

Determine if AI adds value

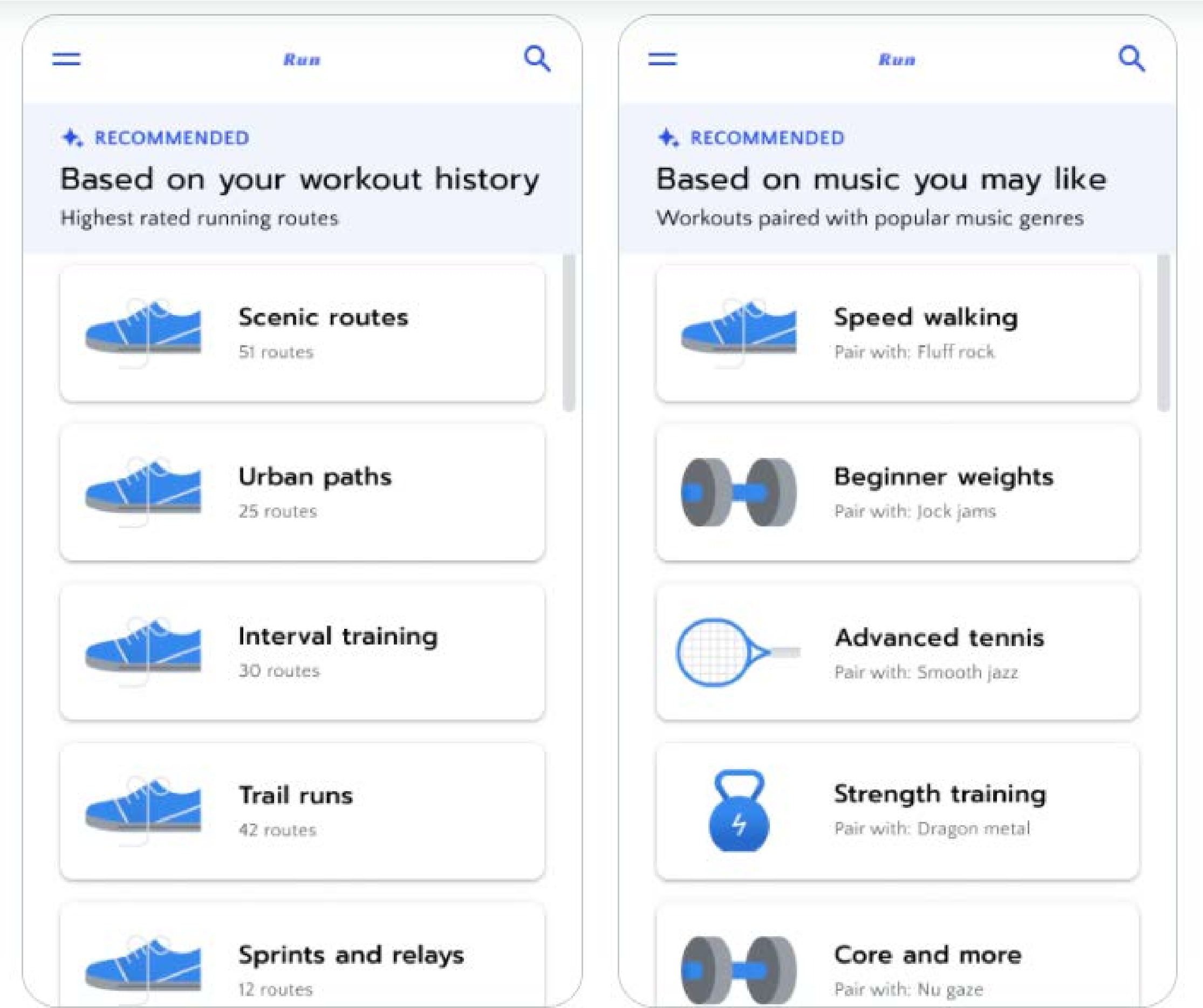
AI is better at some things than others. Make sure that it’s the right technology for the user problem you’re solving.

AI is well suited for applications like:

GOOGLE PHOTOS
Image recognition

NETFLIX
Recommended content

HOPPER
Predicting future events

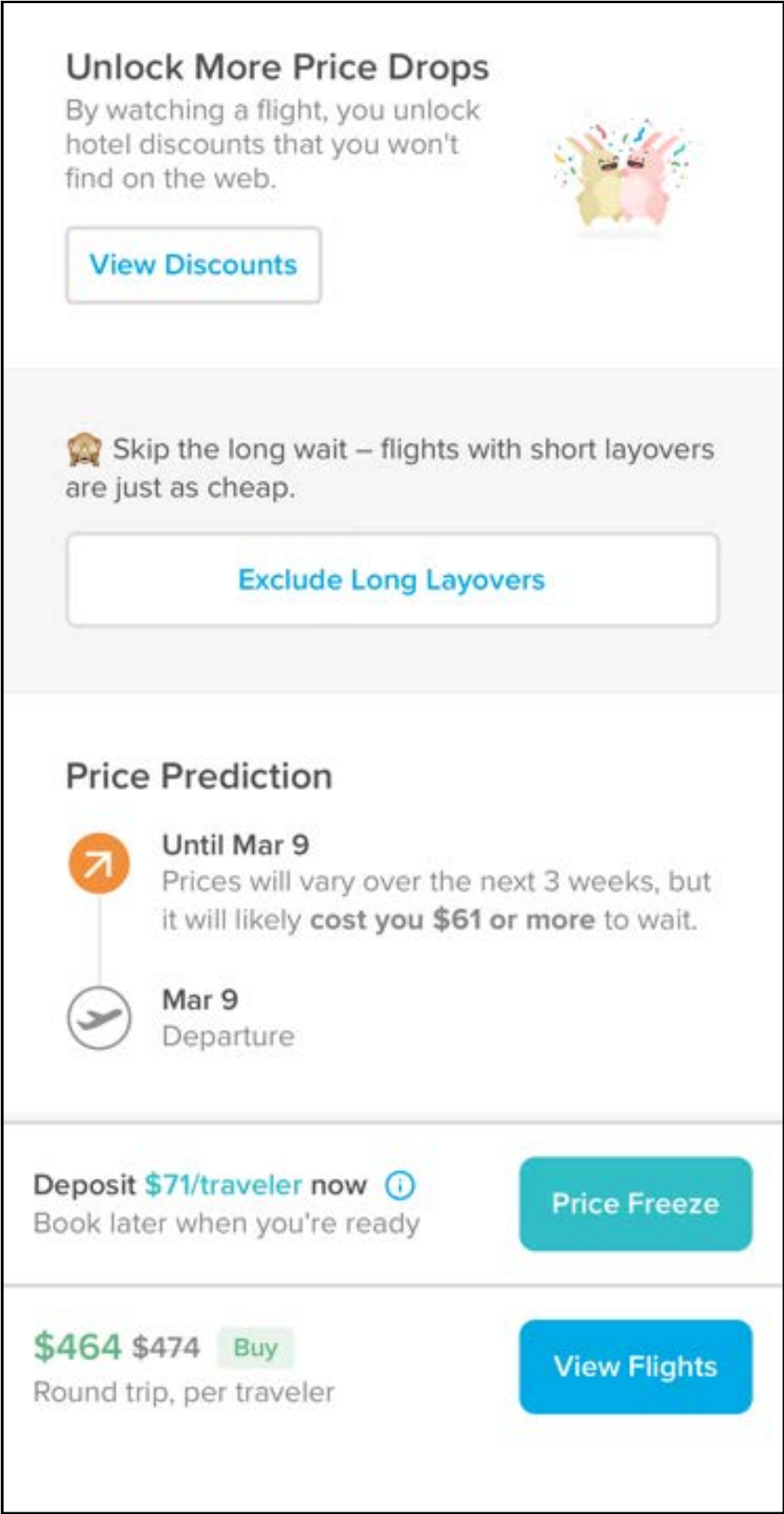
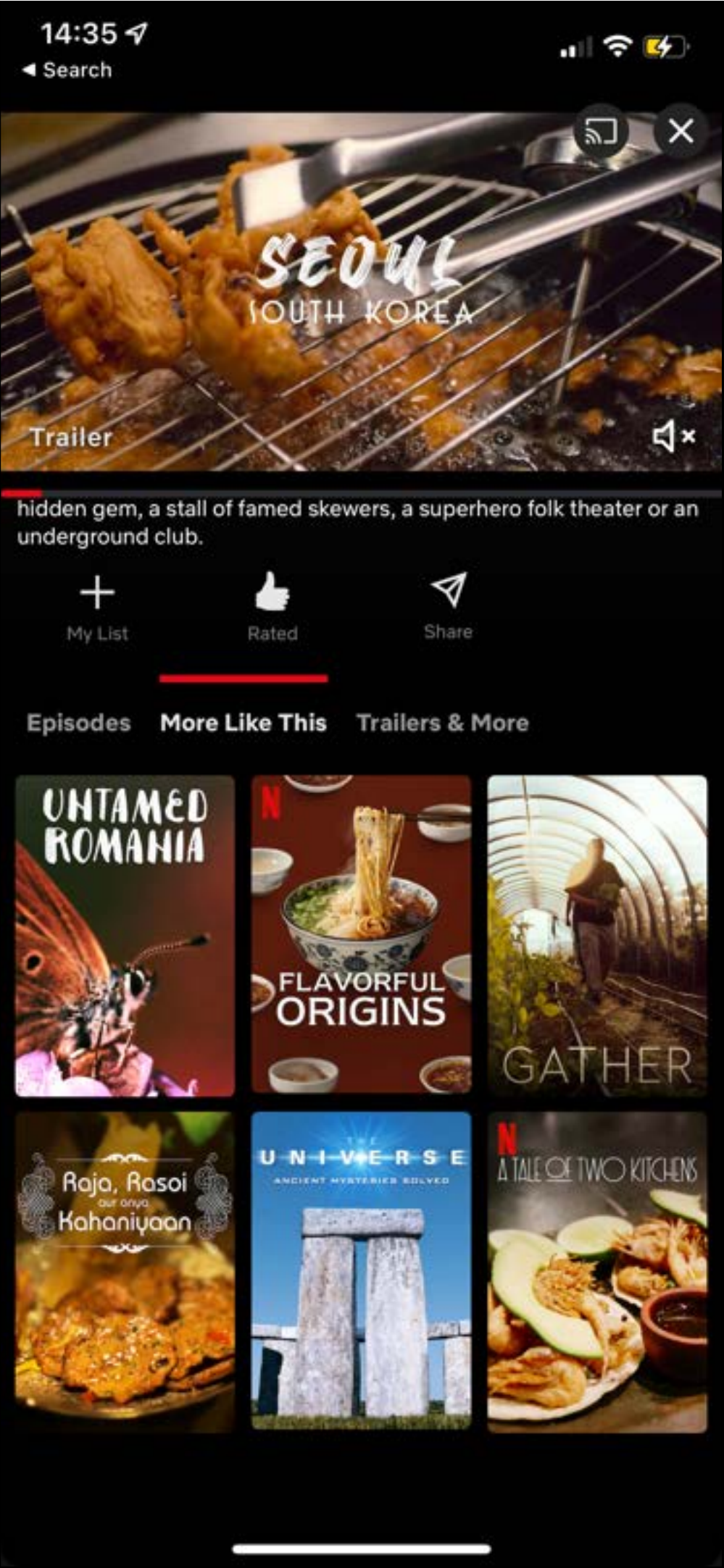
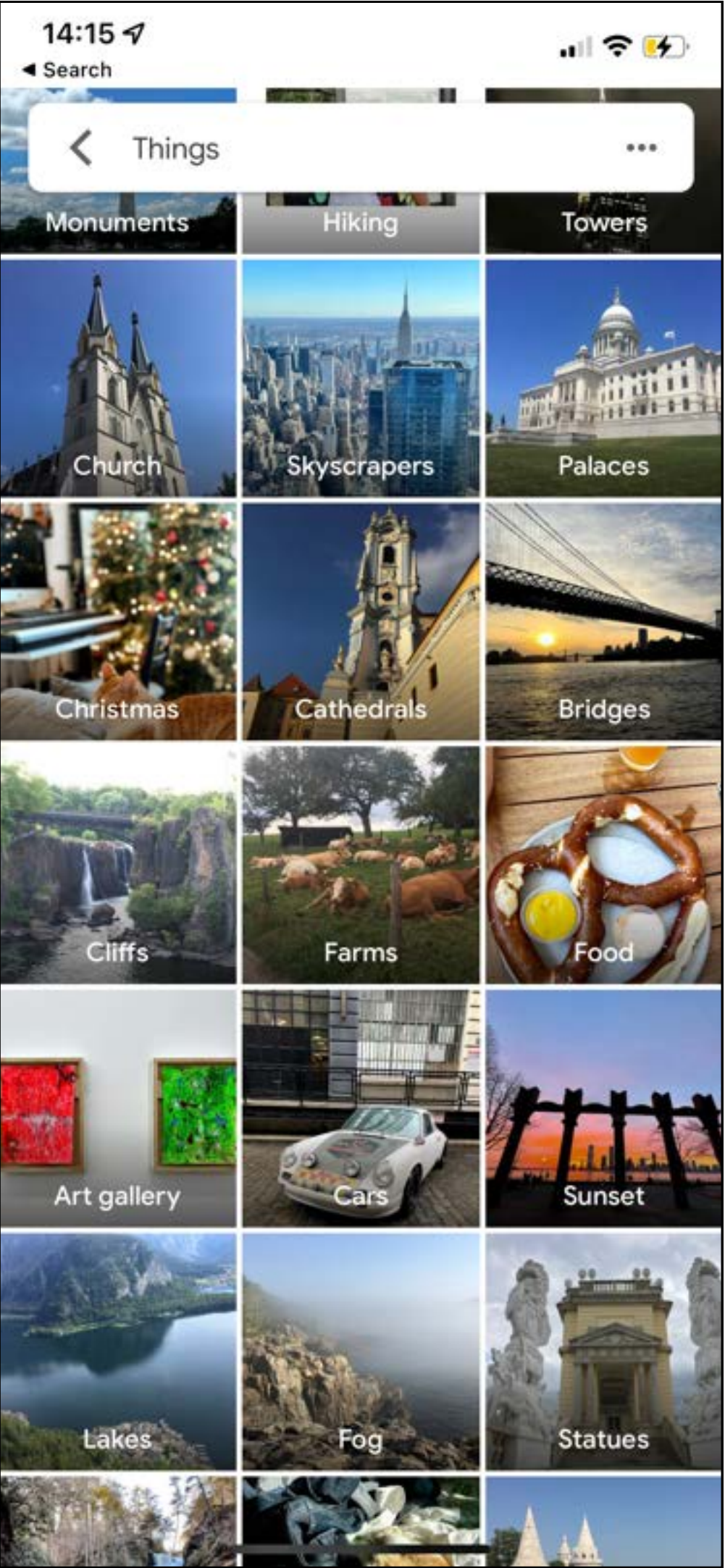


Aim for

Use AI when the predictive system can create a valuable personalized experience that couldn’t exist without it.

Avoid

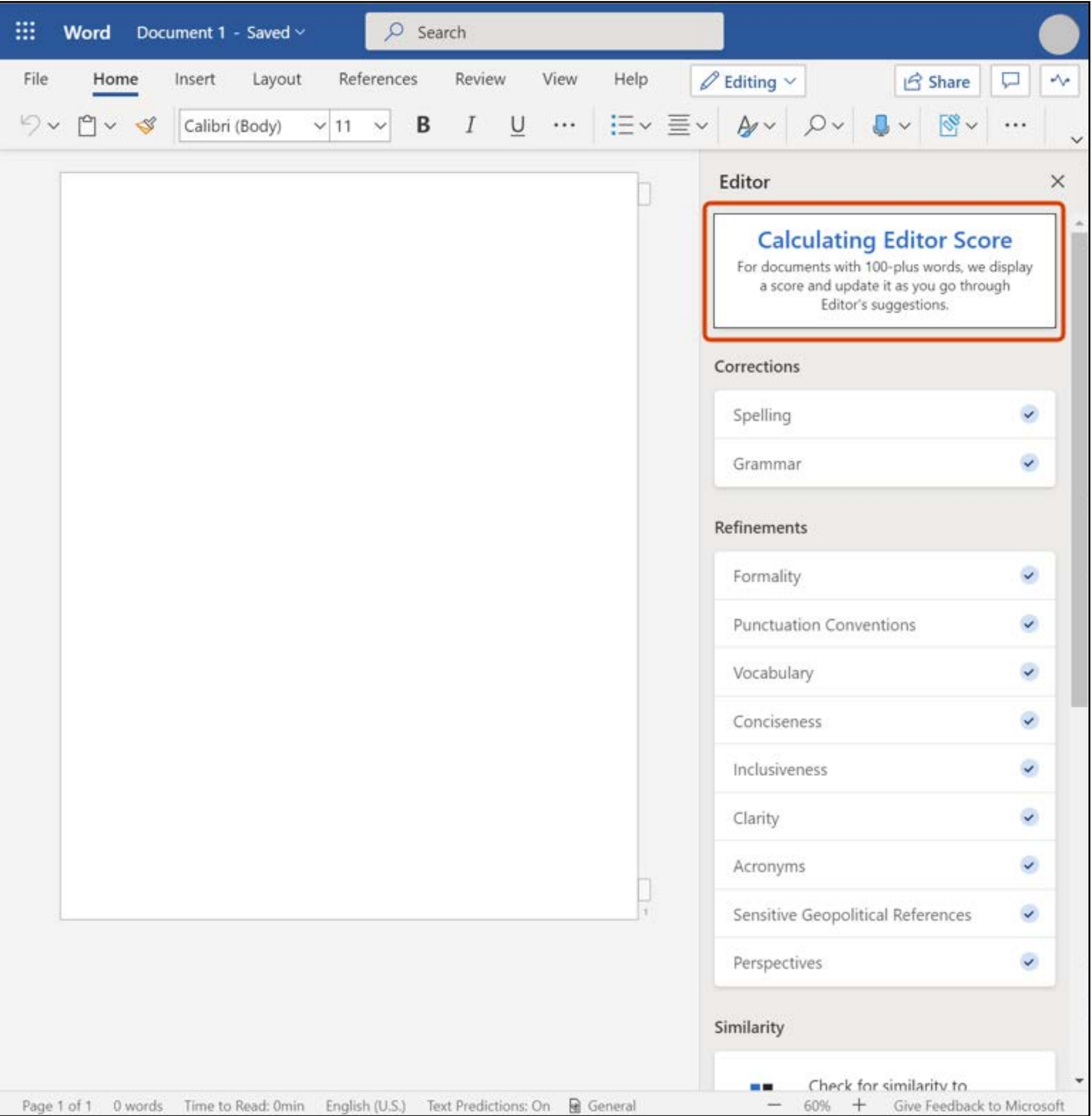
Don’t use AI just because you can. Heuristics or manual control can often create better experiences. Here, using music preferences to suggest workouts will likely lead to a worse experience than letting people manually choose workouts.



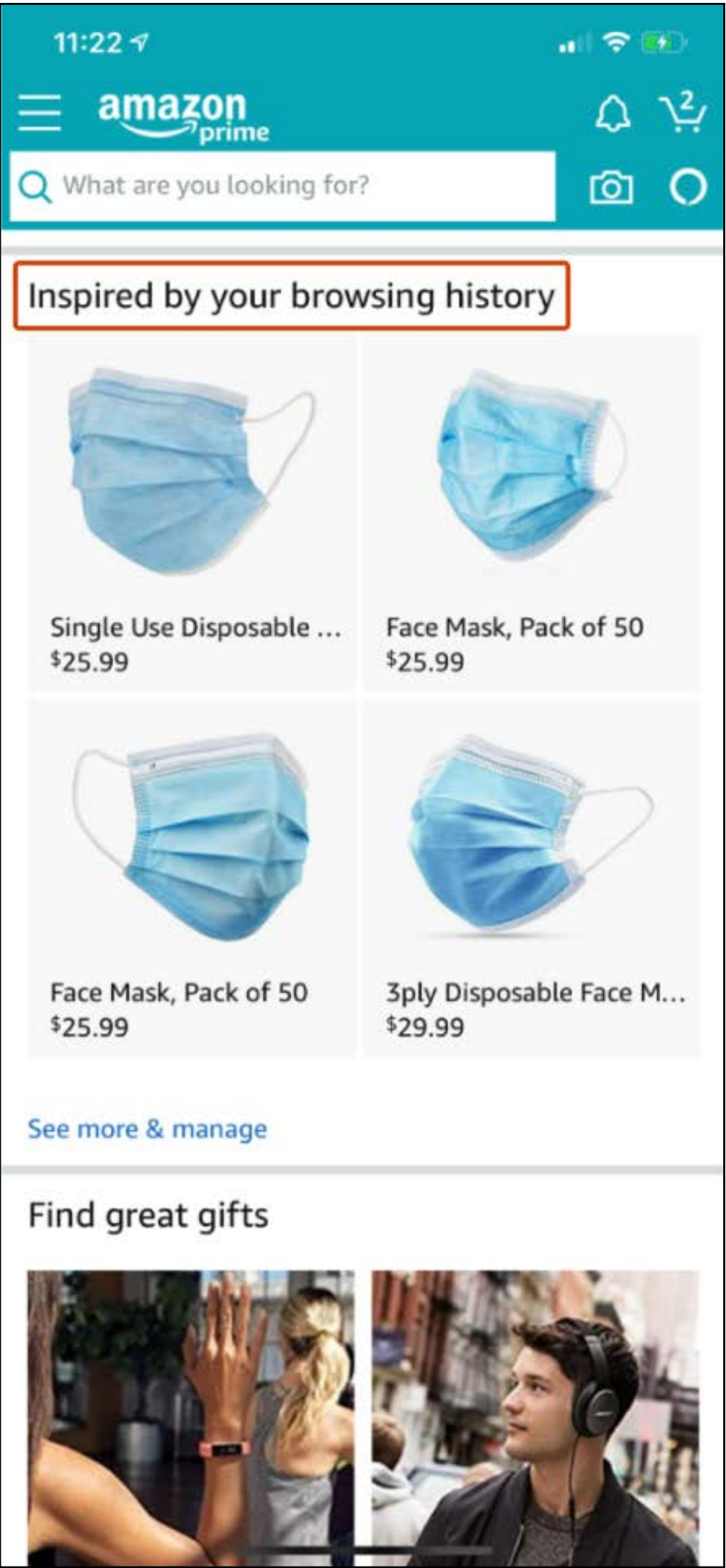
Make clear what the system can do

Help the user understand what the AI system is capable of doing.

