:15, 8740:14, 8745:21, 8763:23, 8778:21
**scarcity** [7] - 8764:8, 8764:20, 8764:23, 8764:25, 8765:10, 8765:22
**schedule** [1] - 8660:25
**scheduling** [1] - 8660:14
**SCHMIDTLEIN** [15] - 8657:6, 8660:6, 8660:13, 8660:16, 8775:23, 8776:9, 8776:12, 8776:14, 8776:17, 8779:20, 8780:11, 8780:18, 8781:2, 8782:13, 8783:4
**Schmidtlein** [3] - 8659:7, 8780:16, 8782:12
**schools** [3] - 8669:16, 8671:2
**scope** [2] - 8698:11, 8698:13
**score** [1] - 8778:22
**screen** [19] - 8668:23, 8668:24, 8678:20, 8685:22, 8692:18, 8693:4, 8701:24, 8709:7, 8716:7, 8718:24, 8719:4, 8723:2, 8730:19, 8732:6, 8738:23, 8740:9, 8746:2, 8752:12, 8755:9
**se** [1] - 8694:3
**Search** [9] - 8690:8, 8702:3, 8732:1, 8745:12, 8772:24, 8774:3, 8774:15, 8775:15, 8775:16
**search** [168] - 8667:24, 8667:25, 8672:17, 8673:1, 8673:8, 8673:9, 8673:14, 8673:16, 8673:25, 8674:8, 8674:18, 8674:22, 8675:4, 8675:19, 8676:22, 8677:16, 8678:6, 8678:8, 8678:9, 8679:9, 8679:22, 8680:3, 8680:19, 8681:8, 8681:13, 8681:18, 8682:5, 8682:9, 8682:23, 8683:2, 8683:8, 8683:15, 8683:16, 8684:9, 8684:17, 8684:18, 8684:21, 8686:12, 8687:14, 8687:15, 8687:19, 8687:24, 8688:6, 8688:9, 8688:22, 8689:1, 8690:2, 8690:12, 8690:14, 8690:16, 8690:21, 8691:1, 8691:6, 8691:19, 8691:20, 8693:9, 8694:1, 8694:5, 8694:11, 8694:16, 8694:21, 8695:6, 8695:18, 8695:22, 8695:25, 8696:1, 8698:23, 8699:2, 8701:10, 8701:18, 8701:19, 8702:6, 8702:9, 8702:12, 8704:6, 8704:14, 8704:25, 8707:13, 8707:14, 8708:16, 8709:19, 8709:22, 8710:2, 8713:4, 8715:1, 8715:16, 8716:1, 8716:13, 8716:20, 8718:15, 8718:18, 8719:14, 8719:20, 8720:4, 8720:8, 8720:9, 8720:11, 8720:12, 8720:22, 8721:2, 8721:12, 8721:23, 8721:25, 8722:3, 8722:10, 8723:5, 8724:1, 8724:13, 8728:17, 8728:20, 8728:22, 8728:24, 8729:1, 8729:7, 8729:21, 8730:2, 8742:14, 8743:2, 8743:10, 8743:16, 8743:21, 8744:5, 8744:9, 8745:3, 8745:5, 8745:6, 8745:9, 8745:11, 8745:13, 8745:15, 8745:18, 8748:1, 8748:20, 8759:3, 8761:24, 8762:3, 8762:11, 8762:12, 8762:17, 8762:22, 8763:3, 8765:6, 8765:14, 8765:22, 8769:3, 8769:24, 8770:8, 8770:12, 8770:19, 8770:25, 8771:4, 8772:2, 8772:14, 8773:11, 8773:14, 8773:20, 8773:21
**searched** [1] - 8715:3
**searches** [16] - 8662:7, 8670:2, 8674:4, 8701:12, 8713:10, 8713:11, 8753:17, 8755:9, 8758:5, 8759:20, 8760:18, 8770:23, 8771:2, 8771:4, 8771:6, 8771:14
**searching** [11] - 8665:21, 8692:2, 8717:13, 8718:1, 8721:5, 8735:18, 8758:7, 8758:8, 8758:15, 8758:19, 8770:4
**second** [10] - 8660:22, 8700:24, 8714:14, 8720:12, 8730:18, 8731:16, 8732:12, 8733:12, 8734:1
**Section** [1] - 8656:19
**section** [1] - 8773:12
**see** [97] - 8660:24, 8665:23, 8666:10, 8667:18, 8669:5, 8680:22, 8680:25, 8682:22, 8682:25, 8683:2, 8683:3, 8683:4, 8683:6, 8686:1, 8686:6, 8686:7, 8686:8, 8687:5, 8687:8, 8688:2, 8691:14, 8692:8, 8693:11, 8693:12, 8693:14, 8693:15, 8693:19, 8693:21, 8701:14, 8701:22, 8702:4, 8703:11, 8703:15, 8703:20, 8707:4, 8710:20, 8716:4, 8718:23, 8719:6, 8719:11, 8722:24, 8723:2, 8723:8, 8723:17, 8729:11, 8729:12, 8729:14, 8729:18, 8731:8, 8731:10, 8732:12, 8732:17, 8733:1, 8733:2, 8733:7, 8733:10, 8733:13, 8734:4, 8734:6, 8734:8, 8738:1, 8738:2, 8738:9, 8738:13, 8740:13, 8741:5, 8742:18, 8742:19, 8743:5, 8743:7, 8744:5, 8744:7, 8744:11, 8746:5, 8751:13, 8751:14, 8752:17, 8752:23, 8754:25, 8755:11, 8755:13, 8758:1, 8767:17, 8770:2, 8771:18, 8773:7, 8773:9, 8773:23, 8774:1, 8774:11, 8774:13, 8774:17, 8774:18, 8779:17, 8783:6
**See** [1] - 8725:12
**seeing** [1] - 8705:18
**seek** [1] - 8764:6
**seeking** [4] - 8673:21, 8674:12, 8675:2, 8720:17
**seem** [1] - 8688:10
**self** [3] - 8769:25, 8770:5, 8770:7
**self-driving** [3] - 8769:25, 8770:5, 8770:7
**sell** [10] - 8684:13, 8684:15, 8685:3, 8704:22, 8718:14, 8748:13, 8766:17, 8766:19, 8766:25
**selling** [1] - 8768:7
**sells** [4] - 8708:10, 8715:17, 8716:2, 8716:9
**send** [2] - 8674:7, 8778:11
**sending** [1] - 8778:12
**senior** [1] - 8776:14
**sense** [14] - 8674:3, 8690:19, 8695:23, 8696:2, 8696:5, 8717:19, 8724:20, 8735:11, 8736:24, 8751:20, 8765:1, 8765:5, 8772:11, 8777:20
**sentence** [2] - 8733:9, 8774:18
**separate** [15] - 8662:7, 8710:20, 8711:22,