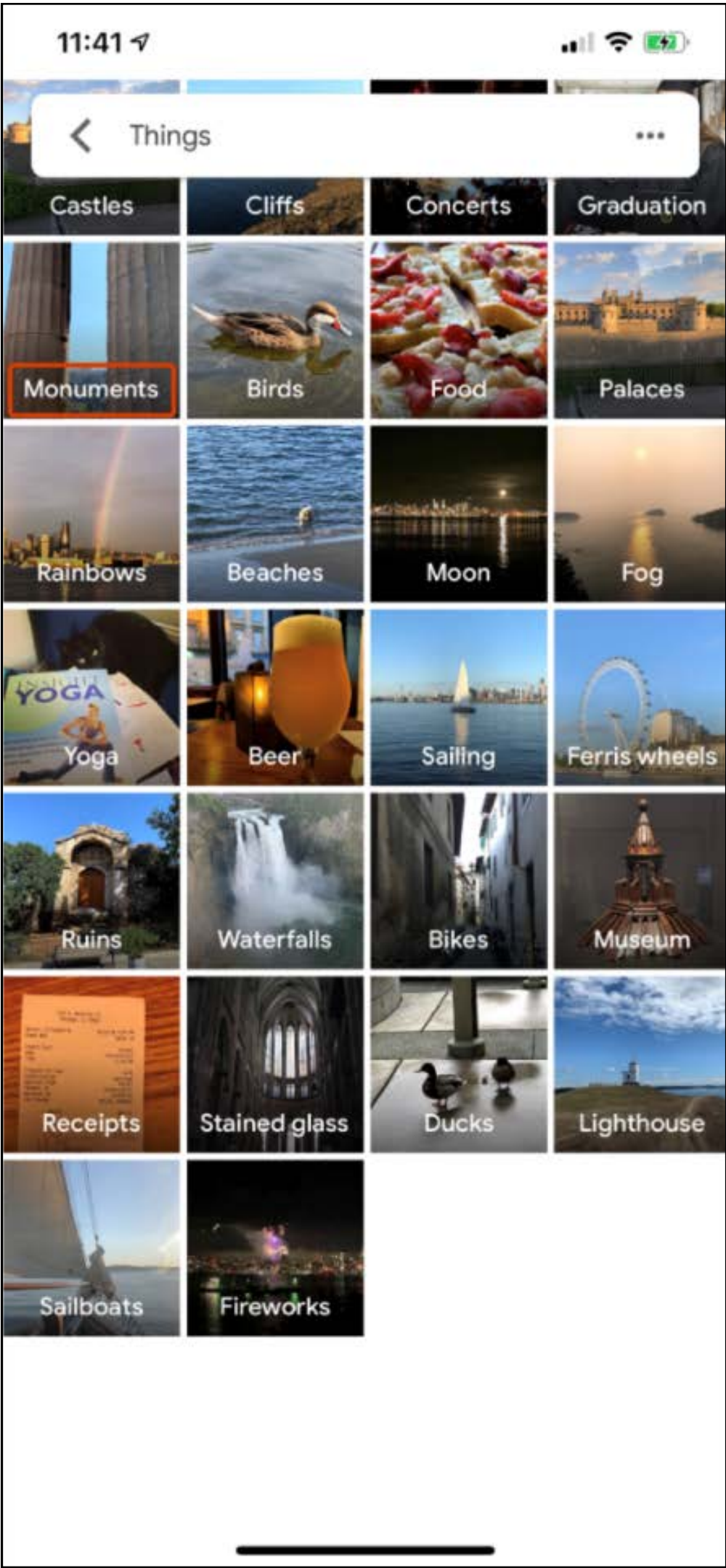
MICROSOFT WORD
Including introductory blurbs



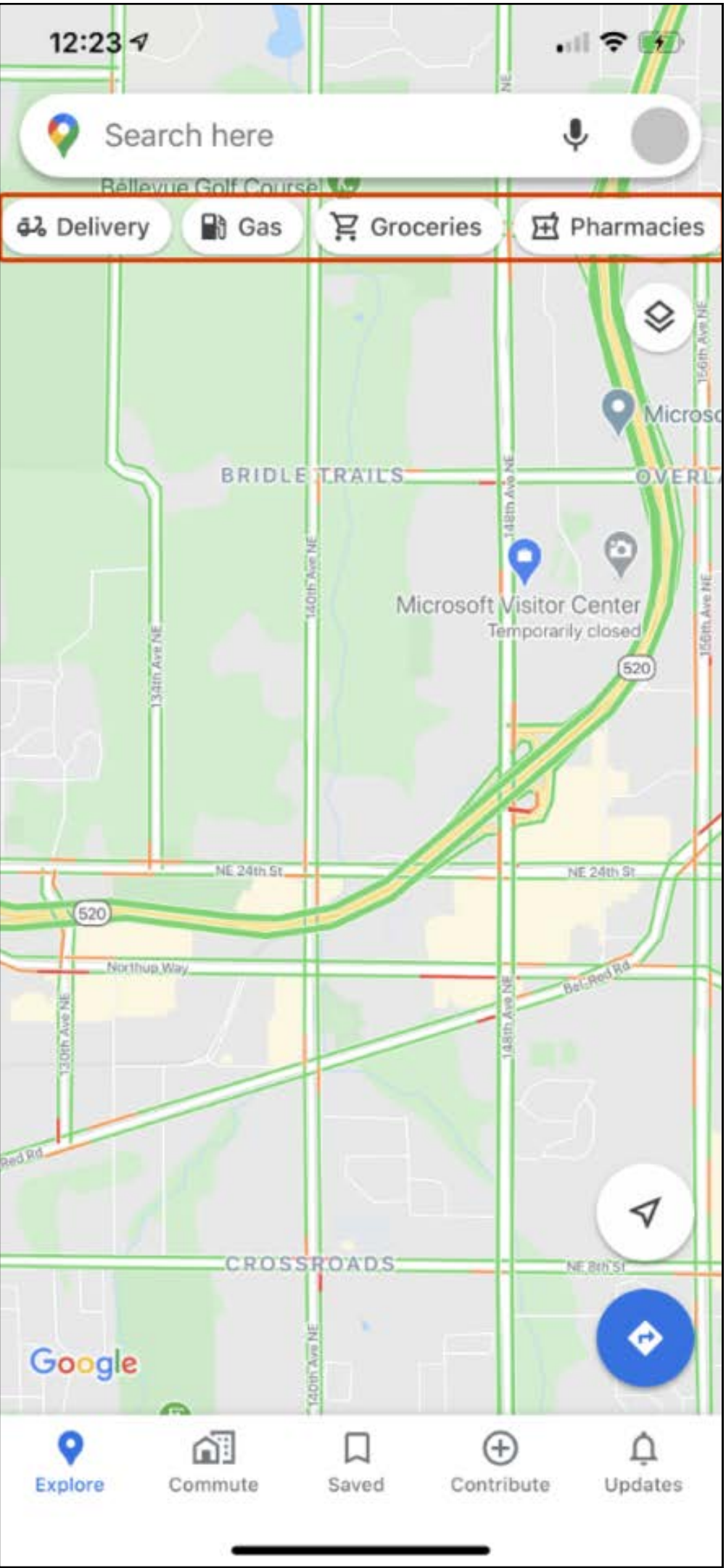
AMAZON
Using explanation patterns



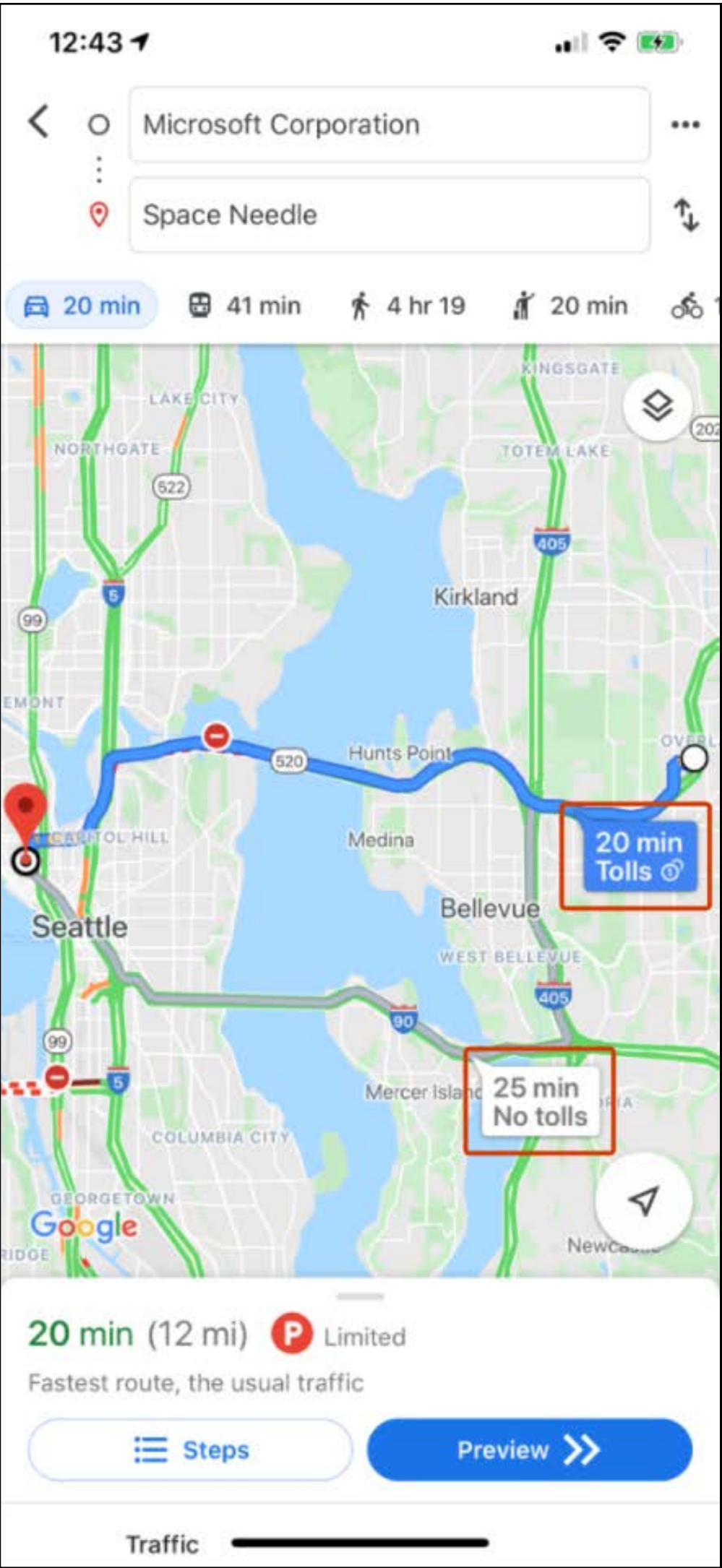
GOOGLE PHOTOS
Exposing system controls



GOOGLE MAPS
Demonstrating system inputs



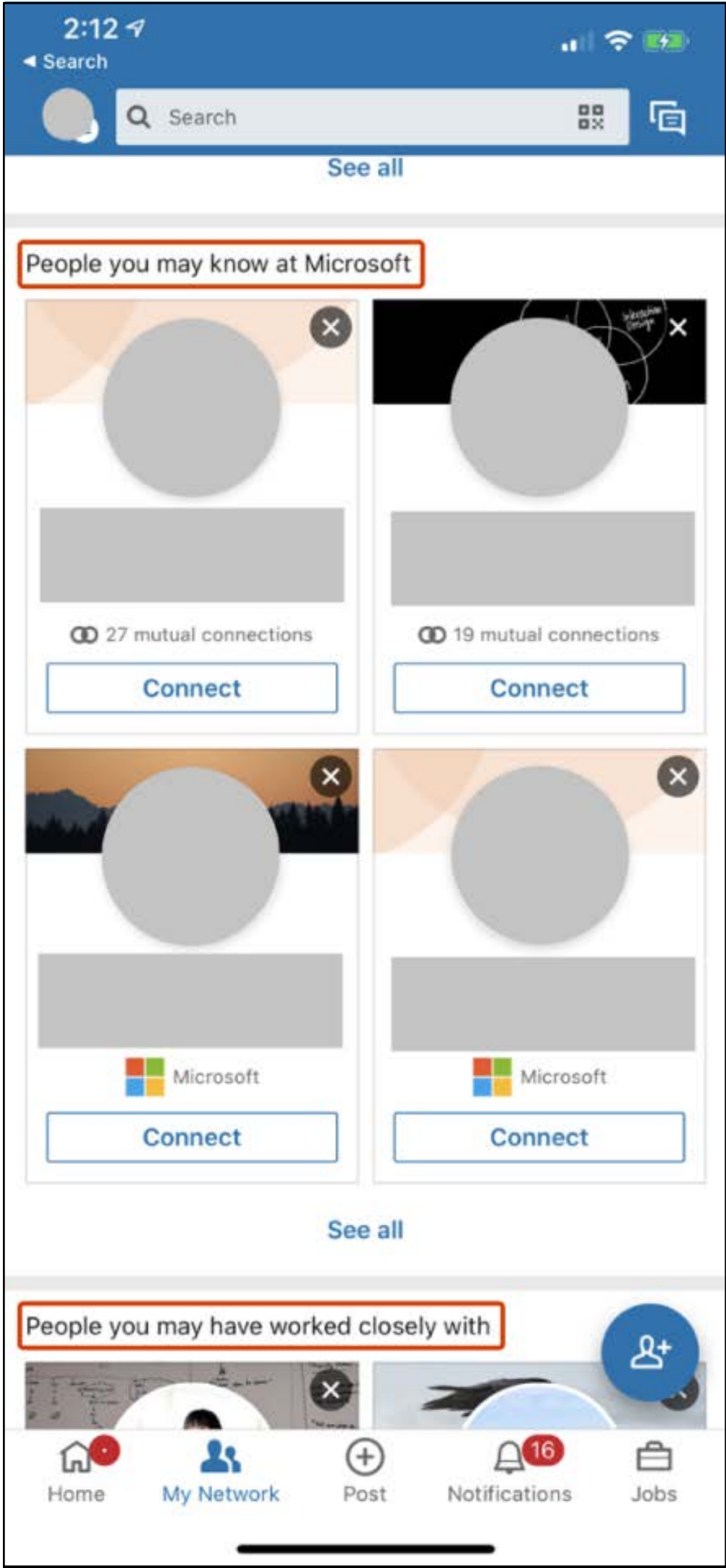
GOOGLE MAPS
Showing set of system outputs



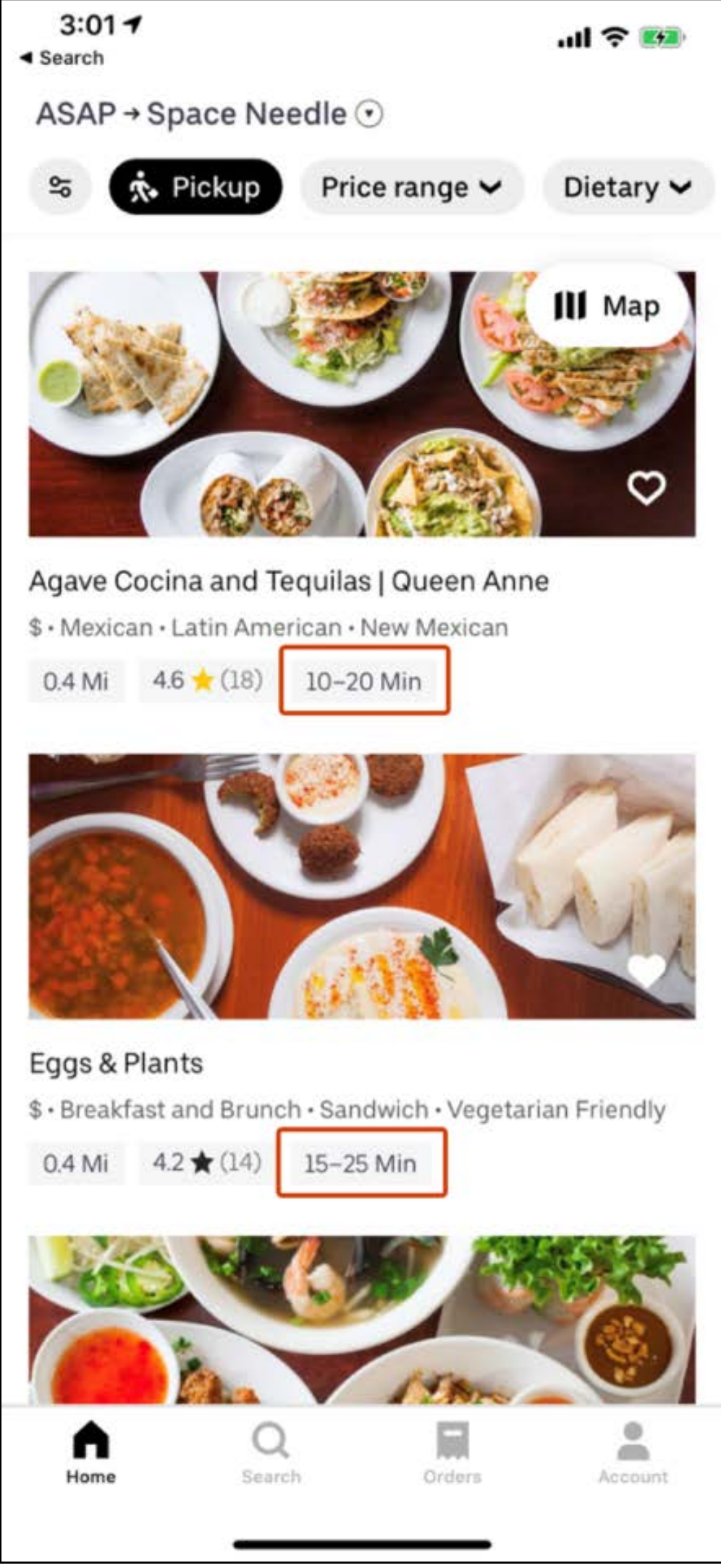
Make clear how well the system can do what it can do

Help the user understand how often the AI system may make mistakes.

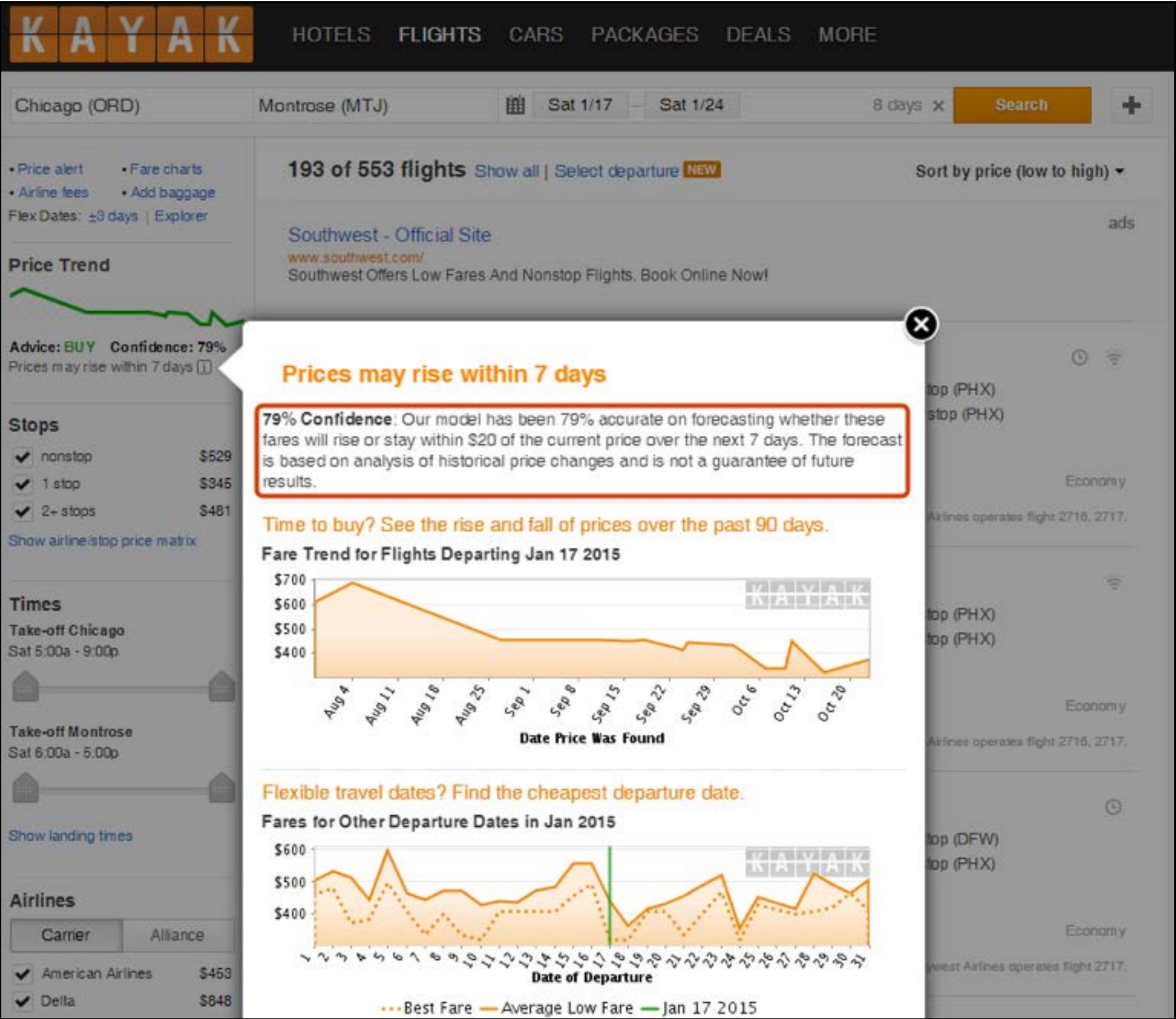
LINKEDIN
Matching language with system



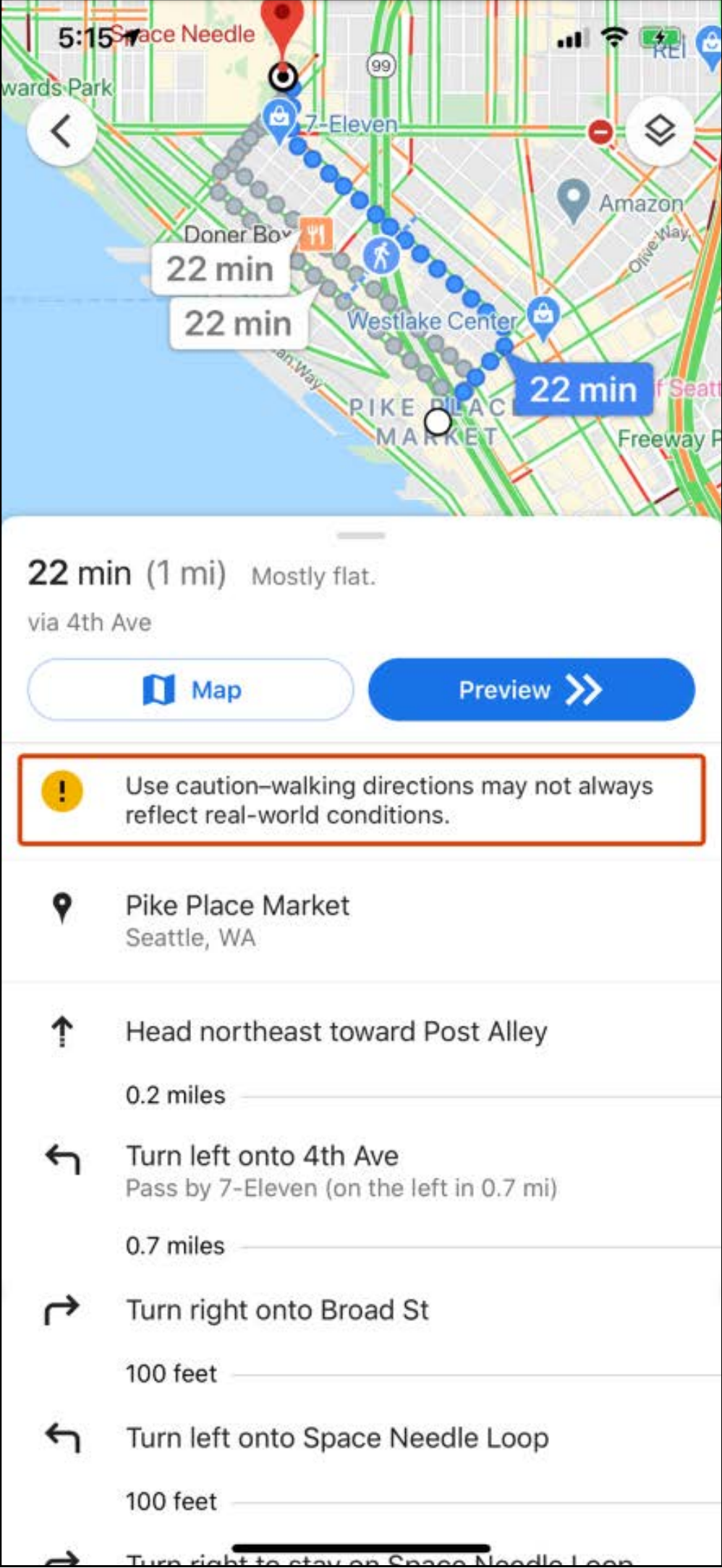
UBER EATS
Matching numbers with system



KAYAK
Reporting system performance



GOOGLE MAPS
Providing low perform. alerts



Show contextually relevant information

Display information relevant to the user's current task and environment.

MICROSOFT WORD

Understanding relative context

Acronyms

Here are definitions that we were able to find for acronyms in the document.