8711:24, 8712:10, 8712:13, 8712:16, 8714:19, 8714:24, 8744:17, 8747:23, 8748:5, 8749:12, 8773:14
**separated** [2] - 8710:5, 8750:23
**separately** [2] - 8762:21, 8773:11
**series** [2] - 8713:9, 8739:6
**seriously** [1] - 8700:23
**SERP** [21] - 8675:16, 8675:18, 8675:20, 8675:22, 8676:2, 8676:4, 8676:5, 8676:22, 8677:11, 8705:13, 8707:12, 8707:13, 8735:22, 8736:20, 8737:7, 8748:8, 8772:4, 8772:7, 8772:9, 8772:12
**SERPs** [1] - 8675:24
**serve** [1] - 8737:10
**served** [2] - 8673:5, 8702:7
**server** [1] - 8686:8
**server-side** [1] - 8686:8
**service** [4] - 8697:5, 8706:16, 8727:19, 8727:22
**services** [2] - 8688:22, 8722:16
**session** [3] - 8720:8, 8727:16, 8776:15
**sessions** [1] - 8709:9
**set** [18] - 8663:1, 8665:22, 8680:20, 8681:21, 8681:24, 8682:1, 8683:18, 8684:24, 8687:14, 8691:3, 8704:12, 8706:9, 8707:23, 8707:25, 8709:2, 8754:20, 8762:20, 8782:17
**sets** [3] - 8662:8, 8662:13, 8776:19
**setting** [1] - 8720:10
**seventh** [1] - 8692:22
**Seventh** [1] - 8656:21
**several** [1] - 8780:20
**several-hour** [1] - 8780:20
**share** [21] - 8679:7, 8679:10, 8682:23, 8682:24, 8683:2, 8683:15, 8683:19, 8683:22, 8684:8, 8684:9, 8684:14, 8684:15, 8685:23, 8686:12, 8693:4, 8697:18, 8773:21, 8774:3, 8774:16
**shares** [11] - 8679:13, 8679:23, 8679:24, 8680:1, 8681:8, 8682:5, 8682:10, 8682:11, 8683:20, 8684:18, 8698:2
**sharing** [2] - 8727:19, 8727:22
**sharpest** [1] - 8696:16
**shift** [1] - 8730:25
**shipped** [1] - 8671:16
**shoehorn** [1] - 8689:19
**shoes** [6] - 8704:22, 8705:16, 8707:16, 8707:24, 8707:25, 8708:5
**shop** [6] - 8690:22, 8729:10, 8735:14, 8735:17, 8756:15, 8756:18
**shopping** [35] - 8663:12, 8665:2, 8665:7, 8665:11, 8665:12, 8669:2, 8671:8, 8671:11, 8671:12, 8708:12, 8726:2, 8726:6, 8734:10, 8734:12, 8735:15, 8735:17, 8736:8, 8736:13, 8737:16, 8737:25, 8746:15, 8746:16, 8747:2, 8747:11, 8748:3, 8748:4, 8751:6, 8751:8, 8753:18, 8756:19, 8757:3, 8757:5, 8757:8, 8760:14
**Shopping** [1] - 8746:3
**shoppy** [1] - 8730:25
**short** [1] - 8730:23
**short-term** [1] - 8730:23
**shortcut** [1] - 8741:14
**shorten** [1] - 8713:16
**shorter** [1] - 8779:25
**shorthand** [1] - 8657:16
**shortly** [2] - 8725:12, 8777:1
**show** [14] - 8663:9, 8701:14, 8707:9, 8721:21, 8723:1, 8727:17, 8740:22, 8755:3, 8757:4, 8759:18, 8759:25, 8769:19, 8771:21, 8773:25
**showed** [3] - 8661:15, 8663:11, 8759:17
**showing** [9] - 8679:5, 8703:6, 8710:25, 8731:9, 8741:20, 8759:16, 8780:2, 8780:13
**shown** [2] - 8779:5, 8779:17
**shows** [3] - 8676:22, 8683:2, 8683:3
**side** [22] - 8665:20, 8678:6, 8678:8, 8686:8, 8744:4, 8752:7, 8753:4, 8755:24, 8757:14, 8758:1, 8758:5, 8758:12, 8759:13, 8760:14, 8765:6, 8765:14, 8767:12, 8777:5, 8779:9
**sides** [2] - 8778:7, 8780:2
**sifting** [1] - 8724:13
**sight** [1] - 8703:14
**sign** [1] - 8779:12
**SIGNATURE** [1] - 8784:9
**significant** [5] - 8663:1, 8688:4, 8748:19, 8749:1, 8759:15
**similar** [4] - 8662:15, 8665:9, 8669:3, 8752:24
**simple** [2] - 8699:11, 8699:19
**simplest** [1] - 8706:22
**simplify** [1] - 8713:17
**simply** [1] - 8707:15
**single** [8] - 8691:10, 8691:13, 8711:2, 8711:3, 8712:21, 8741:25, 8745:11, 8770:18
**Siri** [1] - 8674:5
**sit** [4] - 8664:10, 8664:18, 8708:10, 8759:2
**site** [8] - 8710:8, 8710:9, 8720:6, 8720:17, 8721:3, 8741:10, 8742:11, 8749:20
**sites** [5] - 8694:14, 8704:3, 8721:13, 8725:6, 8742:9
**sitting** [1] - 8716:25
**six** [8] - 8710:8, 8710:9, 8710:15, 8710:18, 8711:19, 8713:2, 8738:3, 8738:5
**sixth** [1] - 8771:24
**Sixth** [1] - 8717:9
**skip** [1] - 8751:2
**slicing** [1] - 8681:23
**slide** [34] - 8668:21, 8671:1, 8687:1, 8687:9, 8692:15, 8709:2, 8709:6, 8714:21, 8726:9, 8727:10, 8729:20, 8730:18, 8731:16, 8735:6, 8738:21, 8740:7, 8745:24, 8751:1, 8751:2, 8754:16, 8756:5, 8756:6, 8756:24, 8757:2, 8757:10, 8760:2, 8760:3, 8760:8, 8760:24, 8762:7, 8768:17, 8769:19, 8770:13
**slides** [10] - 8660:1, 8660:2, 8668:18, 8670:3, 8680:7, 8680:8, 8680:14, 8739:6, 8740:24, 8741:1
**slight** [1] - 8734:1
**slightly** [2] - 8666:4, 8735:4
**slow** [1] - 8693:3
**small** [2] - 8693:15, 8772:15
**social** [2] - 8689:8, 8694:14
**solution** [1] - 8753:9
**someone** [4] - 8729:7, 8753:7, 8753:8, 8774:22
**something's** [1] - 8750:2
**sometimes** [8] - 8690:23, 8721:14, 8748:15, 8749:17, 8749:18, 8749:19, 8749:20, 8750:1
**somewhat** [2] - 8667:5, 8751:22
**somewhere** [5] - 8691:22, 8695:14, 8695:21, 8722:14, 8749:17
**Sommer** [2] - 8778:13, 8779:1
**SOMMER** [16] - 8657:8, 8659:11, 8659:22, 8664:12, 8664:15, 8698:4, 8698:11, 8699:15, 8713:12, 8713:14, 8715:19, 8715:21, 8725:1, 8732:22, 8777:10, 8778:1
**Sonsini** [1] - 8657:9
**soon** [1] - 8740:3
**sooner** [2] - 8778:13, 8778:16
**sorry** [20] - 8665:13, 8682:17, 8684:8, 8692:18, 8693:3, 8693:4, 8693:13, 8695:19, 8697:22, 8700:3, 8700:12, 8718:17, 8725:3, 8725:4, 8732:13, 8737:17, 8751:1, 8756:13, 8762:1, 8764:17
**sort** [20] - 8672:8, 8684:19, 8691:16, 8699:8, 8706:4, 8707:6, 8724:6, 8731:14, 8736:5, 8741:24, 8750:16, 8760:4, 8761:16, 8766:1, 8767:2, 8777:4, 8779:9, 8780:5, 8781:25
**sorts** [3] - 8674:18, 8682:11, 8760:18
**sound** [1] - 8726:5
**sounds** [24] - 8662:1, 8662:5, 8674:16, 8676:7, 8678:2, 8682:7, 8684:11, 8688:20, 8694:17, 8695:1, 8697:14, 8701:16, 8725:20, 8725:23, 8726:8, 8727:2, 8728:7, 8742:15, 8744:22, 8748:18, 8748:21, 8749:25, 8770:24, 8776:24
**source** [4] - 8677:15, 8717:17, 8717:19, 8749:1
**sources** [4] - 8674:5, 8674:13, 8717:3, 8750:25