BPO

Business Planning and Operations

Found from your email ▼

EDC

2 definitions found

European Development Center

Found from your file ▼

Error Detection and Correction

Found from your file ▼

GOOGLE SEARCH

Showing based on location

incredibles 2

All News Videos Images Shopping More Settings Tools

About 58,900,000 results (0.42 seconds)

Showtimes for Incredibles 2

All times are in PT

Today Tomorrow Mon, Aug 6 Tue, Aug 7

All times Morning Afternoon Evening Night

Varsity Theater - Map

6:40pm 9:10pm

Regal Thornton Place Stadium 14 & IMAX - Map

9:10pm

Cinemark Lincoln Square Cinemas - Map

6:45pm 10:00pm

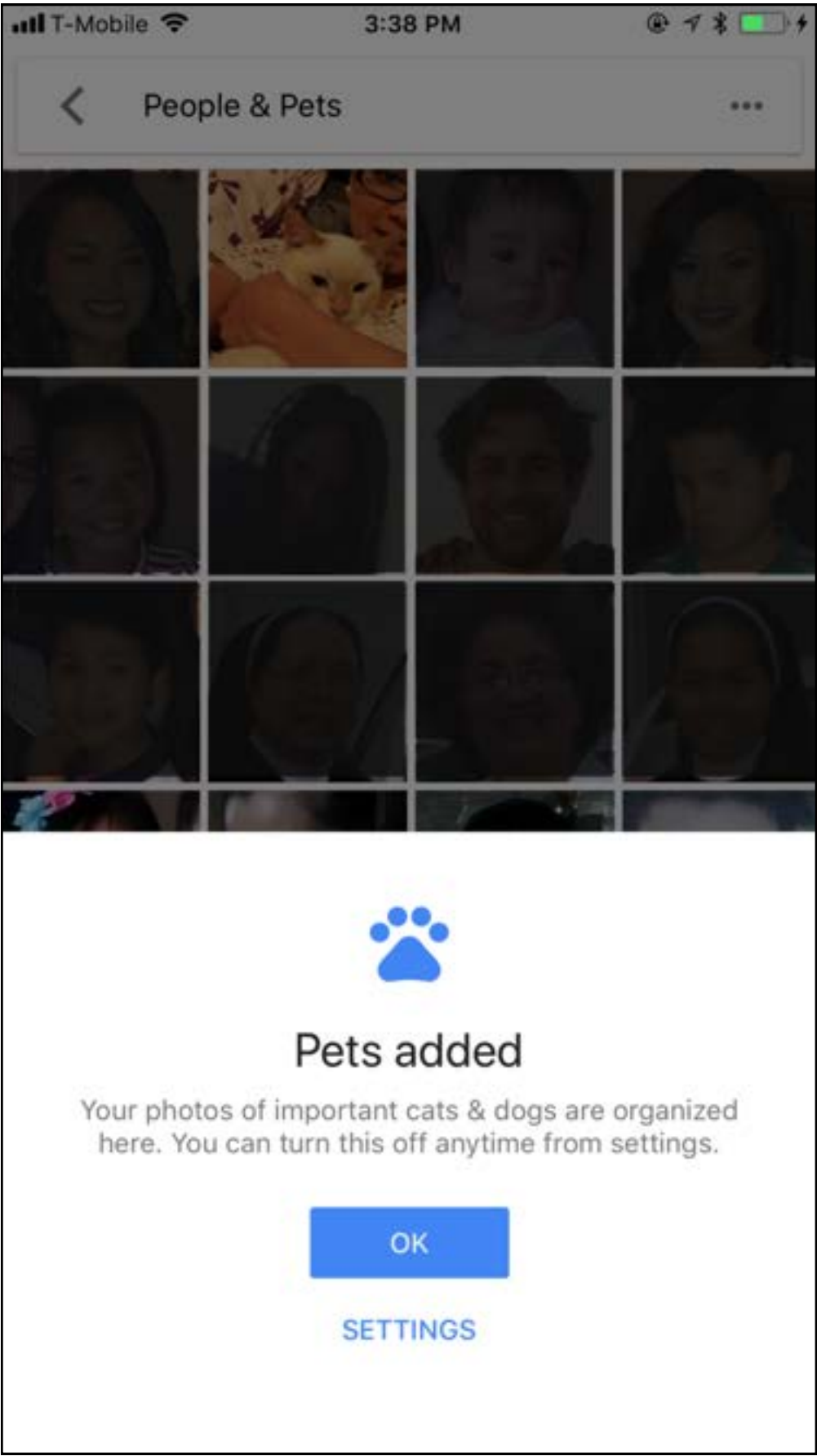
More showtimes

Match relevant social norms

Ensure the experience is delivered in a way that users would expect, given their social and cultural context.

GOOGLE PHOTOS

Identifying relevant social norms



CORTANA

Using socially appropriate tones

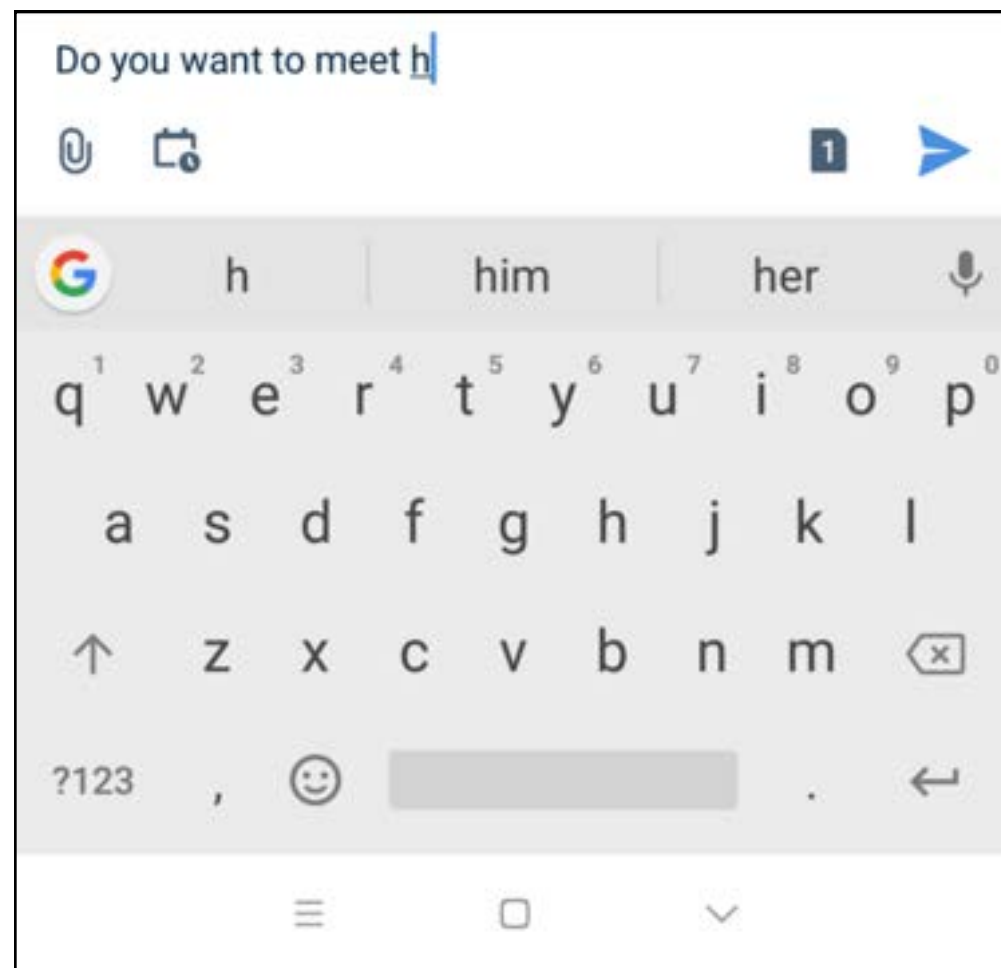


Mitigate social biases

Ensure the AI system's language and behaviors don't reinforce undesirable and unfair stereotypes and biases.

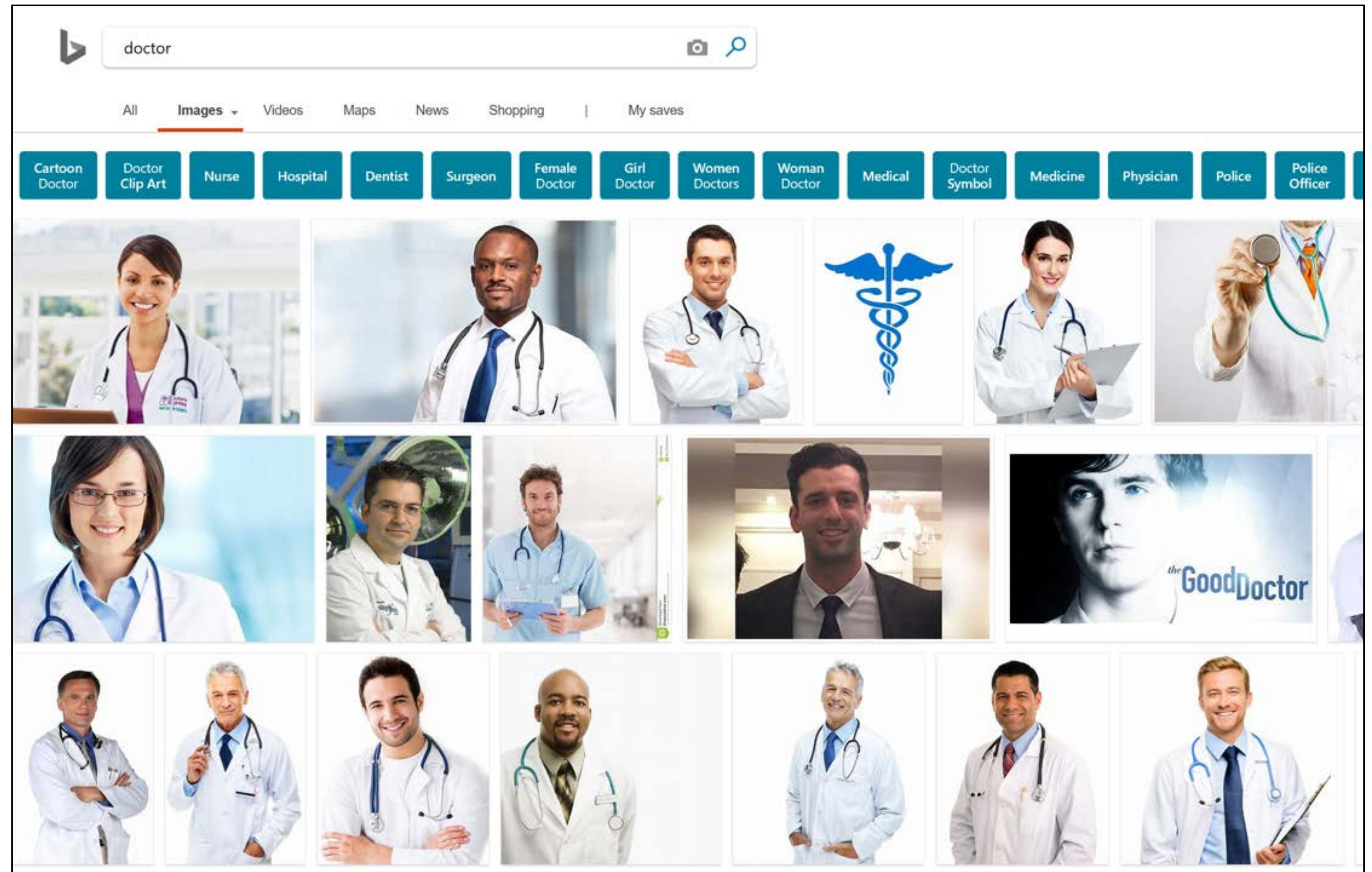
ANDROID

Suggesting more genders



BING SEARCH

Showing diverse images



Supporting efficient invocation

Make it easy to invoke or request the AI system’s services when needed.

MICROSOFT EXCEL

Time-saving services

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5				Location	State				
6				Seattle, WA	WA				
7				Portland, OR	OR				
8				Chicago, IL	IL				
9				San Francisco, CA	CA				
10				Phoenix, AZ	AZ				
11				Austin, TX	TX				
12				Los Angeles, CA	CA				
13				Bellevue, WA	WA				
14				Huston, TX	TX				
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23									

AMAZON

Invoking recommendations

Recommended For You

Improve Your Recommendations

Your Profile

Learn More

Recommended for you,

Household Supplies

15 ITEMS

Buy it again in Office

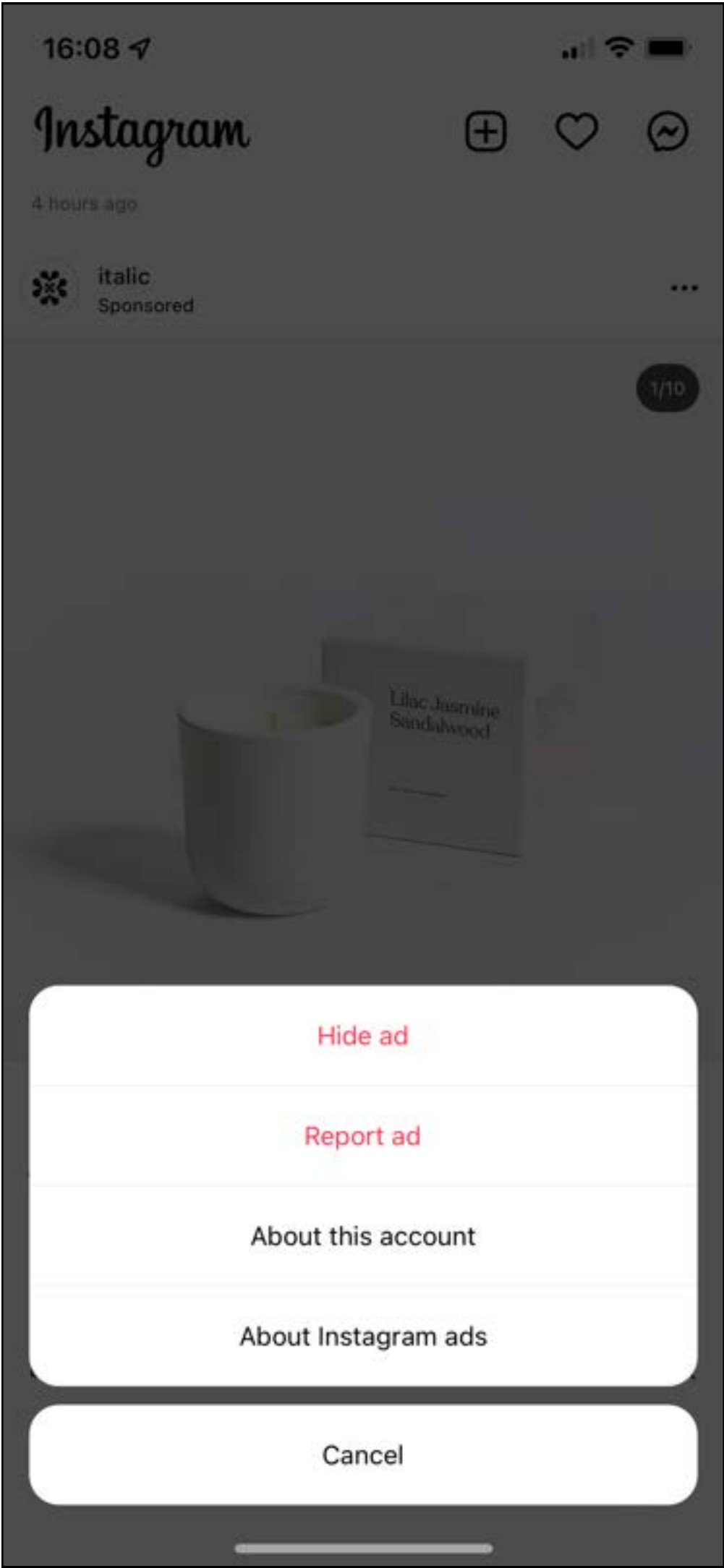
13 ITEMS

Supporting efficient dismissal

Make it easy to dismiss or ignore undesired AI system services

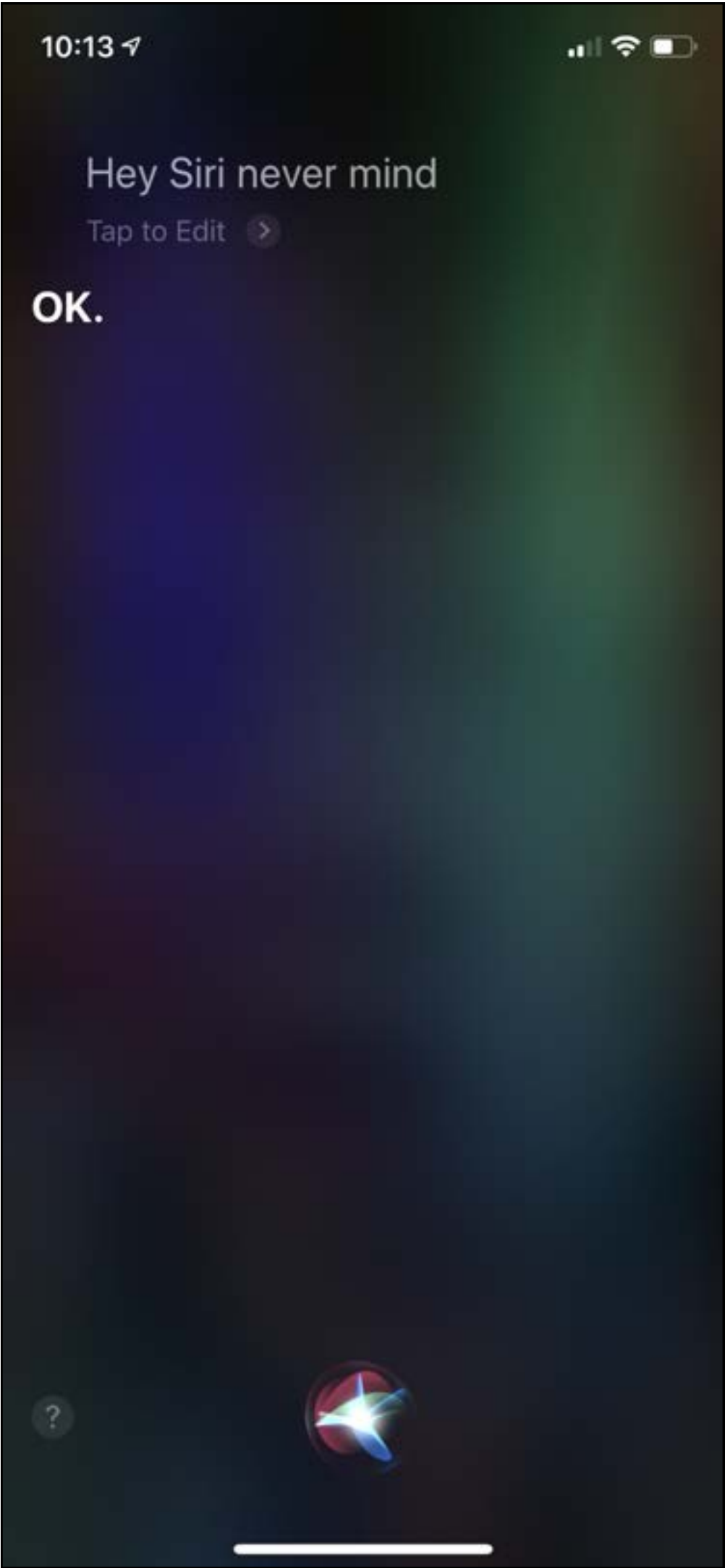
INSTAGRAM

Supporting efficient dismissal



SIRI

Supporting efficient dismissal

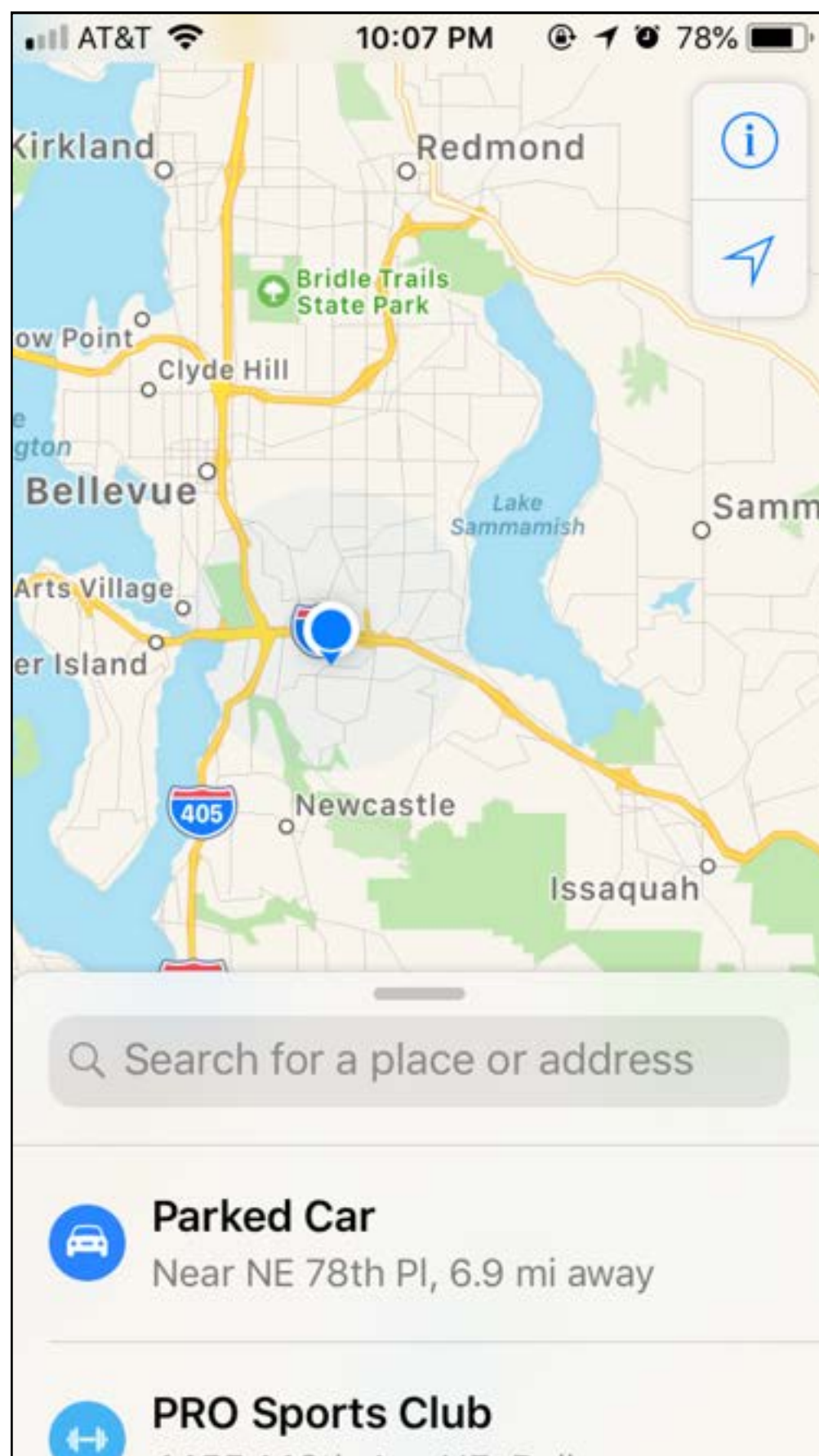


Time services based on context

Time when to act or interrupt based on the user's current task and environment

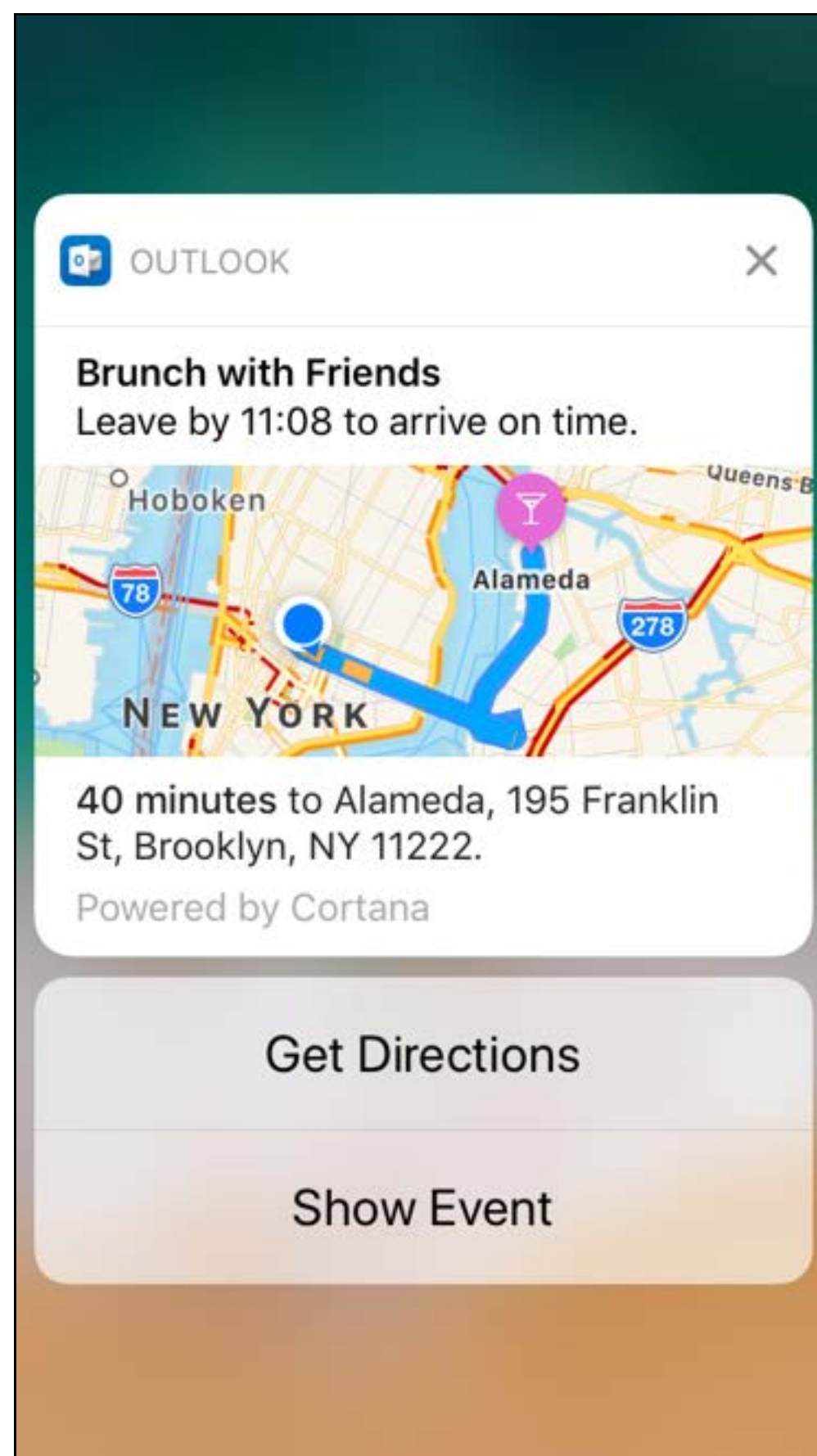
APPLE MAPS

Suggesting based on time



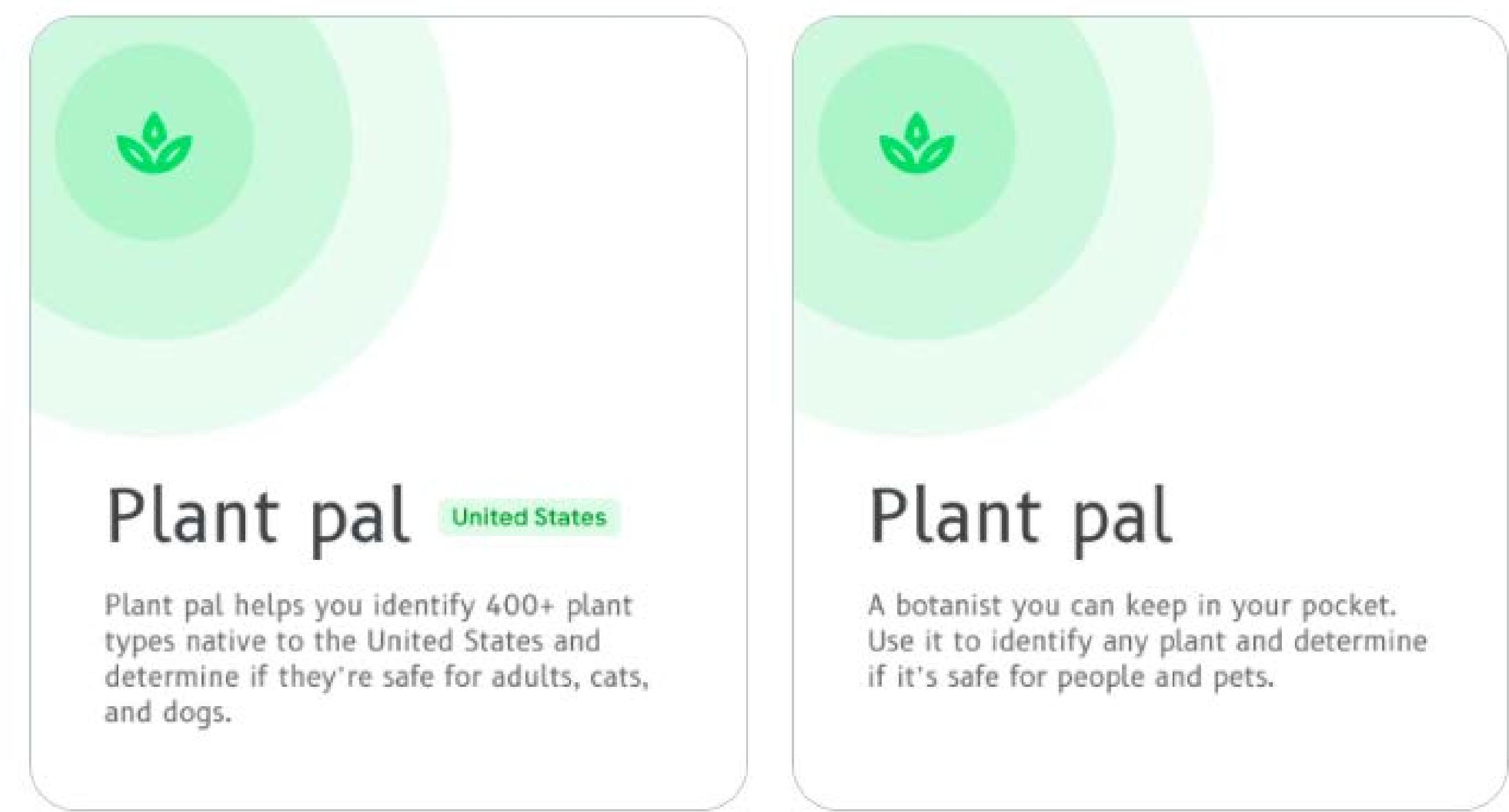
MICROSOFT OUTLOOK

Accounting for context



Set the right expectations

Be transparent with your users about what your AI-powered product can and cannot do.



Aim for

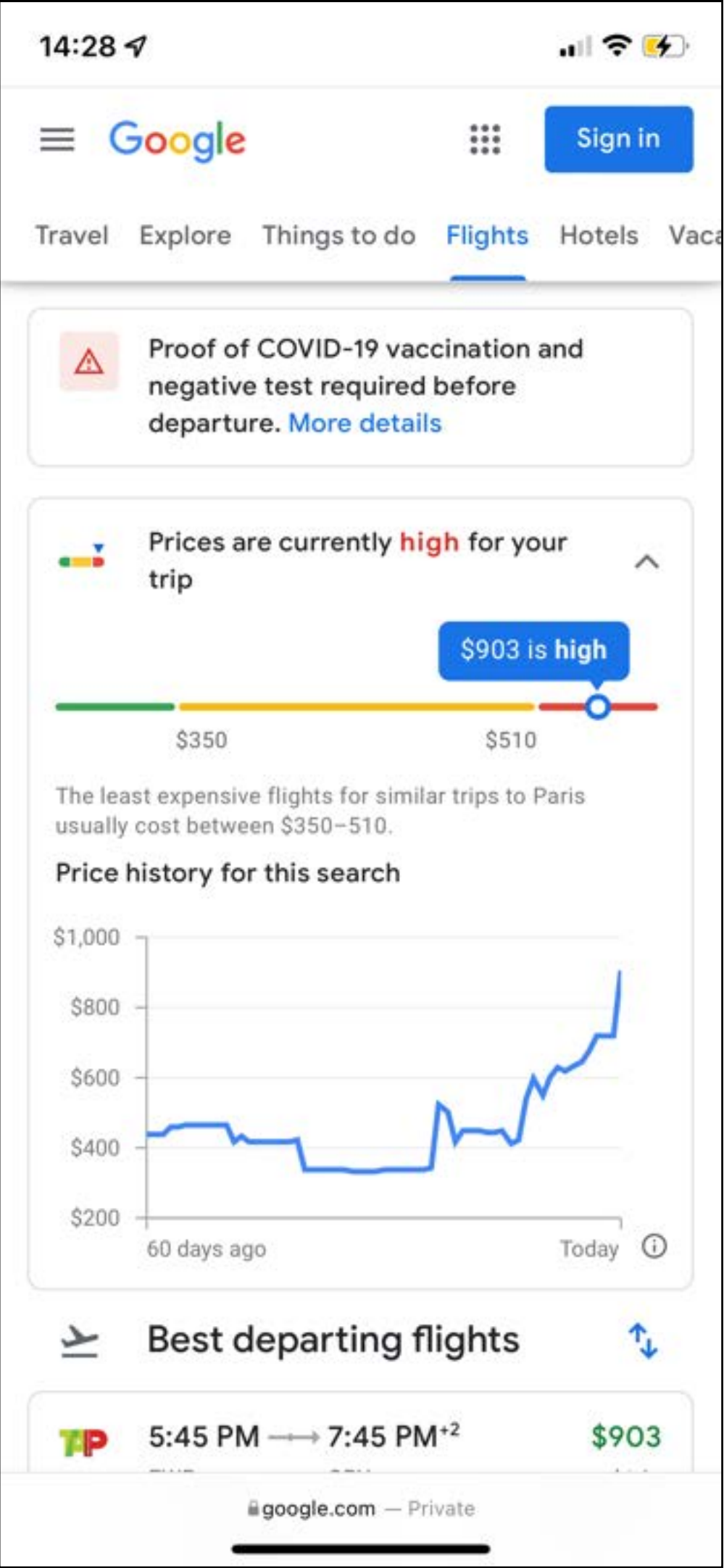
Clarify the AI's limitations, especially in high stakes situations.

Avoid

Avoid suggesting that the tech works perfectly in high-stakes situations if the tech isn't yet reliable.

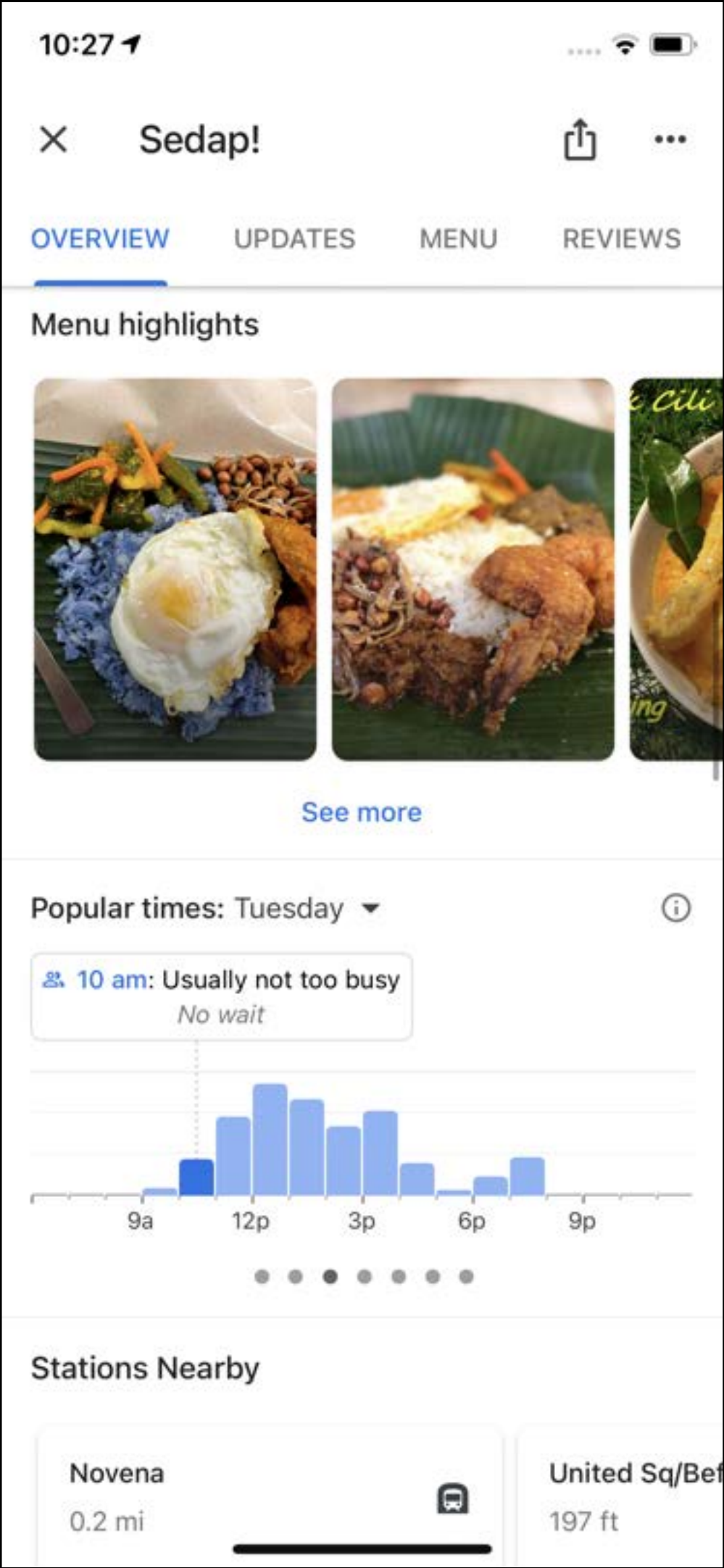
GOOGLE FLIGHTS

Clarifying AI limitations



GOOGLE MAPS

Calibrating expectations




AI systems are probabilistic, making it critical that we help calibrate users' expectations about the system. In the pig term, users may rely on your product more because they're less likely to over-trust your system and be disappointed.

Explain the benefit, not the technology

Help users understand your product’s capabilities rather than what’s under the hood.



Owl is an educational tool that **adapts to your learning style** and is **available anytime** to help you achieve your educational goals



Owl is an innovative AI-based chatbot that leverages a **neural conversational model** and **natural language processing** techniques

Aim for

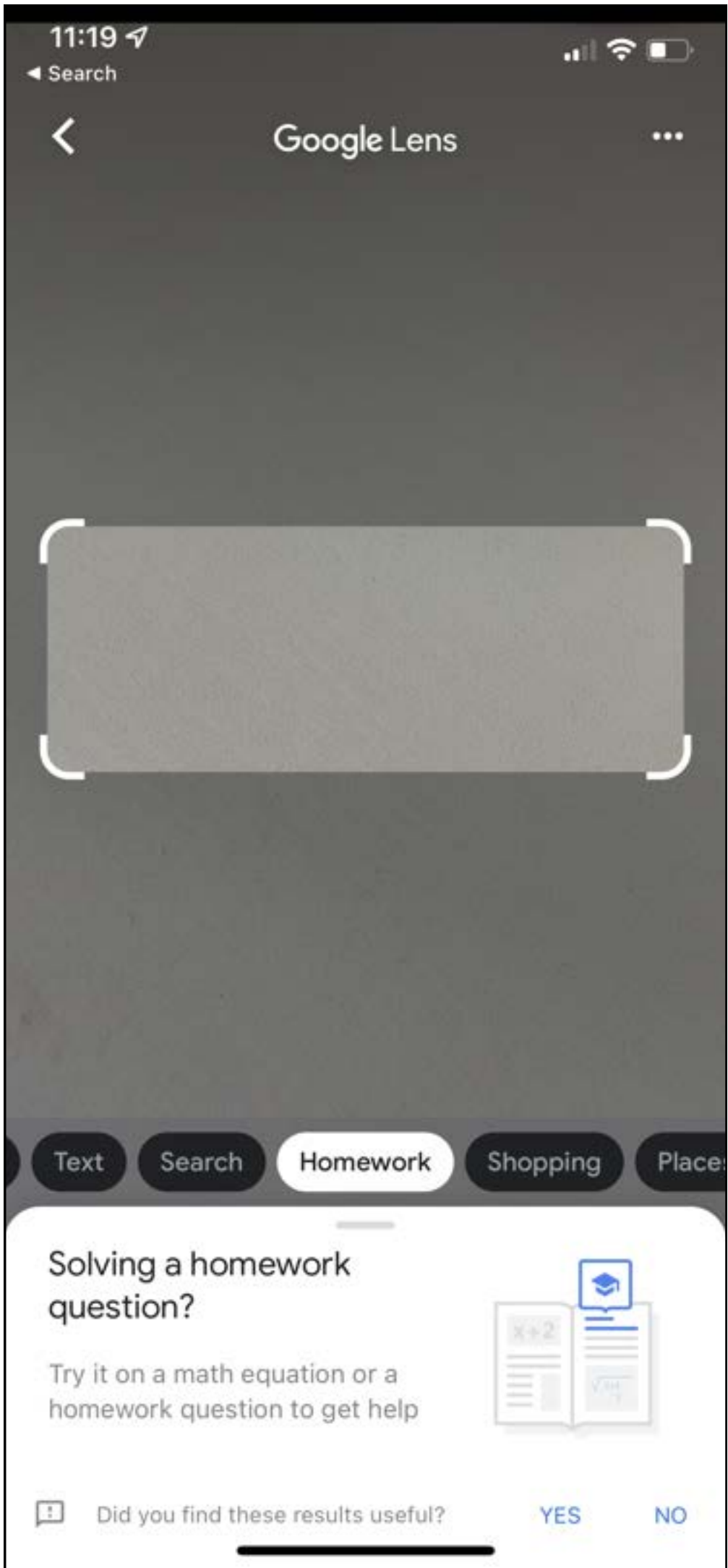
Emphasize how the app will benefit users.

Avoid

Avoid emphasizing the underlying technology.