**Southwest** [4] - 8657:7, 8715:16, 8716:1, 8716:8
**space** [1] - 8721:1
**speaking** [2] - 8678:10, 8678:12
**speaks** [1] - 8674:2
**special** [1] - 8744:9
**specialized** [1] - 8689:5
**specific** [19] - 8704:18, 8705:18, 8707:21, 8708:2, 8716:23, 8717:2, 8717:9, 8741:13, 8742:23, 8746:8, 8749:19, 8750:21, 8753:1, 8753:2, 8755:23, 8760:5, 8769:9, 8770:17
**specifically** [1] - 8743:17
**specified** [2] - 8761:5, 8761:7
**speech** [1] - 8743:24
**speeds** [1] - 8770:22
**spend** [10] - 8680:8, 8710:8, 8710:15, 8711:19, 8715:2, 8741:16, 8741:21, 8769:3, 8770:3, 8773:6
**spending** [2] - 8768:20, 8768:24
**spent** [1] - 8731:5
**spill** [1] - 8692:10
**spirit** [1] - 8780:7
**split** [1] - 8772:5
**sponsored** [3] - 8703:4, 8703:5, 8744:20
**spot** [1] - 8667:19
**Spotlight** [2] - 8674:5, 8696:25
**spurring** [1] - 8739:23
**STAND** [1] - 8661:3
**stand** [2] - 8665:18, 8666:3
**stands** [1] - 8706:22
**start** [12] - 8672:8, 8690:22, 8690:23, 8690:25, 8704:9, 8711:8, 8716:18, 8736:12, 8736:17, 8776:4, 8776:25, 8780:13
**started** [3] - 8659:10, 8681:16, 8775:8
**starts** [2] - 8711:8, 8711:9
**StatCounter** [1] - 8684:12
**State** [4] - 8656:18, 8657:2, 8657:2, 8772:24
**state** [1] - 8737:17
**statement** [2] - 8731:10, 8733:12
**statements** [1] - 8770:2
**STATES** [3] - 8656:1, 8656:3, 8656:10
**States** [7] - 8656:13, 8656:16, 8659:4, 8659:7, 8688:17, 8768:25, 8781:19
**status** [1] - 8758:4
**stay** [1] - 8760:10
**stenotype** [1] - 8657:16
**step** [2] - 8702:16, 8703:3
**steps** [1] - 8764:11
**stick** [2] - 8777:5, 8777:7
**still** [19] - 8660:8, 8661:6, 8662:12, 8667:6, 8700:9, 8728:8, 8735:10, 8742:7, 8751:13, 8763:21, 8763:25, 8764:14, 8764:22, 8768:9, 8769:18, 8775:21, 8777:1, 8781:6, 8781:8
**stop** [1] - 8708:12
**stopped** [1] - 8775:24
**store** [14] - 8676:21, 8677:1, 8706:7, 8720:12, 8721:11, 8727:24, 8728:2, 8728:5, 8728:9, 8728:10, 8728:11, 8737:2, 8751:9, 8751:10
**stores** [2] - 8676:24, 8728:15
**straight** [1] - 8712:15
**strange** [1] - 8765:14
**Street** [3] - 8656:14, 8656:16, 8717:9
**strength** [2] - 8753:18, 8753:21
**stronger** [1] - 8756:19
**strongest** [1] - 8696:5
**structure** [1] - 8779:7
**structuring** [1] - 8779:4
**struggle** [1] - 8698:25
**struggling** [2] - 8700:12, 8700:22
**stuck** [1] - 8714:11
**studied** [1] - 8731:7
**study** [7] - 8731:7, 8731:8, 8731:13, 8731:15, 8731:25, 8734:23, 8738:15
**stuff** [6] - 8729:4, 8735:1, 8755:17, 8755:19, 8768:4, 8778:4
**submit** [1] - 8782:1
**submitted** [1] - 8782:14
**subset** [3] - 8725:24, 8726:3, 8726:6
**substitute** [2] - 8727:22, 8728:11
**substitutes** [1] - 8689:1
**substitution** [2] - 8752:7, 8753:5
**sufficiently** [1] - 8778:9
**suggest** [1] - 8736:2
**suggestions** [3] - 8696:24, 8697:5, 8744:21
**Suite** [1] - 8657:4
**summary** [3] - 8679:4, 8740:19, 8774:10
**suppose** [5] - 8727:21, 8736:1, 8767:10, 8767:13, 8781:13
**supposed** [2] - 8770:16, 8781:3
**surprise** [1] - 8758:8
**surprises** [1] - 8779:21
**survey** [3] - 8681:9, 8681:10, 8681:14
**Survivor** [2] - 8721:21
**sustain** [1] - 8698:5
**SVP** [26] - 8672:9, 8707:4, 8715:15, 8716:1, 8716:12, 8717:14, 8719:16, 8720:6, 8724:7, 8751:13, 8751:21, 8753:2, 8755:23, 8758:1, 8758:2, 8758:5, 8758:12, 8758:21, 8758:22, 8759:5, 8759:7, 8759:13, 8759:22, 8759:24, 8760:13
**SVPs** [30] - 8667:6, 8675:12, 8685:14, 8686:20, 8686:22, 8694:14, 8717:5, 8717:13, 8717:15, 8720:10, 8722:17, 8724:13, 8724:20, 8740:12, 8740:19, 8741:3, 8741:8, 8741:9, 8743:16, 8744:10, 8744:12, 8744:14, 8752:25, 8754:13, 8758:24, 8760:3, 8760:4, 8771:25, 8772:3, 8772:8
**swipe** [1] - 8701:11
**swiping** [1] - 8701:19
**Swiss** [4] - 8674:20, 8708:25, 8709:1, 8713:20
**switch** [3] - 8687:20, 8742:6, 8742:21
**Switchback** [2] - 8703:19, 8704:8
**switching** [5] - 8701:22, 8702:24, 8741:10, 8741:13, 8741:14
**sympathetic** [1] - 8778:1