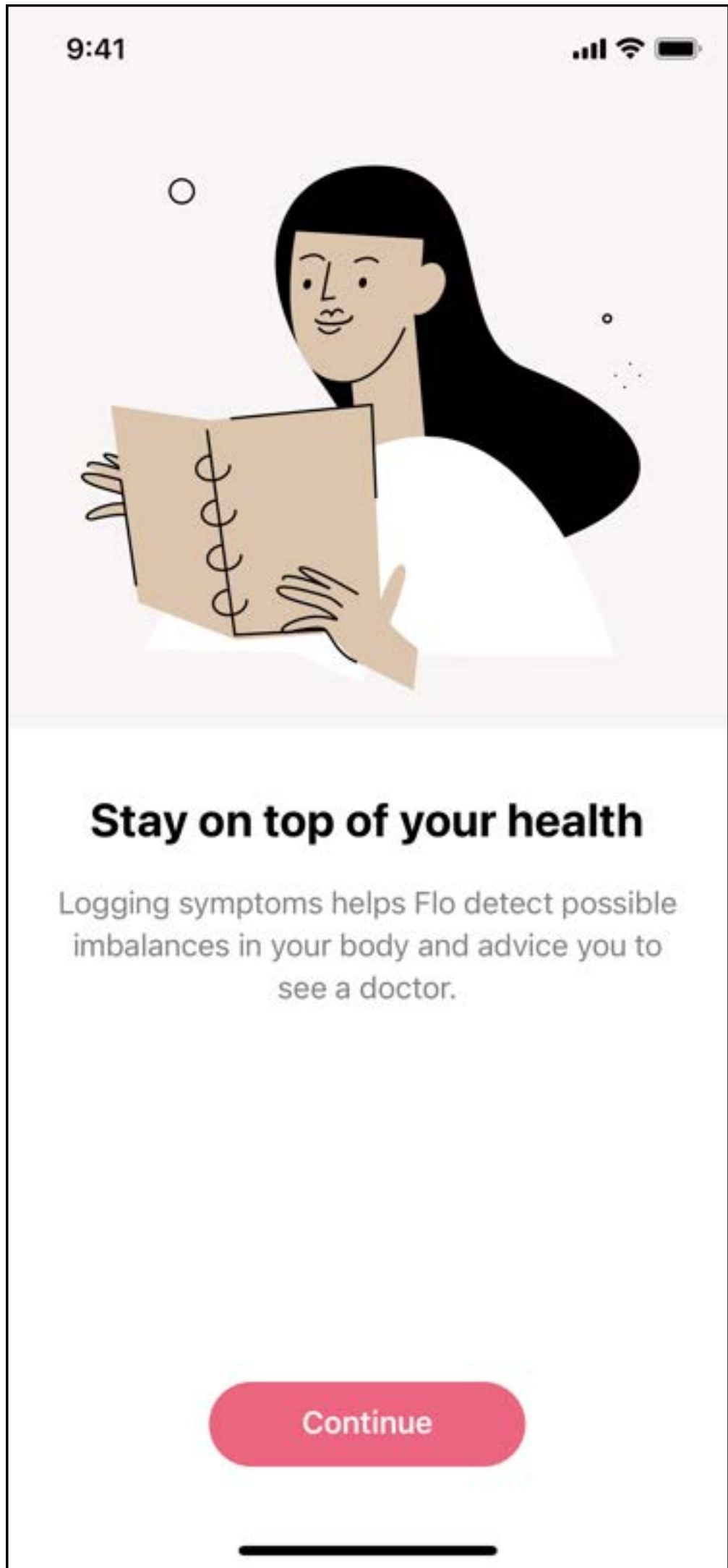
GOOGLE LENS

Emphasizing user benefit



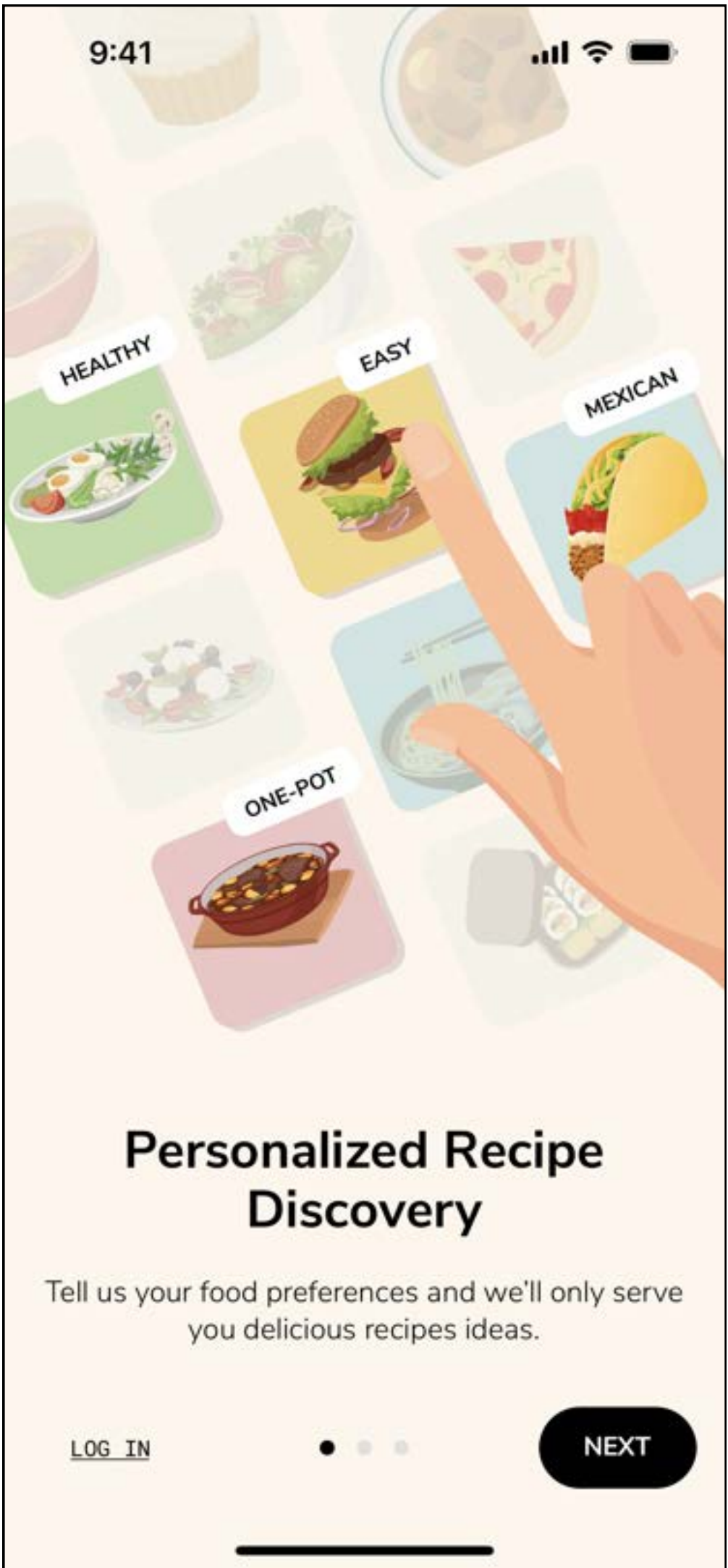
FLO

Delivering new value



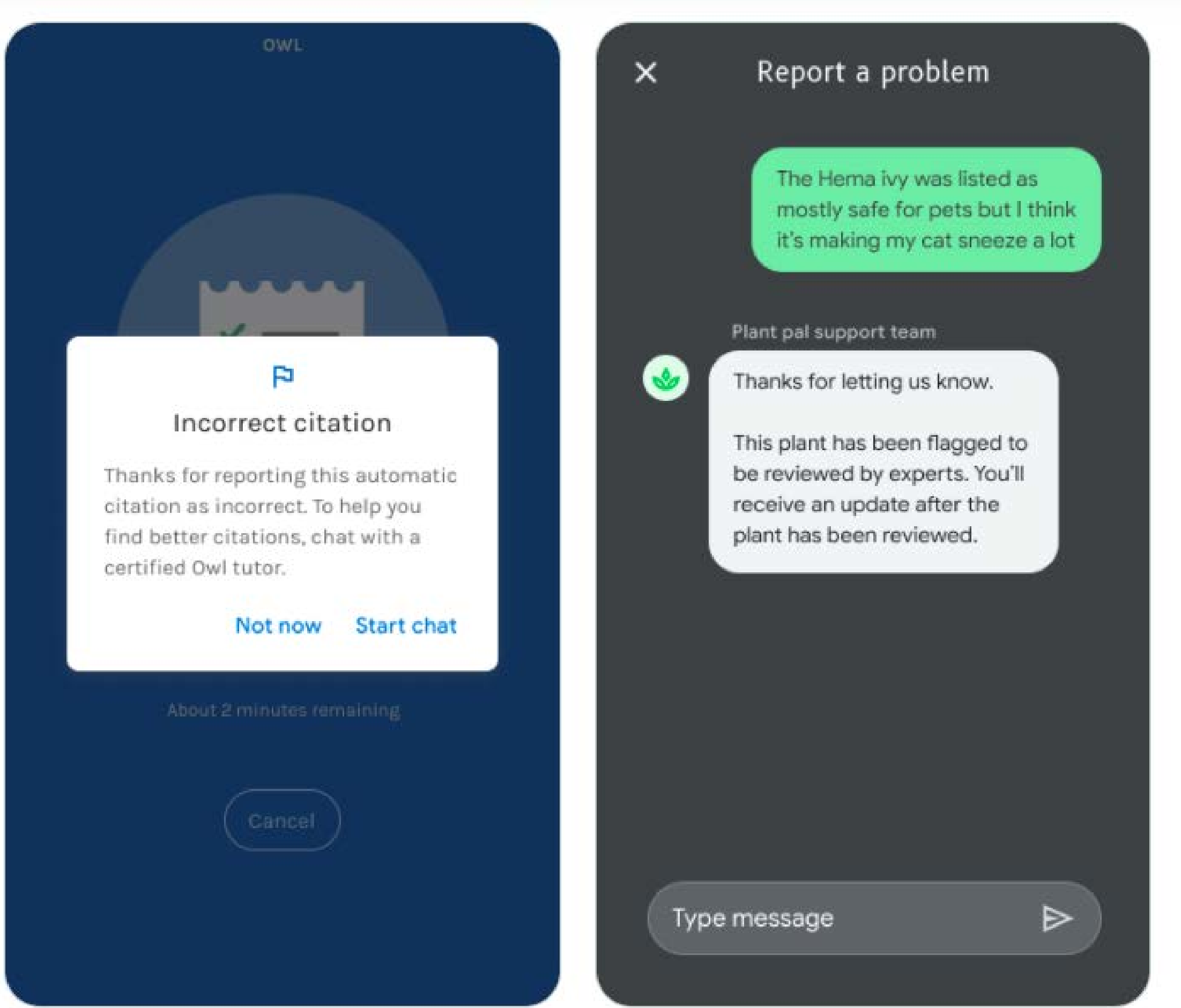
SIDECHEF

Conveying a better experience



Be accountable for errors

Understand the types of errors users might encounter and have a plan for resolving.



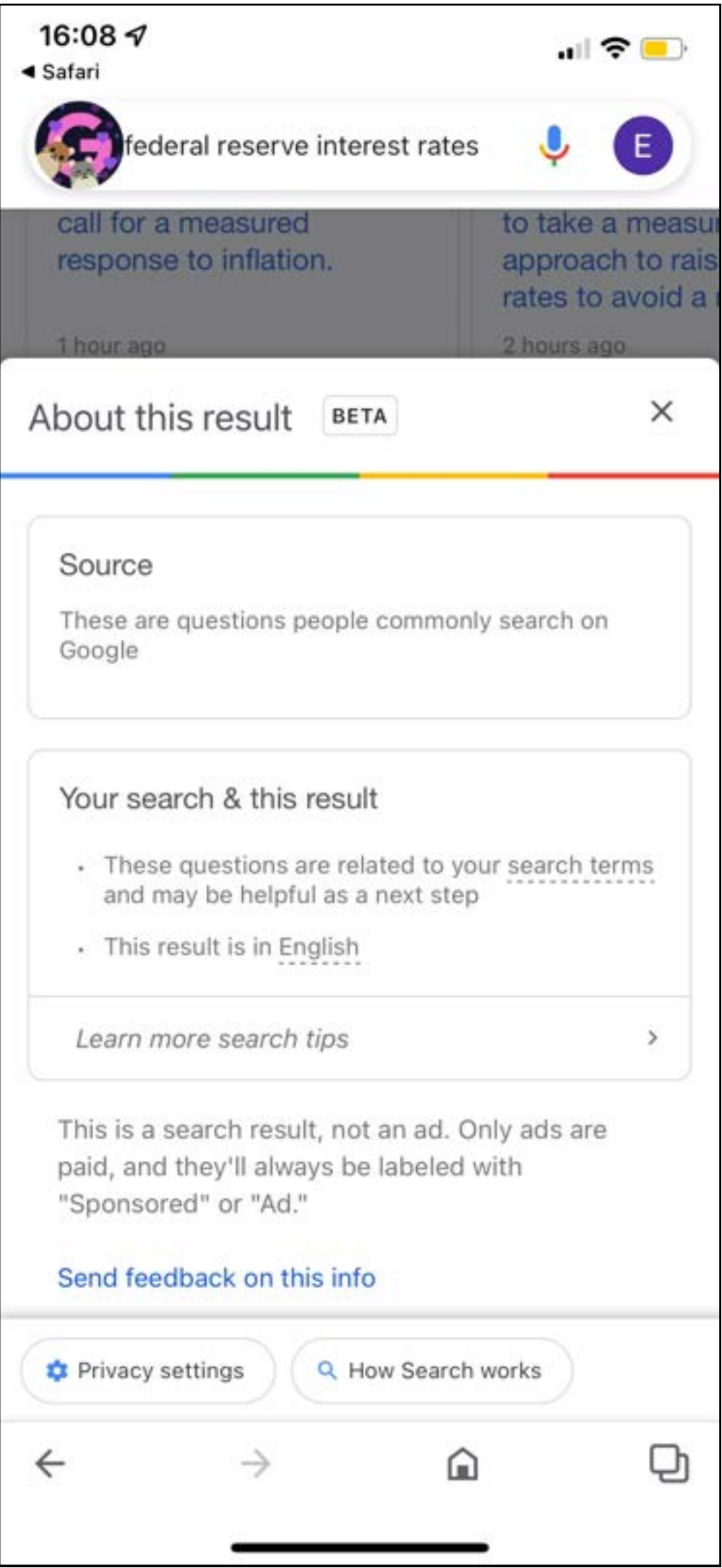
Provide a way forward

Providing access to a person can be one way to make sure users' concerns and problems are directly addressed.

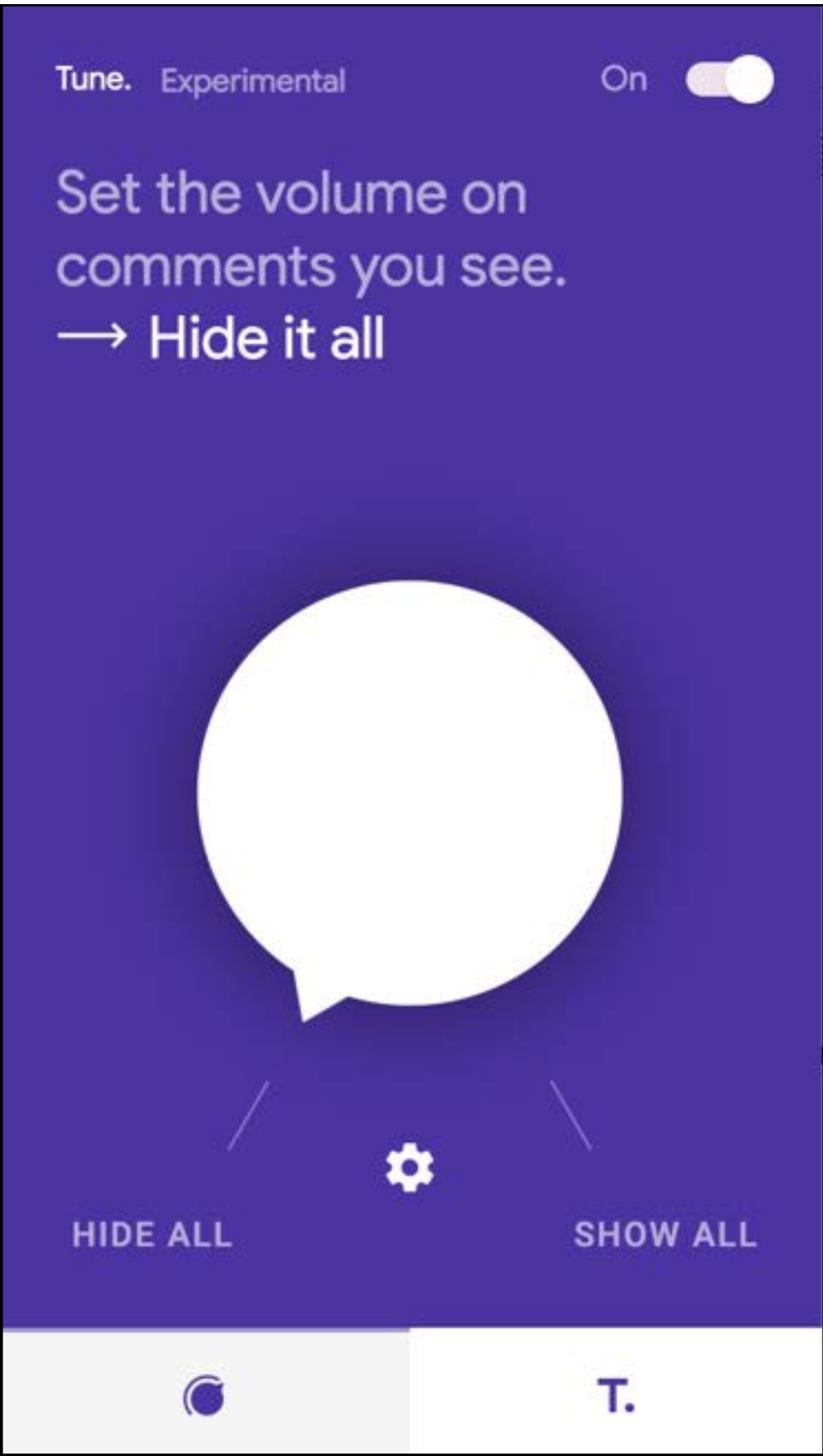
Make changes to product

Sometimes the user's error can't be directly remedied but actions can be taken to make sure other users don't encounter the same problem.

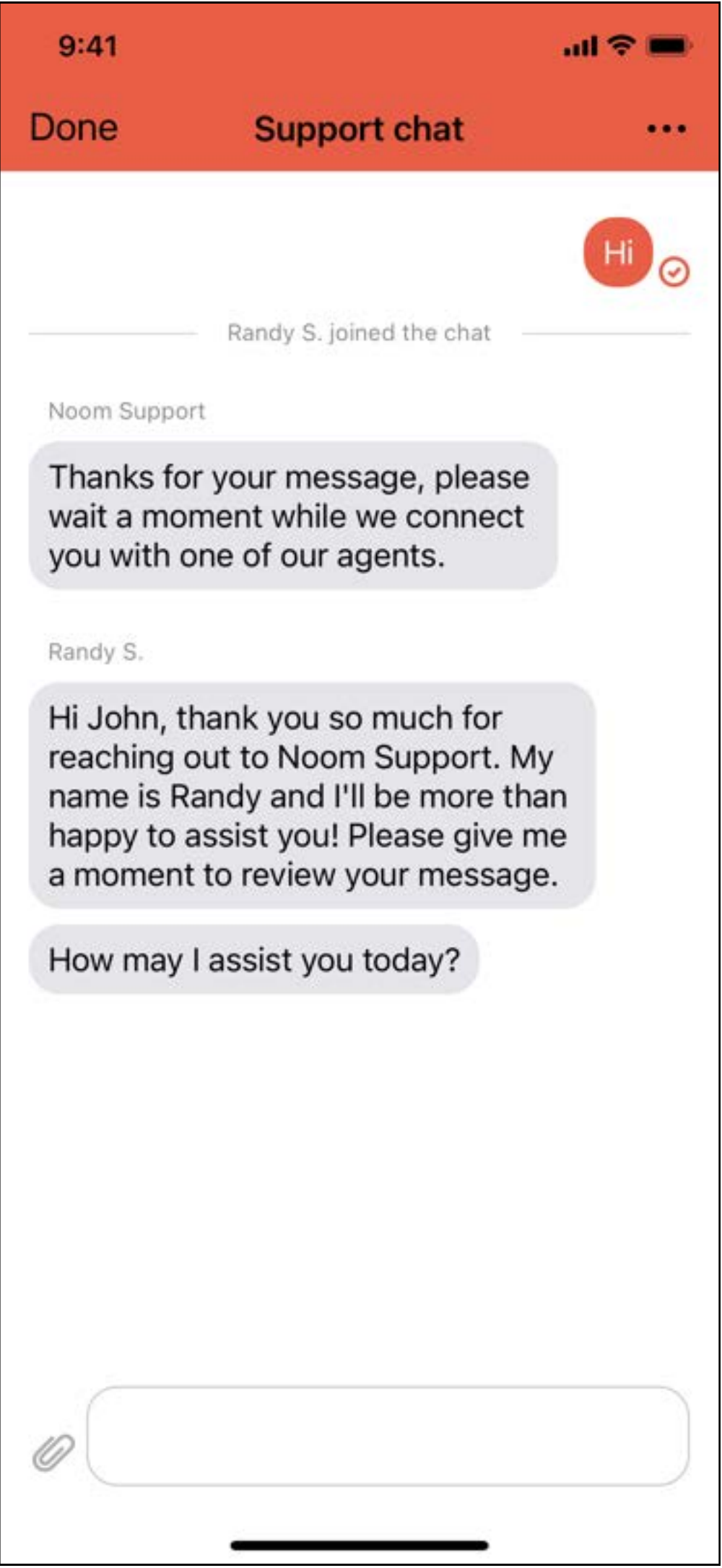
GOOGLE
Setting expectations



TUNE
Manual control

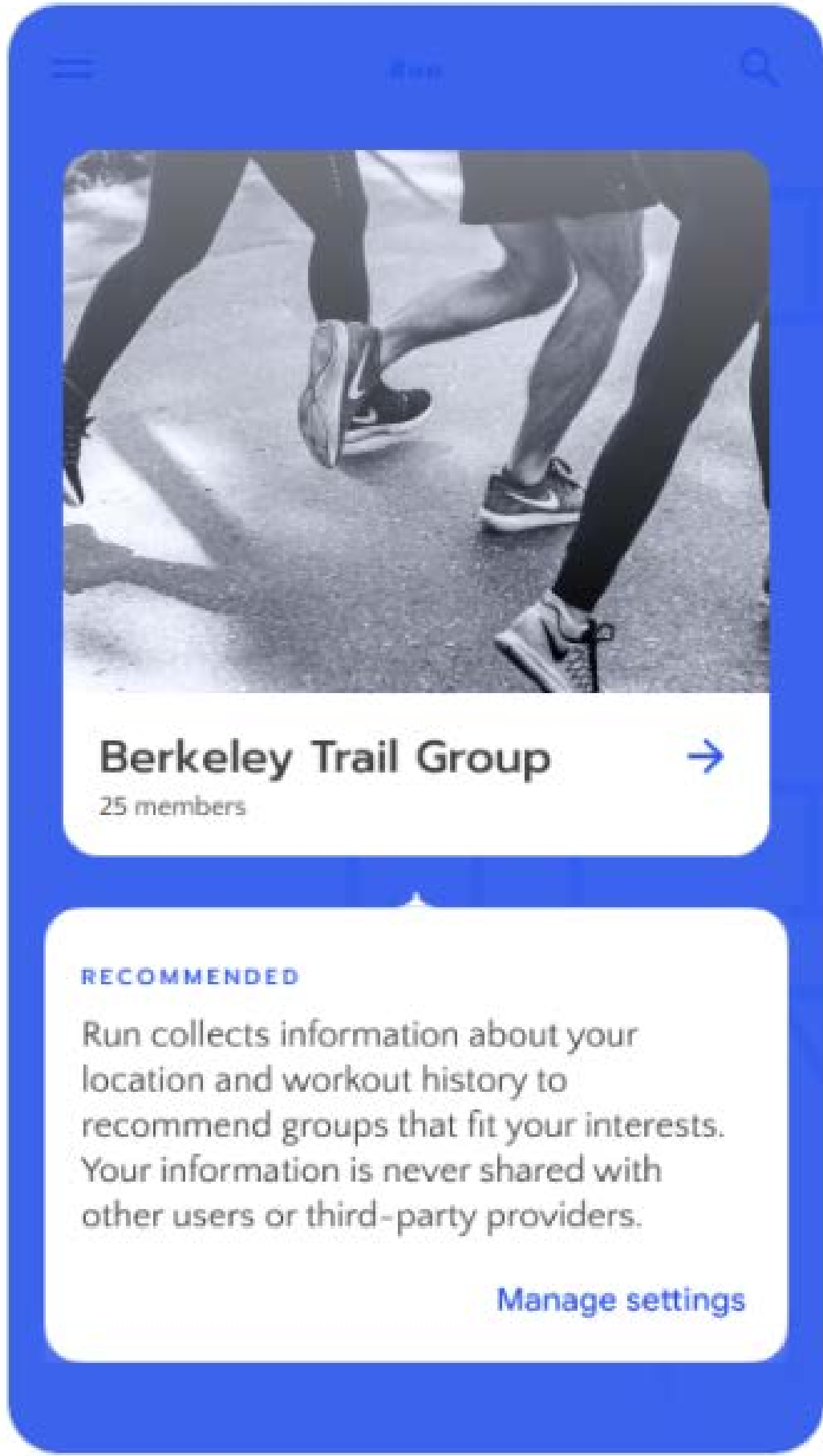


NOOM
High-touch customer support



Be transparent about privacy and data settings

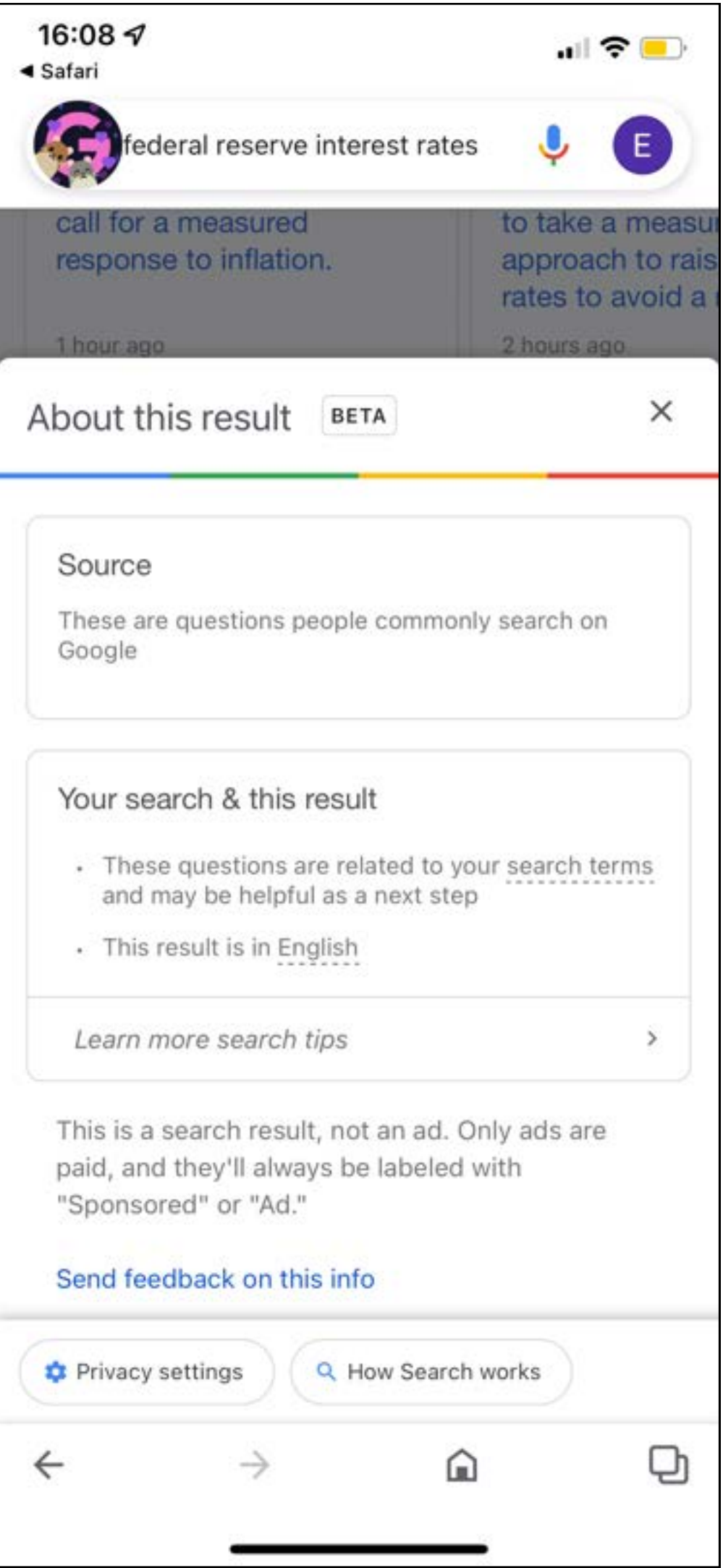
From initial onboarding through ongoing use, continue to communicate about settings and permissions.