## T

**tab** [5] - 8678:22, 8678:23, 8682:19, 8692:20, 8732:12
**tables** [3] - 8679:18, 8679:20, 8679:24
**taker** [1] - 8766:16
**takers** [1] - 8766:15
**tall** [2] - 8684:1, 8684:3
**targeting** [1] - 8752:25
**team** [3] - 8660:7, 8775:16, 8775:18
**teams** [1] - 8660:7
**tease** [3] - 8771:9, 8771:11, 8771:16
**television** [1] - 8729:8
**ten** [1] - 8714:9
**ten-minute** [1] - 8714:9
**tend** [3] - 8714:16, 8727:13, 8730:6
**tendency** [1] - 8730:4
**tenor** [2] - 8733:1, 8735:6
**term** [12] - 8702:6, 8702:9, 8705:20, 8730:23, 8750:15, 8750:18, 8750:21, 8752:13, 8753:25, 8754:7, 8755:16, 8766:15
**terms** [22] - 8660:23, 8665:1, 8670:2, 8694:8, 8699:3, 8699:5, 8699:8, 8699:13, 8699:20, 8699:21, 8699:25, 8714:16, 8740:15, 8755:14, 8756:21, 8756:22, 8765:1, 8775:13, 8776:19, 8780:17, 8781:1, 8781:16
**Terrex** [1] - 8705:5
**terrible** [1] - 8775:16
**terrific** [1] - 8762:10
**test** [1] - 8703:14
**testified** [6] - 8673:24, 8679:11, 8681:1, 8742:20, 8743:25, 8762:11
**testify** [1] - 8777:21
**TESTIMONY** [1] - 8658:3
**testimony** [36] - 8661:12, 8672:12, 8672:14, 8672:15, 8672:19, 8673:3, 8673:4, 8673:7, 8673:22, 8673:23, 8674:2, 8674:3, 8674:9, 8674:10, 8680:25, 8683:20, 8687:8, 8687:12, 8688:4, 8690:19, 8691:15, 8695:3, 8695:5, 8696:16, 8697:1, 8697:3, 8698:12, 8698:14, 8721:19, 8742:18, 8743:7, 8775:11, 8777:2, 8777:24, 8781:24
**text** [2] - 8676:12, 8709:15
**THE** [88] - 8656:1, 8656:1, 8656:9, 8659:9, 8660:9, 8660:15, 8660:24, 8661:3, 8664:3, 8678:22, 8678:23, 8678:24, 8678:25, 8687:3, 8697:22, 8698:5, 8698:9, 8698:13, 8699:17, 8700:3, 8700:5, 8715:11, 8719:3, 8719:4, 8725:2, 8725:3, 8725:4,

8725:11, 8732:11, 8732:12, 8732:13, 8732:23, 8733:16, 8734:15, 8734:21, 8735:4, 8735:9, 8735:10, 8735:13, 8735:23, 8736:5, 8736:23, 8737:4, 8737:17, 8737:20, 8737:22, 8744:25, 8751:4, 8760:3, 8760:7, 8764:17, 8764:19, 8765:4, 8765:5, 8765:6, 8765:9, 8765:10, 8765:21, 8765:25, 8767:3, 8767:10, 8768:12, 8775:6, 8775:9, 8775:10, 8775:18, 8776:1, 8776:4, 8776:11, 8776:13, 8776:15, 8776:18, 8776:22, 8776:24, 8777:17, 8778:7, 8778:21, 8779:1, 8779:14, 8779:19, 8780:16, 8780:25, 8781:15, 8782:3, 8782:12, 8782:19, 8782:24, 8783:5

**themselves** [6] - 8674:14, 8680:8, 8681:12, 8697:12, 8727:1, 8727:5

**theories** [1] - 8741:7

**theory** [1] - 8695:9

**thereby** [1] - 8769:24

**therefore** [4] - 8662:8, 8753:11, 8770:4, 8771:14

**they've** [2] - 8715:3, 8779:11

**thinking** [9] - 8680:6, 8687:23, 8696:12, 8716:25, 8761:7, 8766:1, 8766:5, 8767:24, 8780:16

**thinks** [5] - 8678:5, 8705:19, 8708:4, 8708:6, 8766:6

**third** [7] - 8669:1, 8684:20, 8685:9, 8685:13, 8720:12, 8781:12

**third-party** [1] - 8685:13

**threat** [4] - 8700:14, 8700:23, 8701:2, 8701:6

**three** [5] - 8703:24, 8737:19, 8738:3, 8738:4, 8771:22

**throughout** [1] - 8663:3

**throws** [1] - 8744:10

**ticket** [3] - 8710:8, 8710:9, 8758:10

**Ticketmaster** [1] - 8710:9

**tickets** [7] - 8710:10, 8710:16, 8712:23, 8752:14, 8753:7, 8754:7, 8758:4

**TikTok** [15] - 8675:15, 8675:20, 8675:24, 8676:3, 8677:2, 8677:3, 8677:6, 8677:7, 8677:10, 8677:15, 8689:8, 8689:12, 8689:22

**timetable** [1] - 8777:5

**timing** [6] - 8660:17, 8660:22, 8739:13, 8740:2, 8775:13, 8775:17

**Tinter** [2] - 8687:22, 8688:8

**tip** [1] - 8692:6

**tip-off** [1] - 8692:6

**title** [3] - 8670:14, 8686:1, 8732:17

**toaster** [3] - 8745:5, 8745:8, 8759:4

**today** [6] - 8687:23, 8690:23, 8775:2, 8777:22, 8780:9, 8782:4

**toes** [1] - 8736:10

**together** [2] - 8670:3, 8714:23

**took** [5] - 8664:3, 8665:4, 8665:24, 8727:9, 8759:25

**tool** [4] - 8746:19, 8747:23, 8748:5, 8750:4

**tools** [4] - 8664:20, 8706:6, 8706:9, 8720:2

**top** [18] - 8682:21, 8682:23, 8693:14, 8693:19, 8702:7, 8708:5, 8710:17, 8718:19, 8720:20, 8720:21, 8723:18, 8724:8, 8737:15, 8737:24, 8742:7, 8744:3, 8747:14, 8757:2

**topic** [3] - 8681:23, 8712:21, 8715:12

**topics** [2] - 8680:14, 8743:22

**total** [1] - 8770:17

**towards** [1] - 8766:8

**Tower** [4] - 8684:2, 8684:3, 8722:7, 8722:9

**Toyota** [6] - 8728:1, 8728:4, 8728:6, 8728:9, 8728:14, 8728:15

**Toyotas** [1] - 8727:24

**track** [1] - 8781:1

**tracks** [3] - 8746:8, 8746:12, 8762:21

**traffic** [1] - 8741:20

**transcript** [1] - 8784:4

**TRANSCRIPT** [1] - 8656:9

**Transcript** [1] - 8657:17

**transcription** [1] - 8657:17

**Travel** [2] - 8703:19, 8704:9

**travel** [1] - 8669:4

**Travelocity** [1] - 8758:18

**TRIAL** [1] - 8656:9

**trial** [8] - 8659:19, 8673:24, 8687:7, 8688:4, 8696:24, 8740:20, 8778:2, 8778:5

**tried** [9] - 8665:11, 8682:2, 8717:8, 8731:13, 8751:19, 8758:2, 8758:13, 8761:6, 8778:9

**tries** [1] - 8697:2

**trouble** [2] - 8699:11, 8765:21

**true** [7] - 8663:1, 8663:8, 8756:25, 8763:10, 8764:22, 8769:2, 8772:13

**truly** [1] - 8767:18

**try** [21] - 8668:24, 8678:14, 8685:21, 8697:11, 8700:17, 8711:7, 8713:15, 8716:16, 8717:17, 8749:22, 8753:21, 8754:6, 8763:21, 8763:22, 8763:23, 8764:1, 8764:3, 8764:4, 8777:7, 8777:15, 8778:4

**trying** [16] - 8689:19, 8690:13, 8695:19, 8706:7, 8706:8, 8717:8, 8742:10, 8742:12, 8752:8, 8769:19, 8771:13, 8776:1, 8777:24, 8779:24, 8780:4, 8780:7

**Tuesday** [3] - 8660:23, 8780:24

**turn** [5] - 8669:7, 8671:7, 8694:18, 8695:20, 8779:8

**turned** [2] - 8741:24, 8741:25

**turns** [5] - 8715:1, 8715:4, 8718:7, 8718:10, 8718:20

**TV** [1] - 8721:21

**two** [21] - 8659:23, 8679:15, 8690:18, 8703:25, 8711:10, 8711:13, 8711:21, 8711:23, 8712:25, 8717:15, 8724:11, 8726:5, 8730:5, 8734:22, 8736:20, 8742:5, 8744:16, 8753:10, 8760:22, 8775:19, 8775:21

**Tyler** [1] - 8657:3

**type** [11] - 8706:21, 8707:4, 8708:17, 8719:22, 8720:22, 8721:1, 8737:6, 8746:20, 8748:10, 8749:4, 8752:14

**typed** [3] - 8673:5, 8721:21, 8754:1

**types** [4] - 8673:10, 8675:13, 8701:12, 8754:3

**typical** [1] - 8713:8

**typically** [1] - 8767:3

**typing** [2] - 8752:5, 8758:1

## U

**U.S** [4] - 8688:21, 8726:17, 8769:4

**Uber** [1] - 8727:19

**ultimately** [2] - 8699:5, 8699:21

**uncommon** [1] - 8729:7

**under** [9] - 8659:21, 8660:3, 8662:13, 8701:6, 8725:25, 8726:7, 8763:13, 8765:7, 8775:21

**underestimated** [1] - 8763:7

**underperformed** [1] - 8763:7

**underpredicted** [1] - 8763:3

**unfair** [1] - 8777:15

**unfortunately** [1] - 8780:1

**uniformly** [1] - 8679:16

**Union** [1] - 8772:25

**unit** [1] - 8709:17

**Unit** [1] - 8656:20

**UNITED** [3] - 8656:1, 8656:3, 8656:10

**United** [6] - 8656:13, 8656:16, 8659:4, 8688:17, 8768:25, 8781:19

**universal** [1] - 8743:11

**universe** [2] - 8678:12, 8736:14

**unless** [4] - 8715:6, 8715:9, 8717:14, 8719:18

**unlikely** [2] - 8662:17, 8758:24

**unlimited** [1] - 8765:11

**up** [56] - 8663:17, 8666:7, 8668:23, 8668:24, 8672:15, 8678:17, 8679:20, 8680:24, 8683:24, 8684:22, 8686:6, 8690:14, 8690:25, 8693:13, 8695:13, 8702:20, 8703:5, 8703:10, 8706:20, 8706:24, 8707:5, 8707:14, 8708:8, 8713:6, 8714:5, 8714:22, 8715:5, 8716:7, 8716:22, 8718:17, 8721:19, 8722:10, 8727:9, 8727:17, 8729:6, 8731:21, 8736:12, 8740:14, 8740:16, 8741:1, 8741:20, 8744:2, 8744:20, 8744:23, 8745:9, 8749:14, 8752:12, 8754:22, 8755:2, 8755:3, 8757:4, 8760:12, 8777:6,