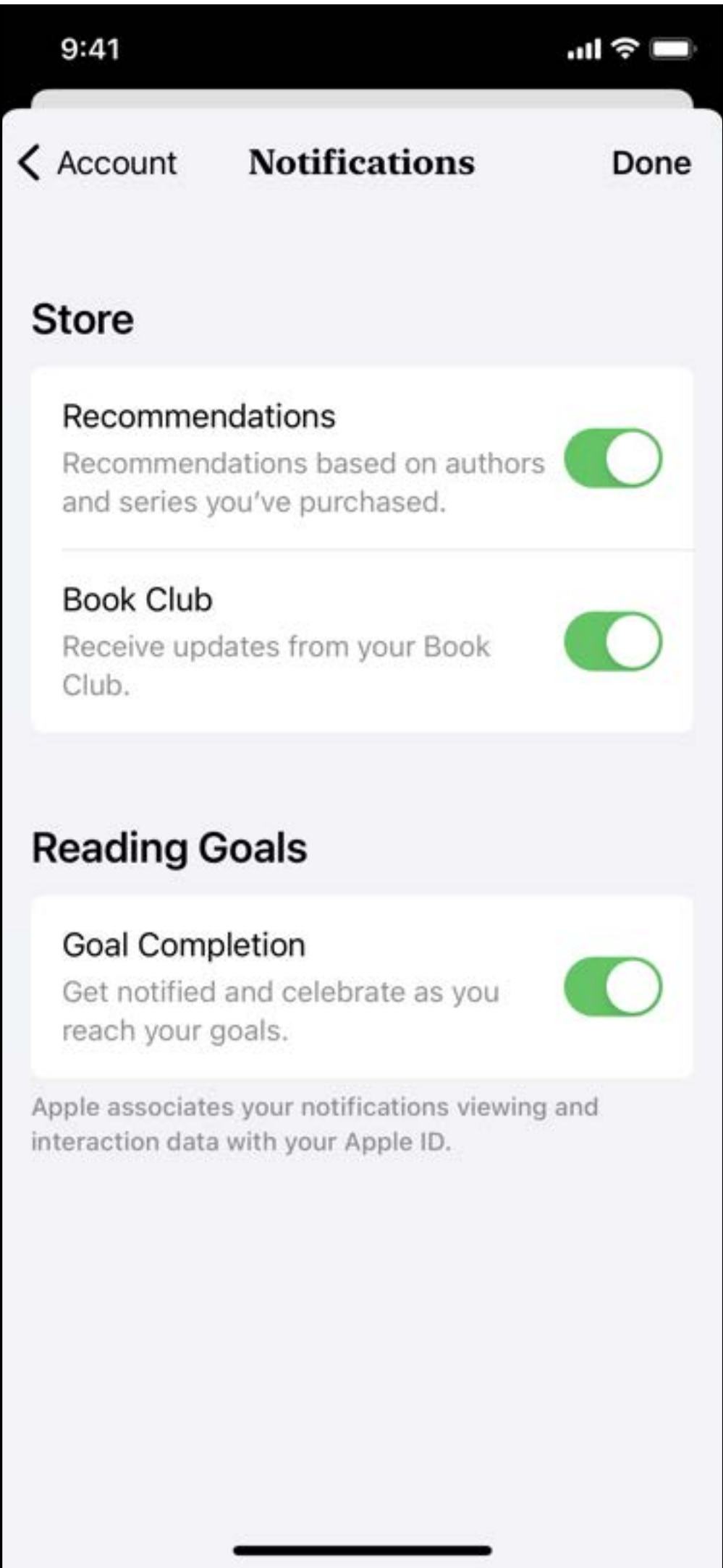
Aim for

Communicate what data is being collected and shared, and give users the ability to control their preferences.

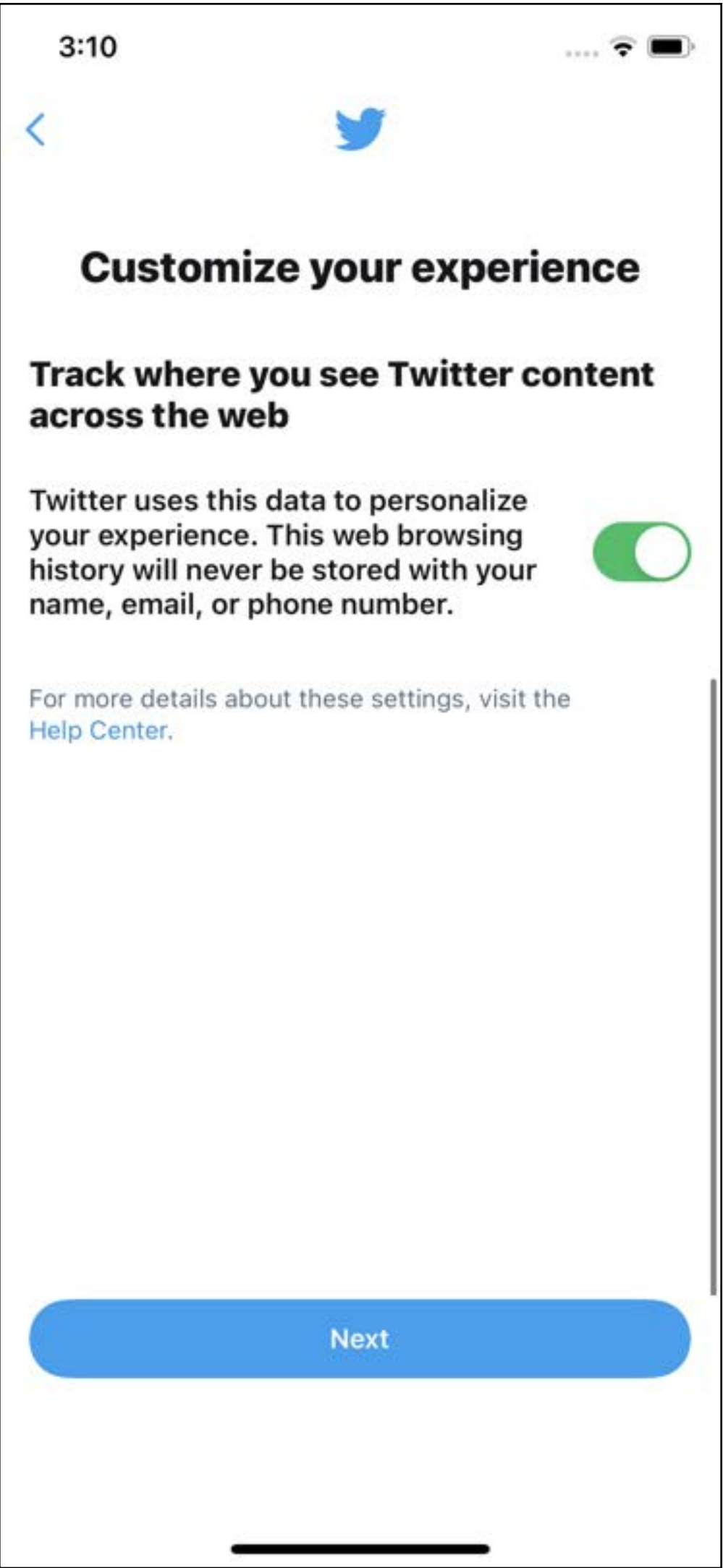
GOOGLE
Communicating collected data



APPLE BOOKS
User-controlled preferences

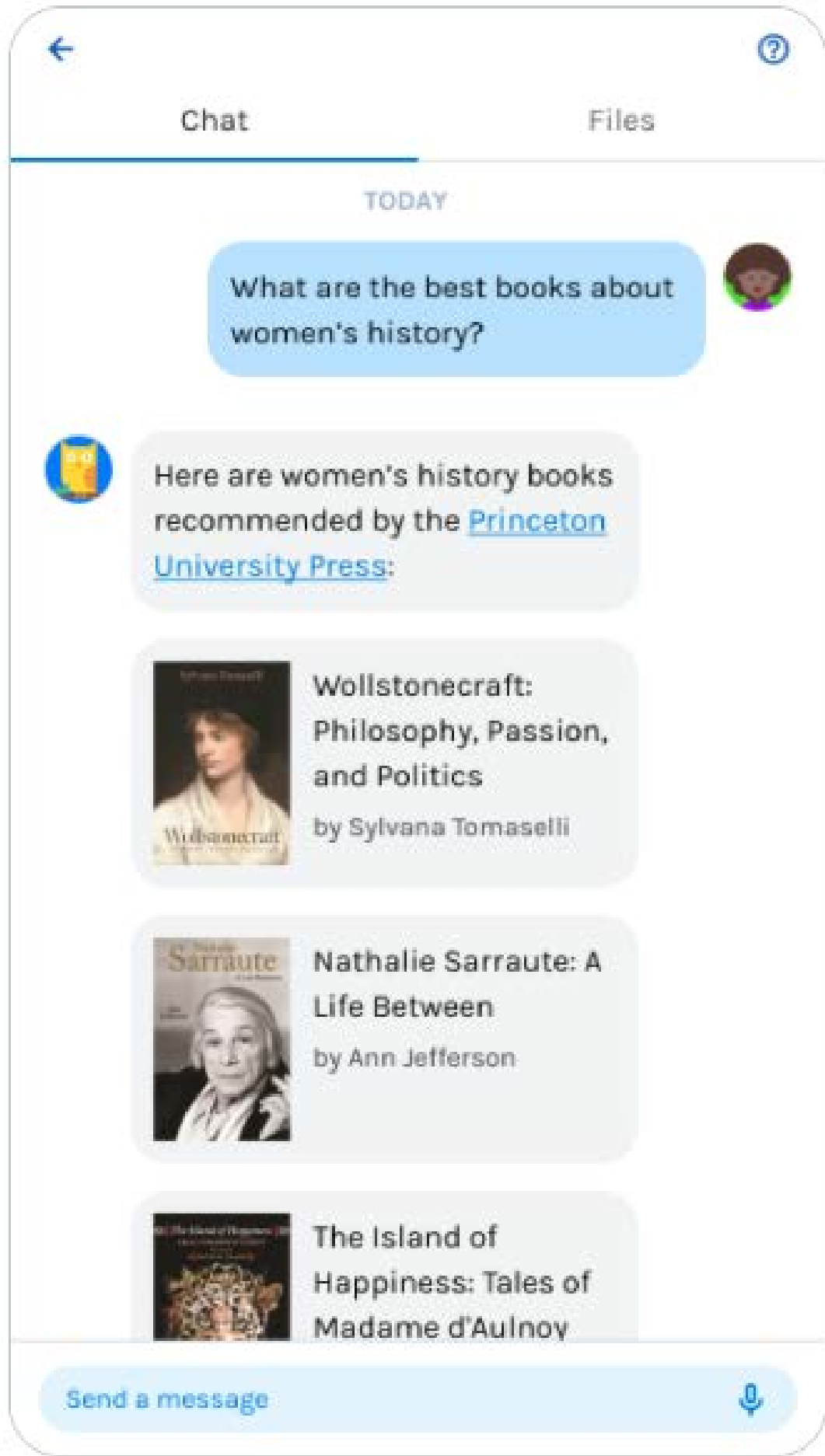


TWITTER
Proactive permissions



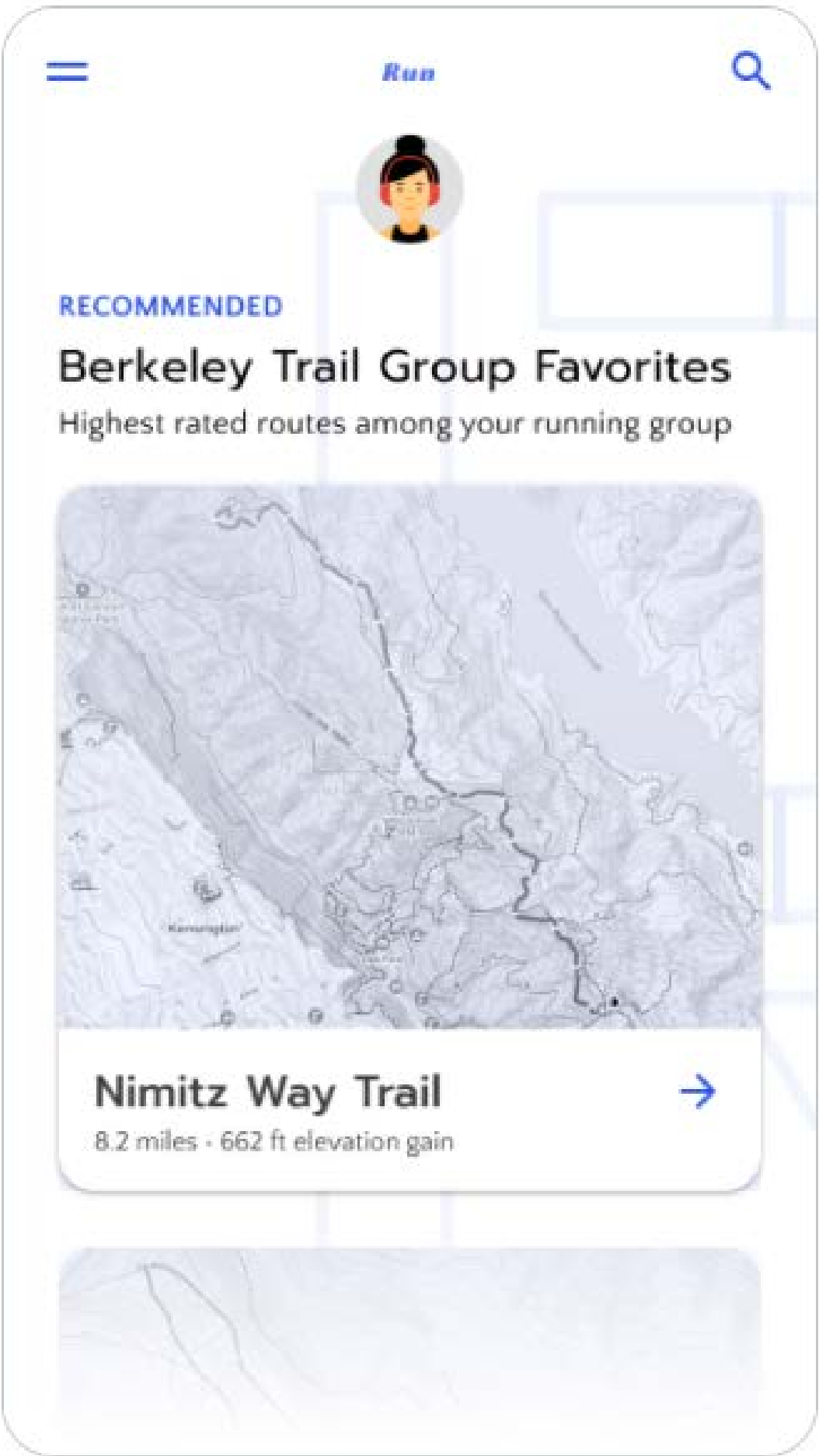
Add context from human sources

Help users appraise your recommendations with input from third-party sources.



Third-party experts

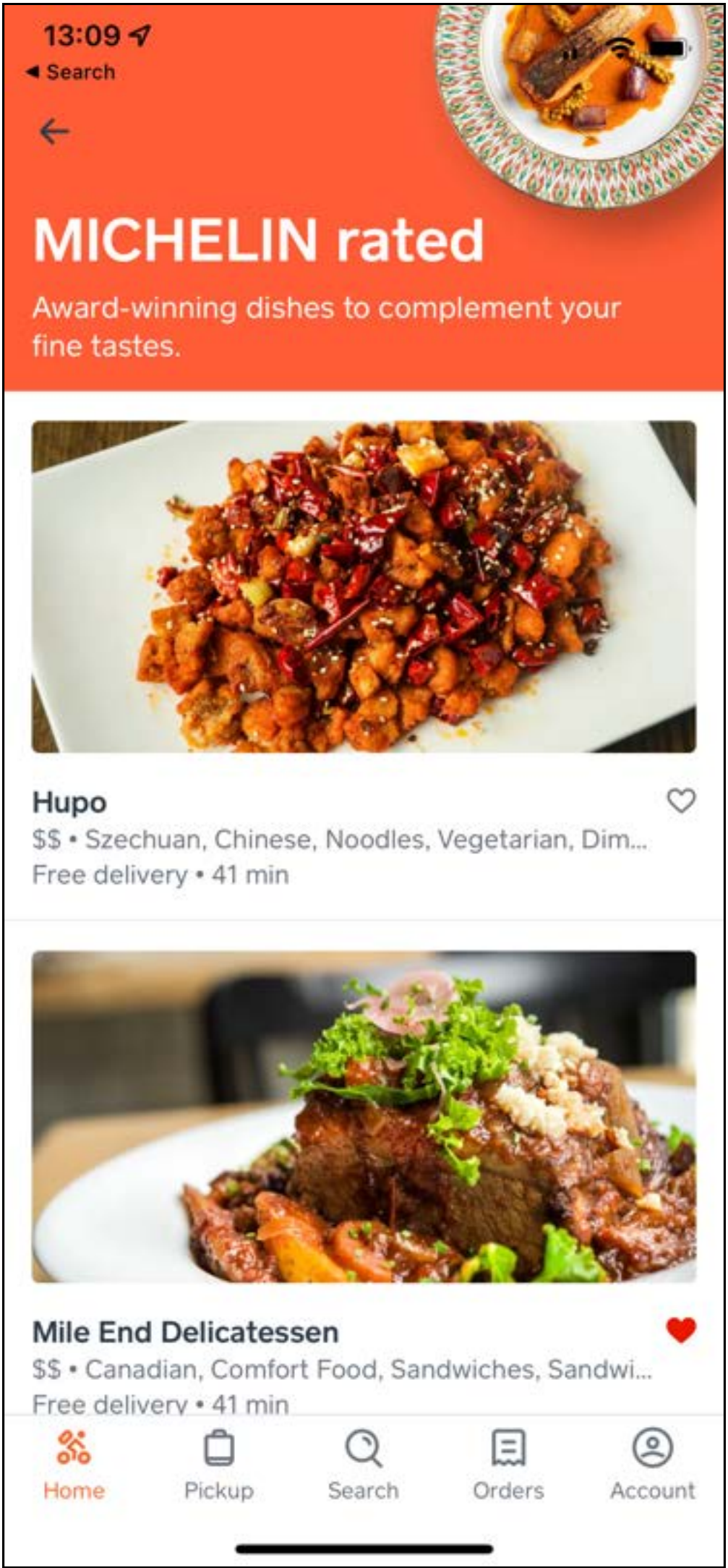
Reference third-party experts that the user trusts.



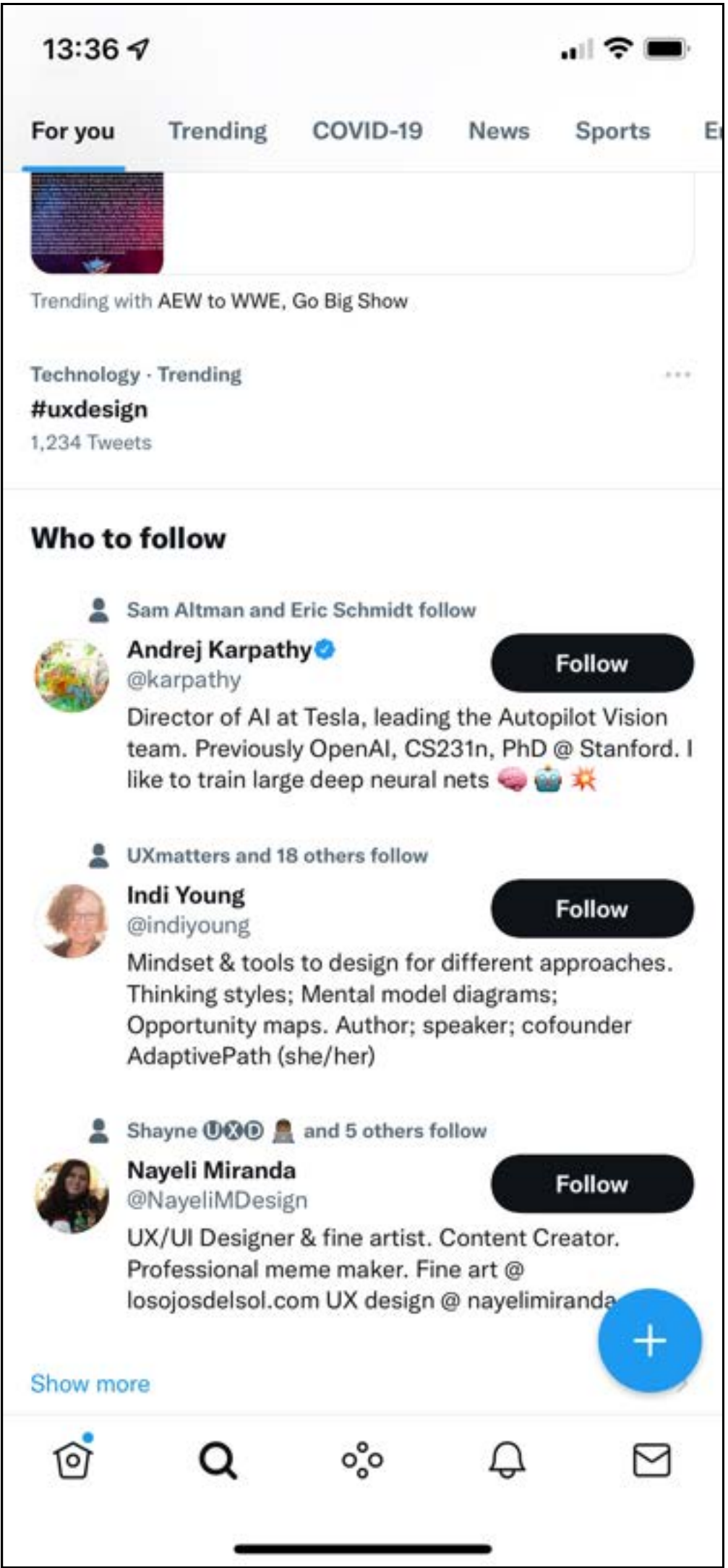
Social proof

Provide context from relevant communities that the user trusts.