8777:7, 8778:5
**up-to-date** [1] - 8706:20
**UPX** [1] - 8692:21
**UPX006** [1] - 8772:17
**UPX0334** [1] - 8743:24
**UPX0475** [1] - 8682:12
**UPX0811** [1] - 8691:23
**UPX2022** [1] - 8685:16
**UPX344** [1] - 8730:13
**UPX472** [1] - 8680:15
**UPX811** [2] - 8692:21, 8693:1
**UPXD059** [1] - 8672:15
**UPXD062** [1] - 8680:25
**UPXD063** [1] - 8686:25
**UPXD065** [1] - 8701:23
**UPXD067** [1] - 8718:17
**UPXD070** [1] - 8722:19
**UPXD074** [1] - 8729:6
**UPXD075** [1] - 8743:8
**UPXD077** [1] - 8744:23
**UPXD081** [1] - 8752:10
**UPXD82** [1] - 8754:22
**UPXD98** [1] - 8721:20
**urge** [1] - 8782:20
**URL** [5] - 8672:24, 8710:17, 8712:24, 8713:3, 8714:13
**usage** [19] - 8733:2, 8734:7, 8734:17, 8734:18, 8735:7, 8737:16, 8737:24, 8742:13, 8742:14, 8757:10, 8757:20, 8757:25, 8759:6, 8759:15, 8770:23, 8770:25, 8771:2, 8771:14
**useful** [5] - 8677:13, 8678:4, 8678:8, 8678:13, 8742:7
**useless** [4] - 8674:21, 8674:24, 8675:5, 8675:10
**User** [1] - 8710:5
**user** [19] - 8673:10, 8674:21, 8675:24, 8676:9, 8690:20, 8691:6, 8713:9, 8730:24, 8731:1, 8752:8, 8753:2, 8753:5, 8753:11, 8753:15, 8753:22, 8753:23, 8755:24, 8758:6
**user's** [4] - 8751:24, 8752:4, 8752:5, 8752:20
**users** [18] - 8672:24, 8674:24, 8675:1, 8676:1, 8687:20, 8691:1, 8708:24, 8708:25, 8726:17, 8729:16, 8729:24, 8733:7, 8733:21, 8733:22, 8734:6, 8737:15, 8737:24, 8746:4
**uses** [5] - 8729:12, 8749:23, 8750:4, 8750:19, 8750:22

## V

**Valentine's** [8] - 8754:19, 8754:22, 8755:4, 8755:6, 8755:8, 8755:22, 8756:7, 8756:23
**validate** [1] - 8727:3
**value** [5] - 8678:5, 8691:10, 8691:11, 8691:15, 8742:2
**variable** [1] - 8730:1
**Varian** [3] - 8680:25, 8743:24, 8744:1
**Varian's** [1] - 8742:18
**variety** [5] - 8674:13, 8677:20, 8679:5, 8707:16, 8708:1
**various** [6] - 8709:18, 8717:5, 8717:17, 8742:10, 8742:12, 8750:25
**Vectiv** [1] - 8705:5
**vehicle** [1] - 8721:13
**vendors** [2] - 8707:16, 8708:1
**verb** [1] - 8678:16
**Verizon** [1] - 8687:14
**vermin** [1] - 8753:8
**version** [16] - 8665:10, 8758:14, 8759:11, 8759:21, 8759:25, 8760:8, 8760:9, 8760:11, 8760:12, 8760:19, 8760:20, 8761:17, 8762:16, 8767:11
**versions** [1] - 8758:17
**versus** [6] - 8659:4, 8685:6, 8685:14, 8699:1, 8699:3, 8699:24
**vertical** [37] - 8661:16, 8661:18, 8661:22, 8661:23, 8661:25, 8662:3, 8662:12, 8662:24, 8663:6, 8663:10, 8663:12, 8664:9, 8664:19, 8669:14, 8669:18, 8670:6, 8670:14, 8670:18, 8671:9, 8671:25, 8673:12, 8684:6, 8685:7, 8685:13, 8687:14, 8717:11, 8721:10, 8747:16, 8747:17, 8747:19, 8747:23, 8748:2, 8748:3, 8748:4, 8749:13
**verticals** [36] - 8661:9, 8661:11, 8661:14, 8661:15, 8662:21, 8662:22, 8663:2, 8663:14, 8664:4, 8664:24, 8665:19, 8667:3, 8667:4, 8667:9, 8667:13, 8667:16, 8668:4, 8668:12, 8669:2, 8669:8, 8669:10, 8669:23, 8672:4, 8689:5, 8708:17, 8711:2, 8711:3, 8711:5, 8711:14, 8712:2, 8713:6, 8746:21, 8746:24, 8747:21, 8747:22, 8748:5
**video** [13] - 8676:17, 8676:20, 8677:4, 8677:12, 8677:13, 8677:14, 8677:15, 8773:11, 8773:14, 8779:7, 8779:11, 8780:12, 8780:13
**videos** [2] - 8677:7, 8779:5
**view** [4] - 8690:19, 8698:15, 8698:16, 8762:19
**viewed** [1] - 8749:19
**viewing** [1] - 8688:5
**views** [3] - 8690:3, 8724:21, 8743:21
**virtually** [1] - 8708:17
**visibility** [2] - 8758:11, 8758:23
**visit** [25] - 8704:2, 8704:15, 8704:19, 8704:20, 8709:15, 8709:17, 8710:14, 8710:18, 8710:24, 8711:2, 8711:3, 8711:5, 8711:8, 8711:9, 8711:11, 8711:13, 8712:3, 8714:3, 8714:20, 8715:7, 8715:10, 8727:24, 8728:2, 8728:9
**visiting** [1] - 8712:2
**visits** [12] - 8701:13, 8705:25, 8709:11, 8709:12, 8709:18, 8711:21, 8711:24, 8713:23, 8714:24, 8747:3, 8747:7
**vital** [1] - 8753:3
**volume** [4] - 8730:24, 8730:25, 8748:19, 8770:17
**vs** [1] - 8656:5

## W

**wait** [2] - 8660:10, 8722:21
**waiting** [1] - 8732:6
**walk** [1] - 8778:6
**walked** [1] - 8777:11
**walmart.com** [1] - 8760:15
**wants** [6] - 8672:16, 8674:3, 8696:18, 8753:7, 8753:8, 8753:23
**Washington** [5] - 8656:5, 8656:14, 8656:17, 8657:7, 8657:14
**watch** [3] - 8677:4, 8677:13, 8777:23
**ways** [15] - 8660:4, 8667:6, 8667:11, 8672:6, 8673:5, 8680:7, 8694:4, 8694:11, 8704:17, 8704:22, 8705:11, 8706:6, 8742:10, 8759:23, 8765:15
**weakness** [1] - 8753:19
**weather** [2] - 8712:25, 8713:1
**web** [3] - 8670:7, 8705:17, 8707:1
**Webb** [1] - 8657:3
**WebMD** [1] - 8712:15
**website** [13] - 8669:24, 8703:19, 8710:15, 8713:1, 8718:3, 8718:21, 8719:8, 8719:9, 8721:16, 8721:23, 8741:14, 8758:15
**websites** [15] - 8686:18, 8703:24, 8704:1, 8704:12, 8704:15, 8704:19, 8704:20, 8705:2, 8705:7, 8705:9, 8705:14, 8705:25, 8706:2, 8706:8, 8706:12
**Wednesday** [2] - 8780:14, 8782:2
**week** [2] - 8663:24, 8779:5
**week's** [1] - 8754:18
**weekend** [2] - 8775:10, 8783:6
**weekly** [1] - 8664:3
**weighs** [1] - 8699:6
**Weinberg** [2] - 8687:17, 8688:8
**welcome** [3] - 8679:8, 8687:6, 8772:23
**well-defined** [1] - 8773:16
**West** [1] - 8777:14
**whereas** [2] - 8766:12, 8766:23
**whichever** [1] - 8702:22
**Whinston** [4] - 8691:16, 8740:11, 8748:22, 8781:11
**Whinston's** [1] - 8730:17
**whole** [3] - 8710:18, 8737:5, 8752:6
**Wick** [2] - 8784:3, 8784:8
**WICK** [1] - 8657:13
**wide** [1] - 8674:13
**widgets** [3] - 8767:5, 8767:7, 8768:8
**Wikipedia** [2] - 8690:25, 8754:23
**WILLIAM** [1] - 8657:3
**William** [1] - 8659:6
**Williams** [1] - 8657:6
**Wilson** [1] - 8657:9
**withdraw** [1] - 8664:16
**withdrew** [2] - 8759:14, 8759:17
**witness** [16] -

8660:16, 8660:20, 8660:22, 8776:8, 8777:20, 8780:18, 8780:20, 8781:5, 8781:6, 8781:8, 8781:14, 8781:17, 8782:1, 8782:18
**WITNESS** [22] - 8661:3, 8664:3, 8678:23, 8678:25, 8700:5, 8719:4, 8725:2, 8725:4, 8732:12, 8734:21, 8735:9, 8735:13, 8736:5, 8737:4, 8737:22, 8760:7, 8765:4, 8765:6, 8765:10, 8765:25, 8767:10, 8775:9
**word** [11] - 8691:5, 8696:8, 8696:13, 8729:12, 8749:18, 8750:22, 8750:24, 8752:14, 8753:13, 8753:15
**words** [4] - 8750:1, 8750:5, 8752:3, 8752:5
**works** [1] - 8660:4
**world** [14] - 8705:24, 8730:5, 8743:11, 8744:14, 8761:3, 8761:5, 8761:8, 8761:10, 8761:14, 8761:18, 8766:3, 8767:4, 8768:25, 8774:24
**worlds** [1] - 8760:24
**worldwide** [2] - 8768:21, 8768:22
**worried** [1] - 8694:13
**worry** [2] - 8694:25, 8768:7
**worth** [3] - 8759:16, 8766:14, 8768:10
**worthless** [1] - 8742:3
**write** [3] - 8740:10, 8740:11, 8741:3
**writes** [1] - 8752:19
**writing** [2] - 8691:4, 8782:22
**written** [1] - 8676:9
**wrote** [1] - 8701:10

## Y

**Yahoo** [4] - 8679:10, 8679:17, 8679:21, 8679:22
**Yahoo!** [2] - 8679:19, 8680:21
**year** [7] - 8706:17, 8706:20, 8709:21, 8718:5, 8718:10, 8763:7, 8763:8
**years** [7] - 8679:6, 8679:7, 8679:9, 8744:2, 8763:13, 8771:5, 8774:25
**yellow** [2] - 8756:6, 8756:8
**Yelp** [5] - 8677:8, 8680:12, 8689:5, 8716:3, 8716:4
**yesterday** [9] - 8659:12, 8660:14, 8661:9, 8661:17, 8672:8, 8674:20, 8680:5, 8694:5, 8765:16
**York** [4] - 8657:5, 8657:10
**yourself** [3] - 8671:8, 8685:6, 8717:4
**YouTube** [3] - 8676:16, 8769:14, 8769:17

## Z

**Zappos** [7] - 8702:15, 8707:17, 8707:24, 8708:3, 8708:8, 8708:10
**zero** [7] - 8691:12, 8722:16, 8750:17, 8767:10, 8767:13, 8767:16