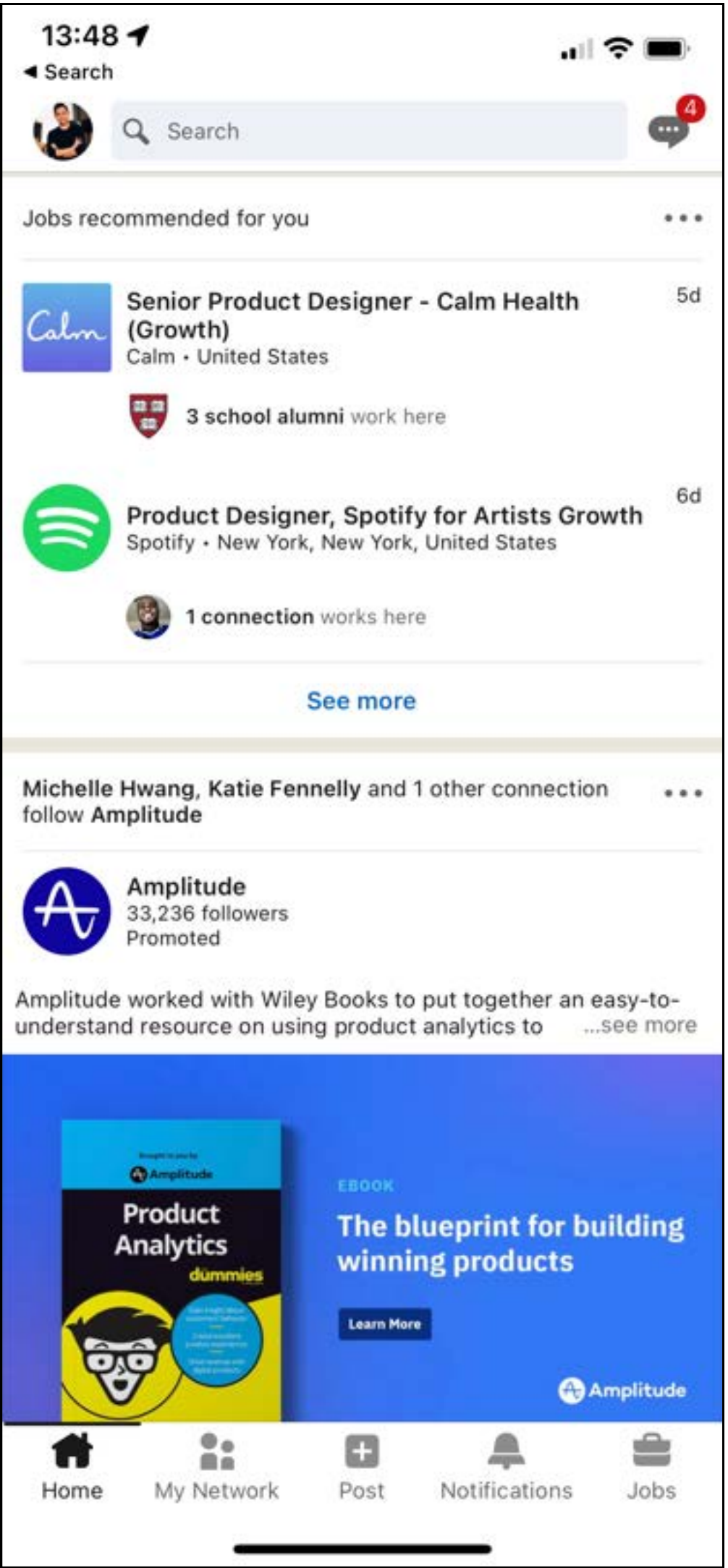
CAVIAR
Referencing third-party experts



TWITTER
Appraising through social proof

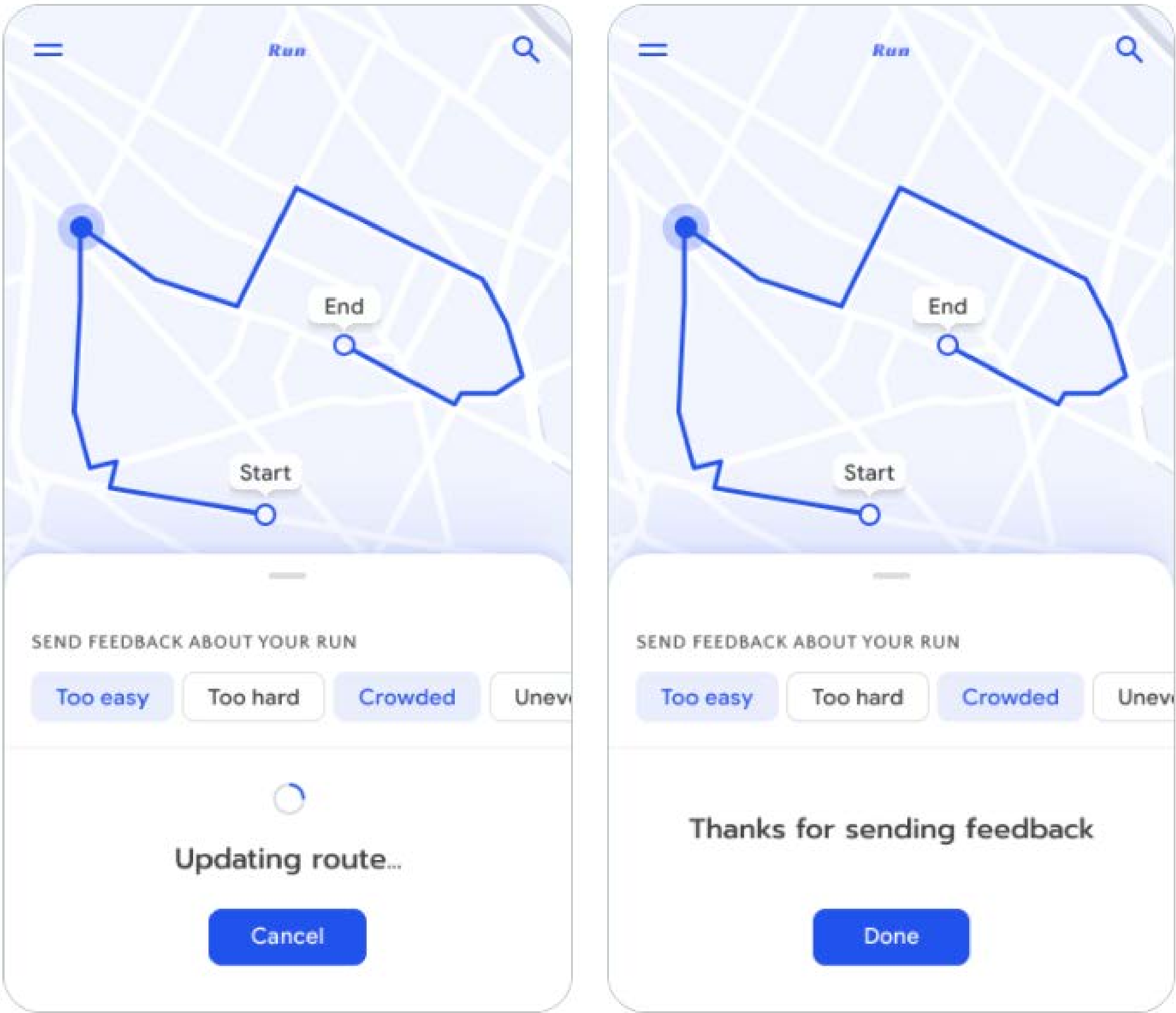


LINKEDIN
Calibrating trust



Let users give feedback

Give users the opportunity for real-time teaching, feedback and error correction.



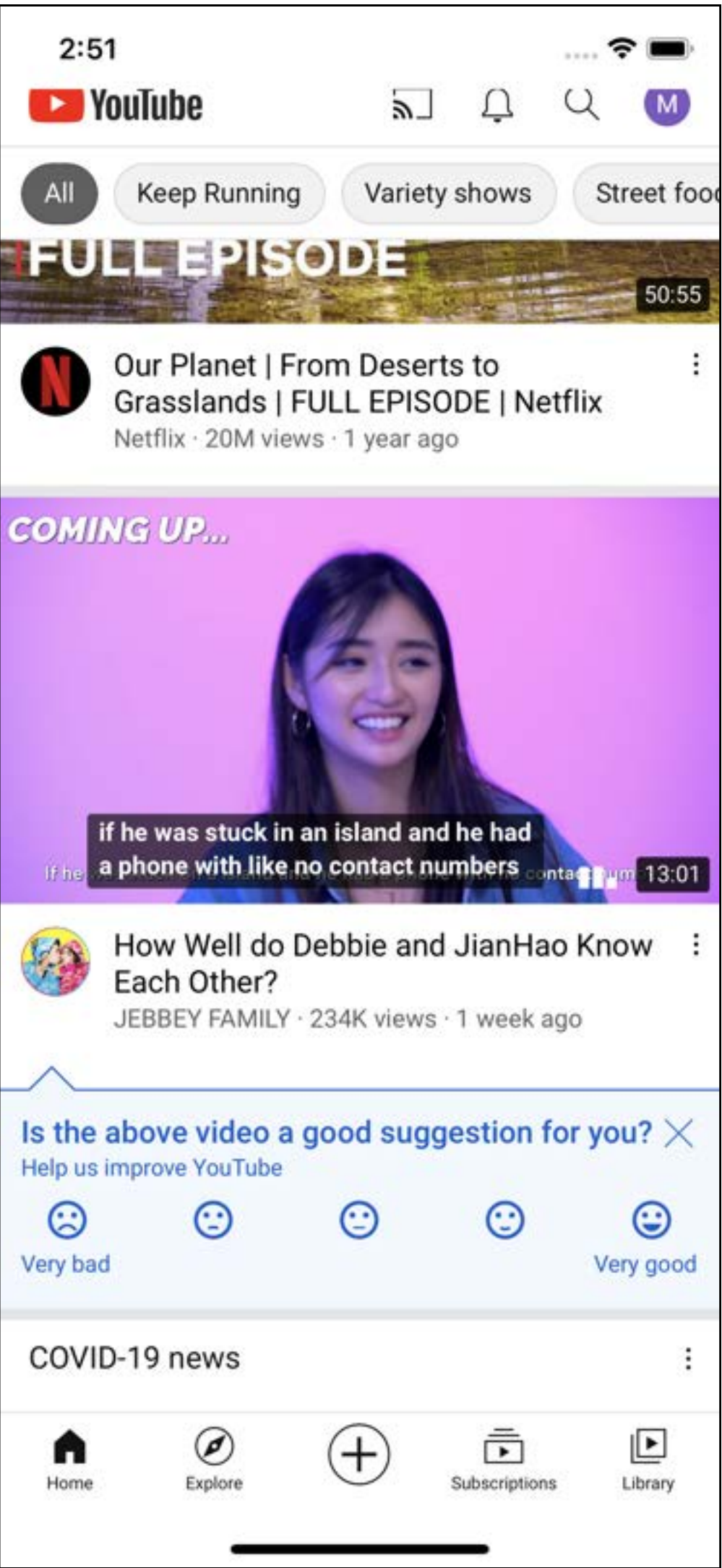
Aim for

Acknowledge user feedback and let users know when adjustments will happen.

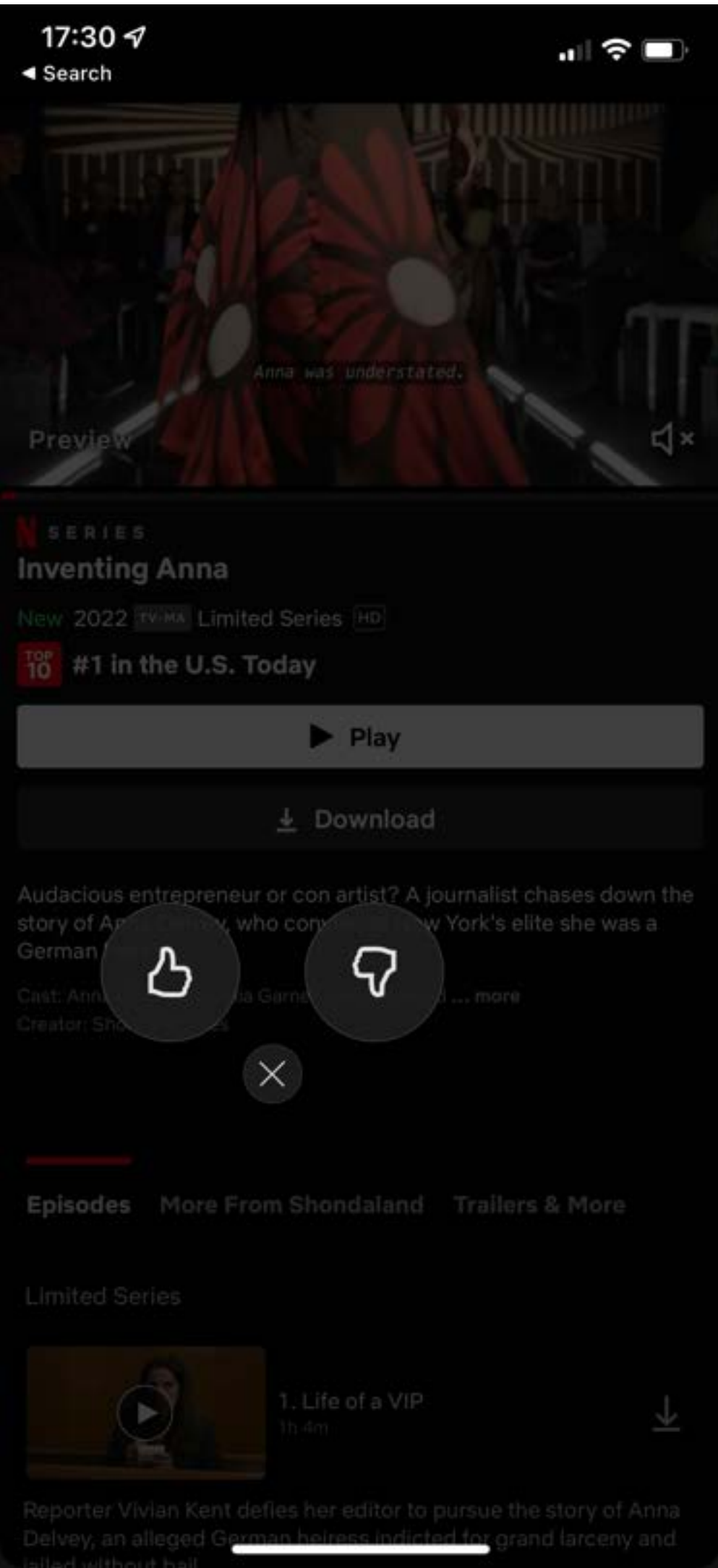
Avoid

Don't just thank users—reveal how feedback will benefit them. They'll be more likely to give feedback again.

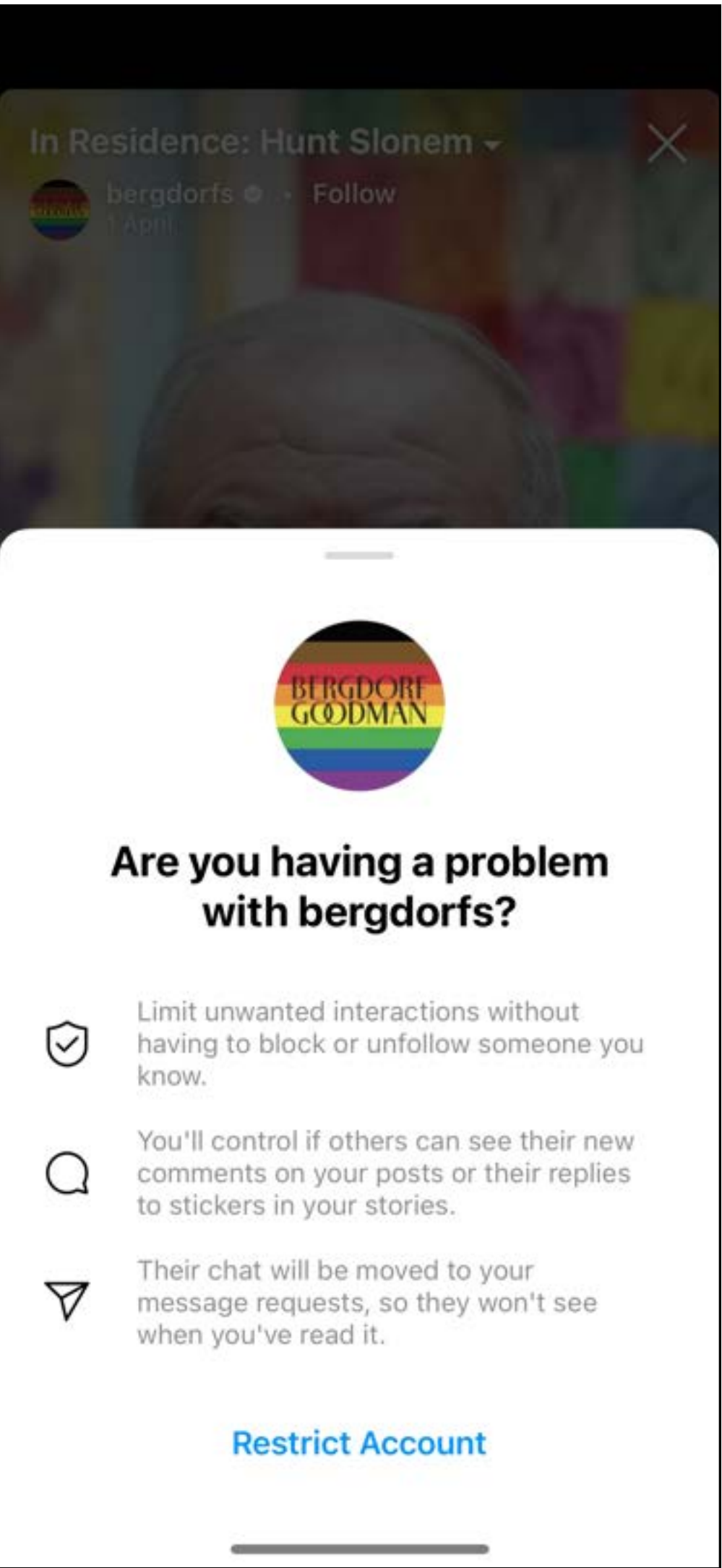
YOUTUBE
Giving feedback on suggestion



NETFLIX
Giving thumbs up or down

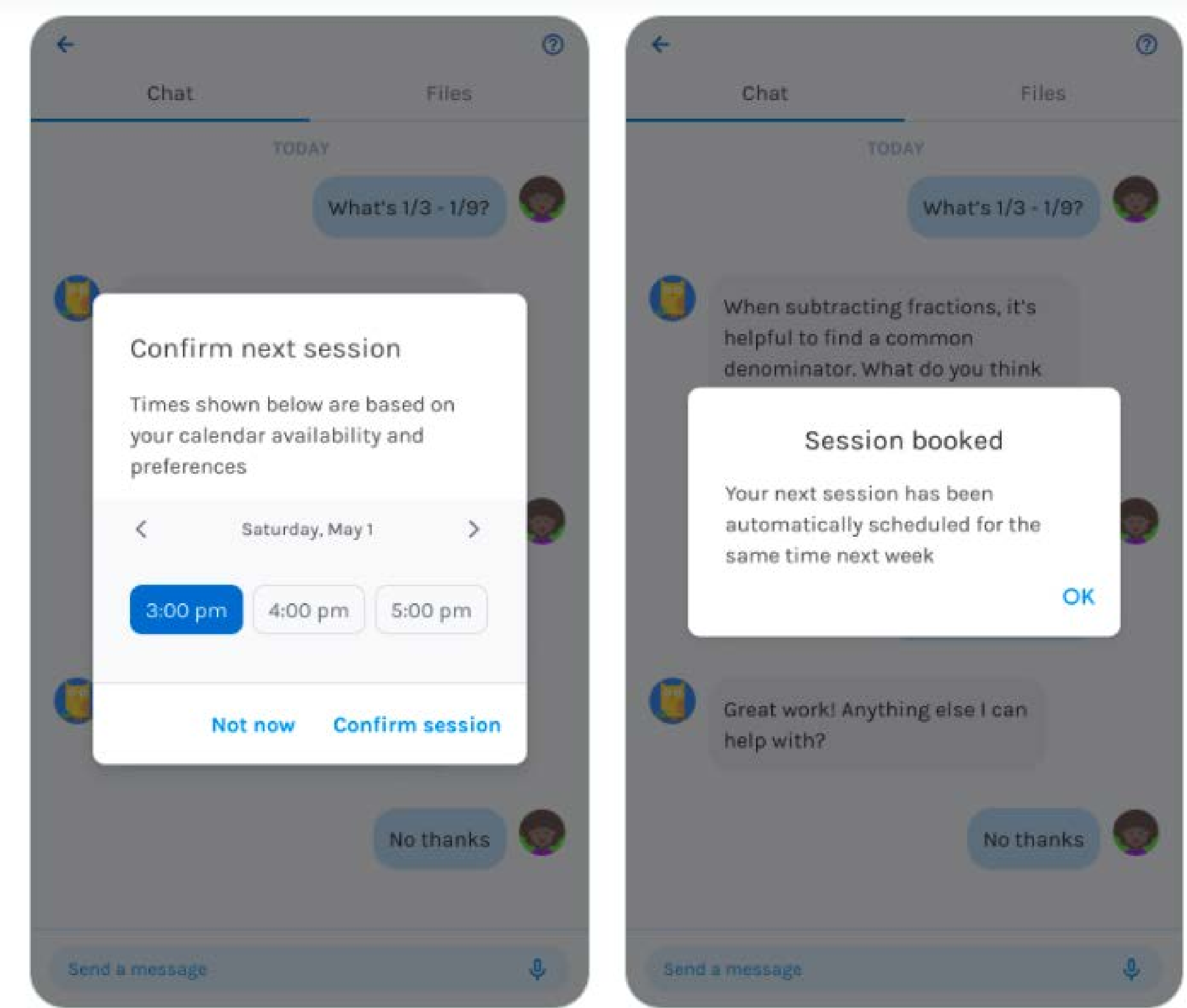


INSTAGRAM
Flagging unwanted suggestions



Let users supervise automation

Maintaining control over automation helps users build comfort and correct when things go wrong.



Aim for

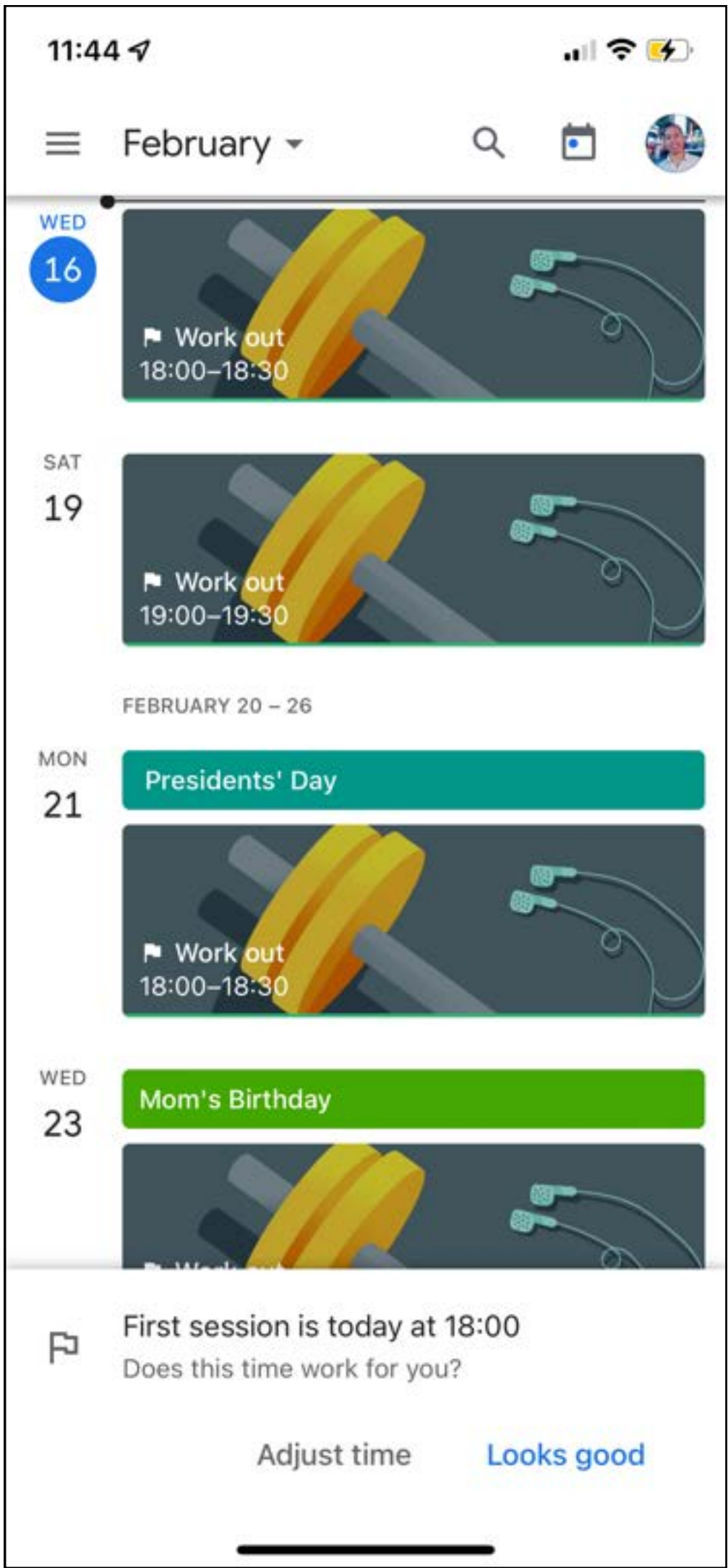
Enable users to review and approve options.

Avoid

Avoid automating without giving users a way to undo, or allow users to make a choice in the first place.

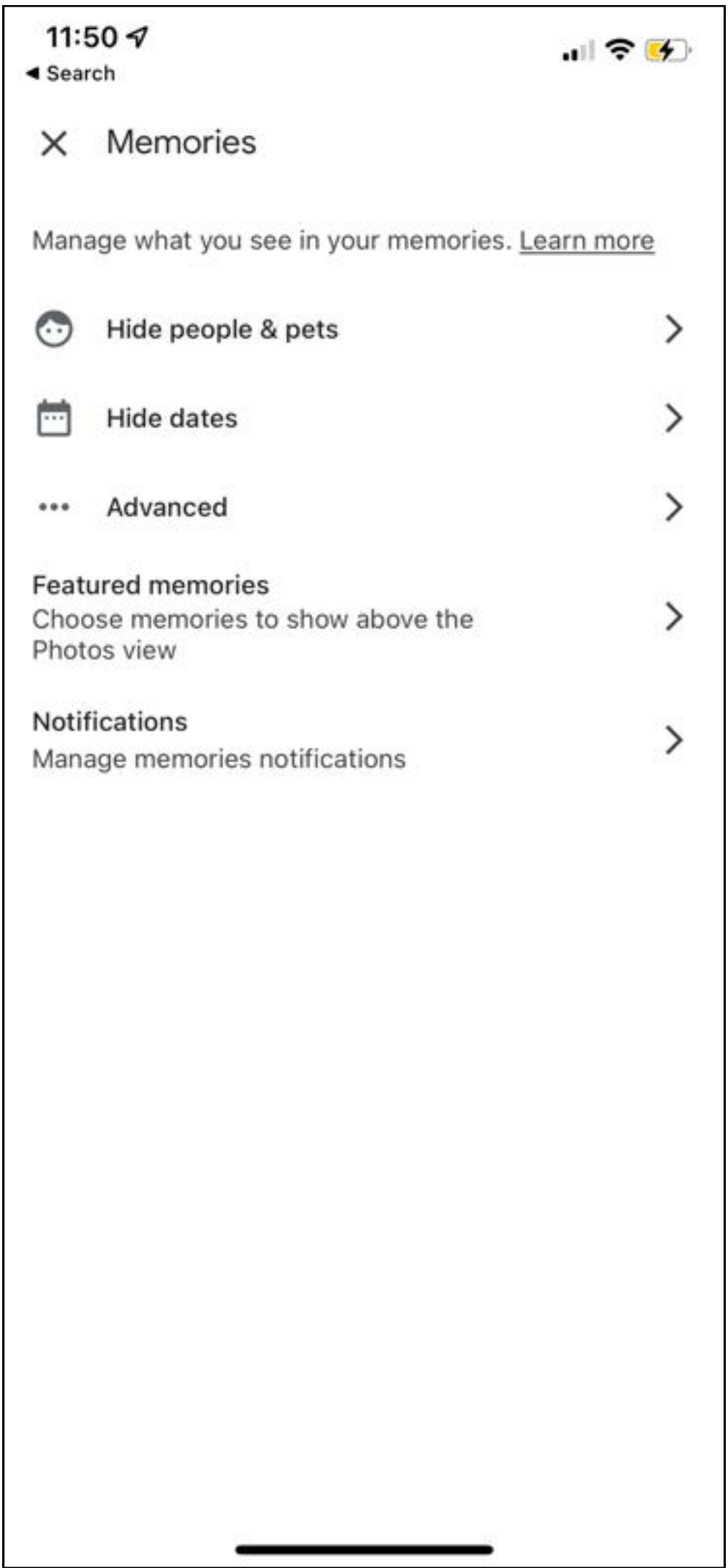
GOOGLE CALENDAR

Supporting controls to override



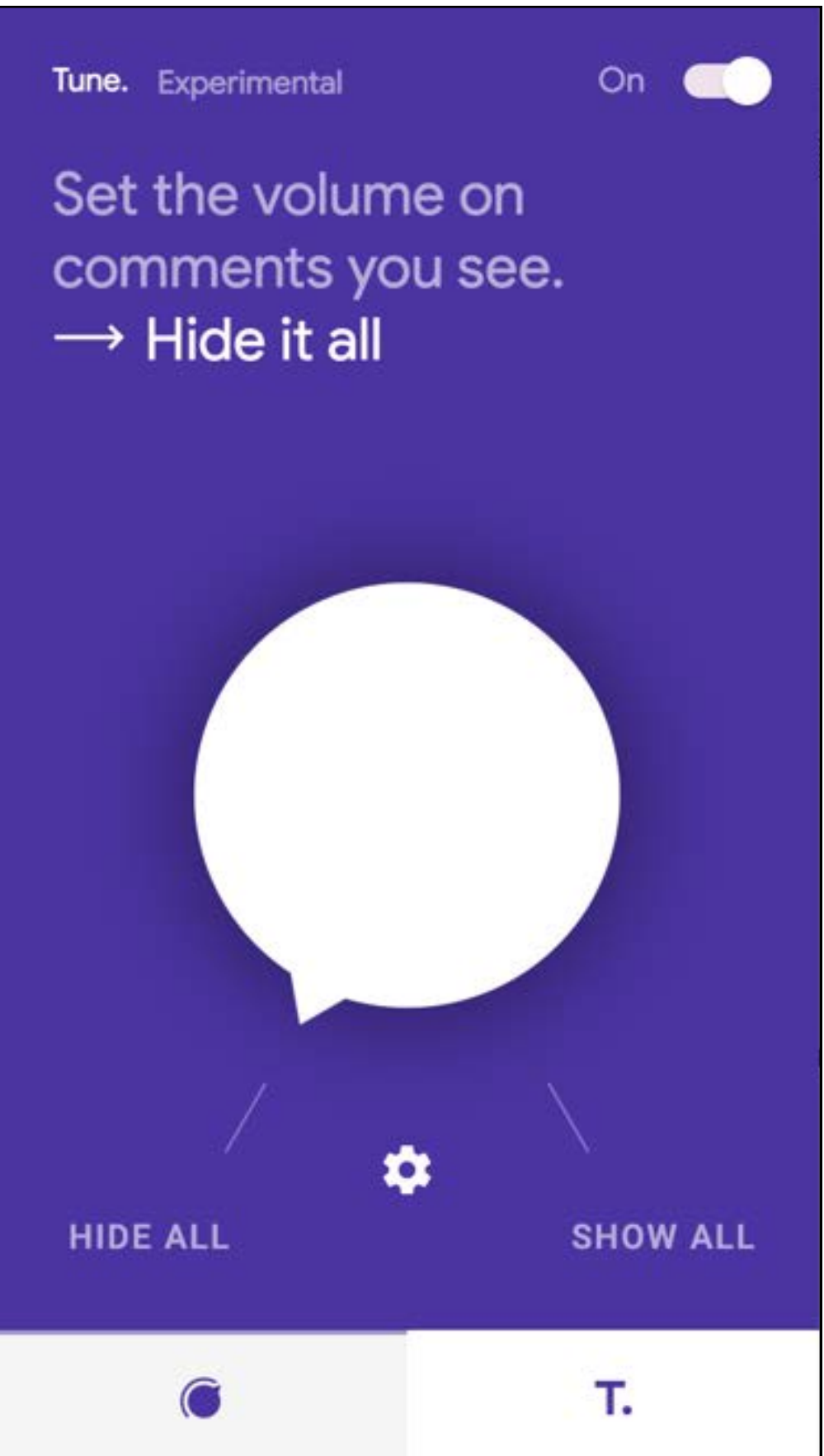
GOOGLE PHOTOS

Maintaining control



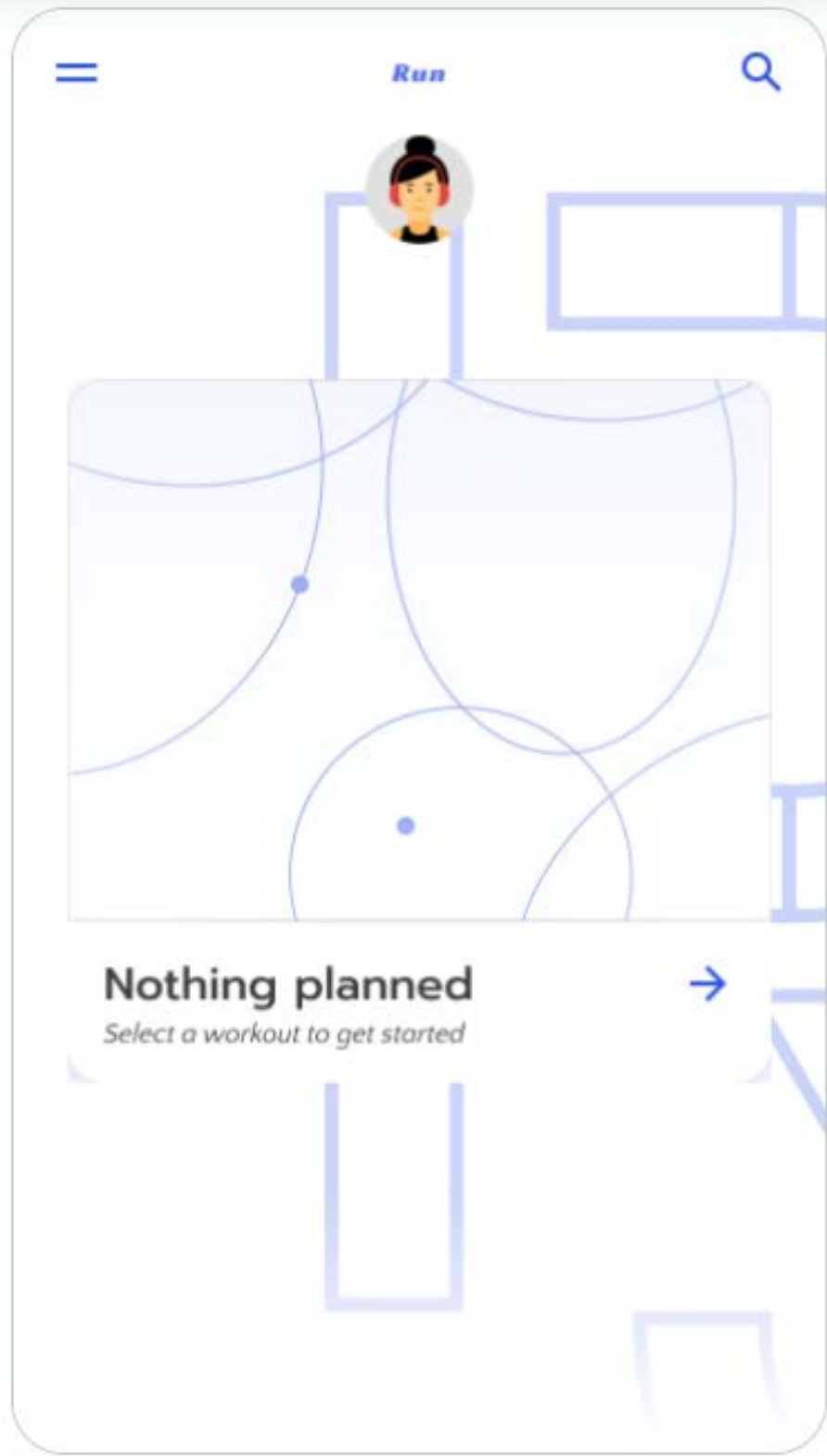
TUNE

Supervising automation



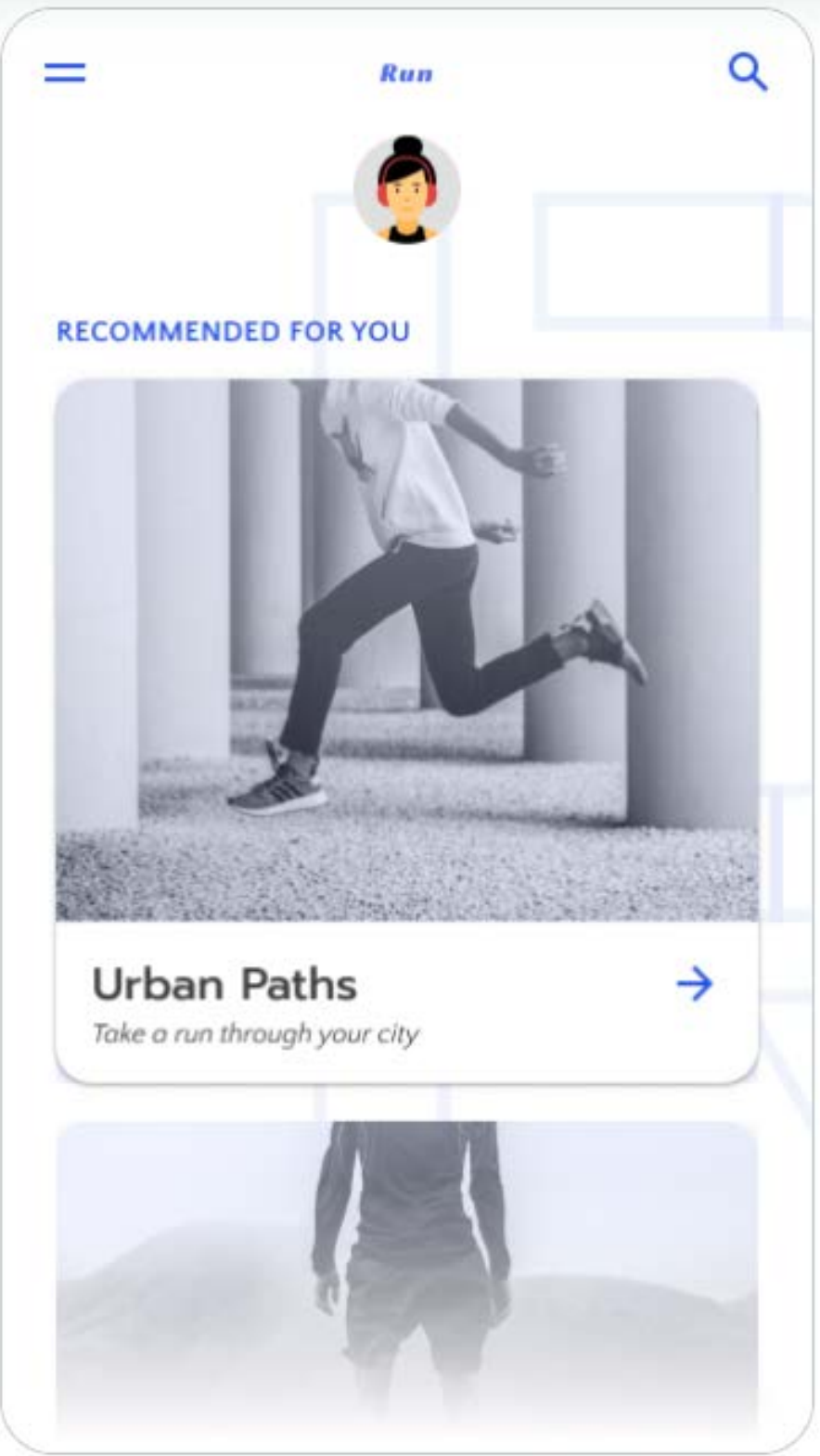
Automate in phases

Progressively increase automation under user guidance.



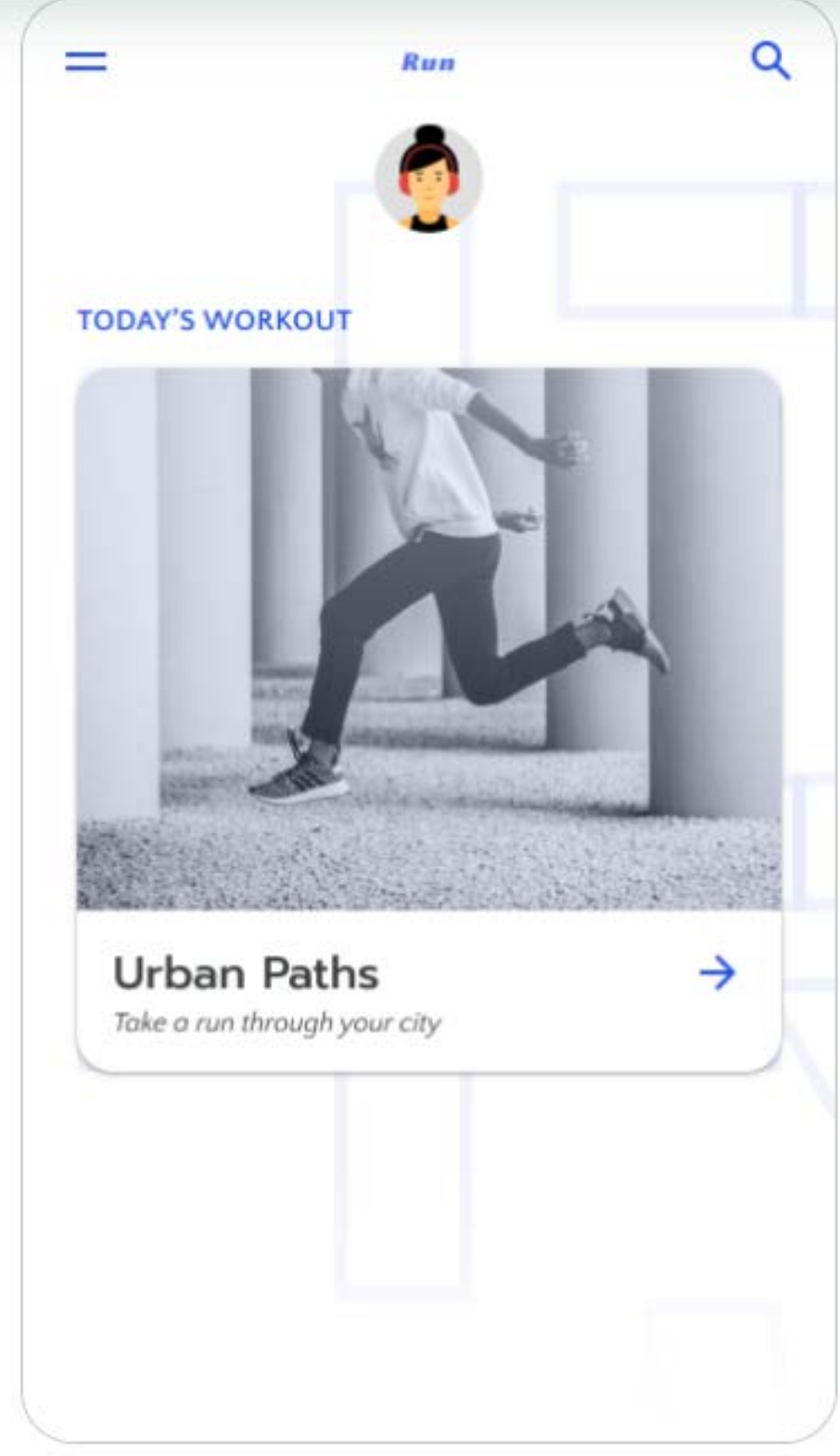
No automation

User is able to select from a number of options manually with no system intervention.



Partial automation

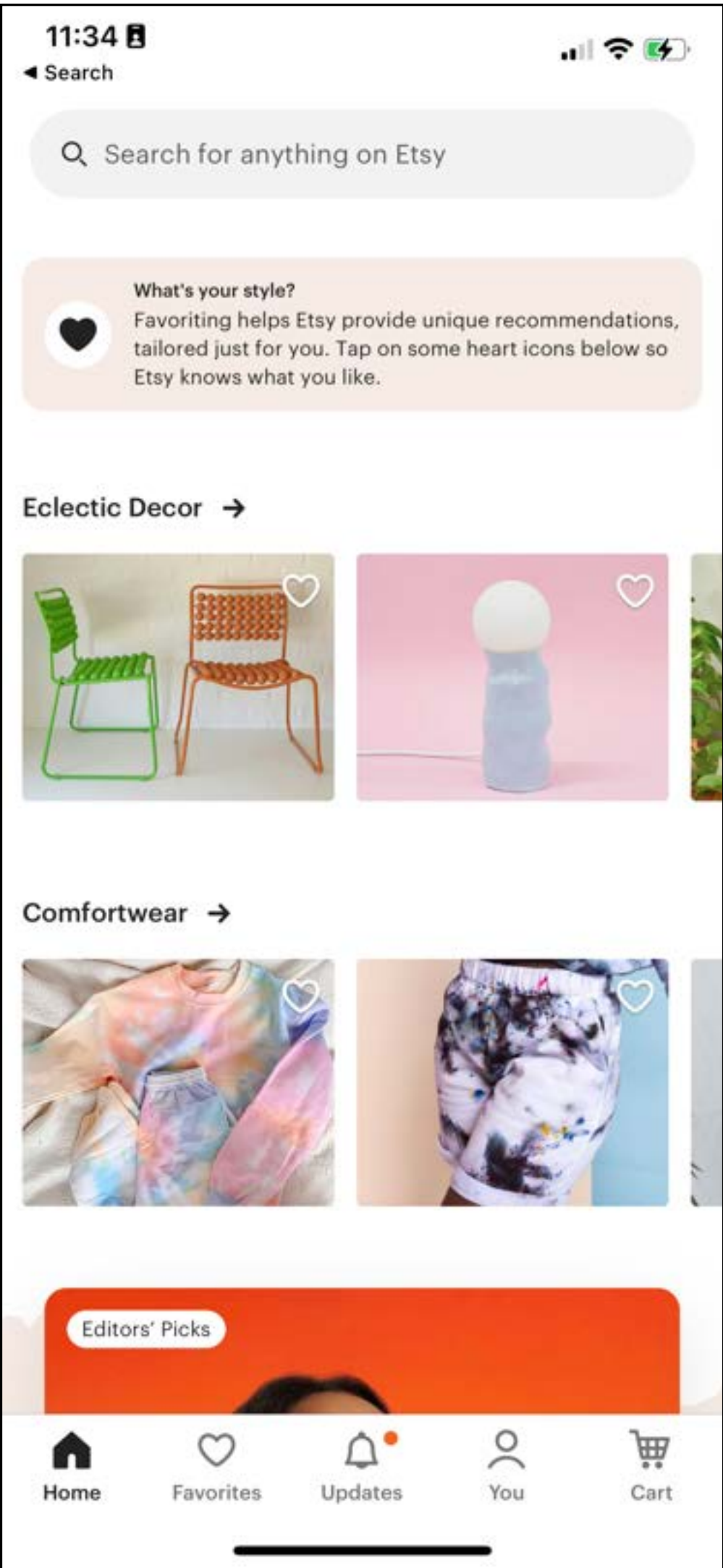
The system provides recommendations to the user and allows her to choose among them.



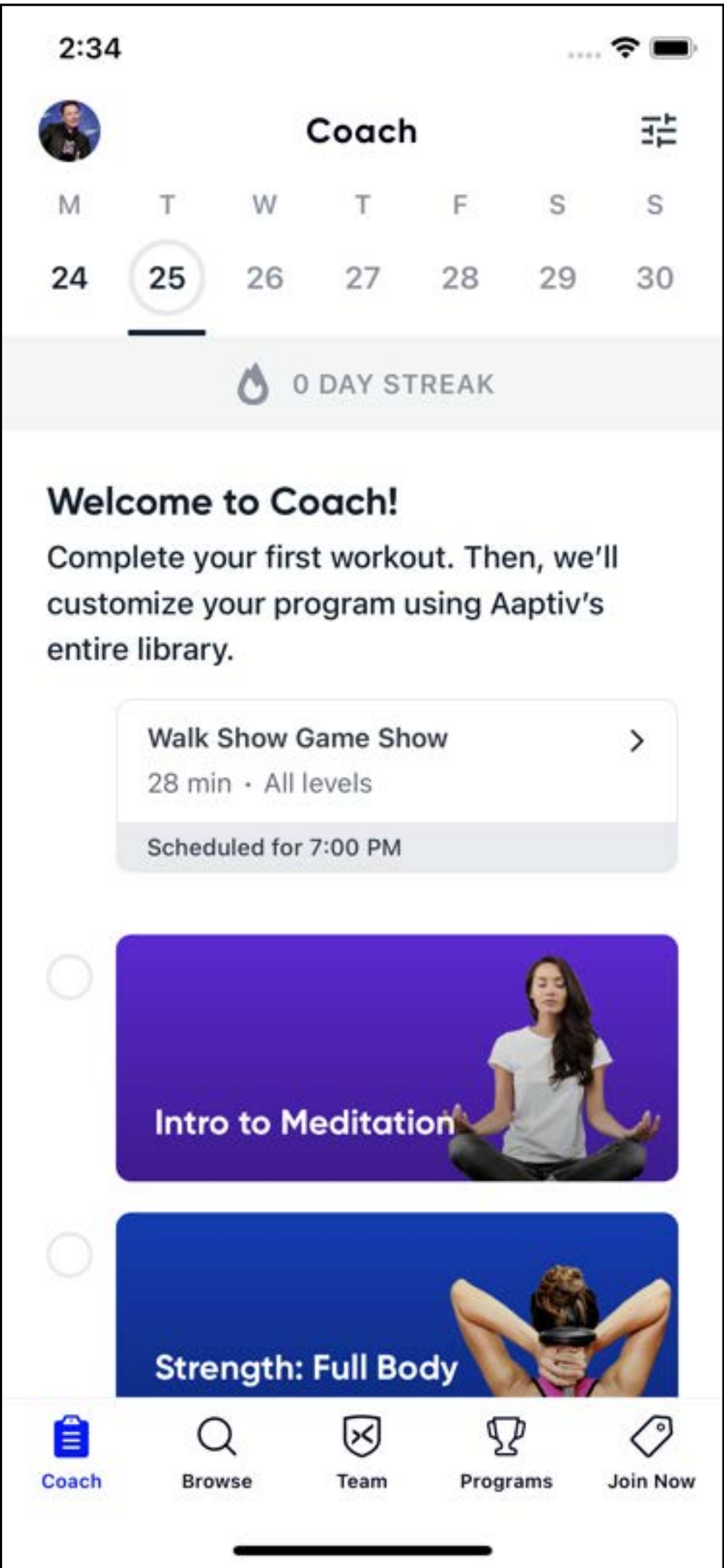
Full automation

The system makes decisions on behalf of the user in a fully autonomous way. Users should still have the ability to take control back as needed.

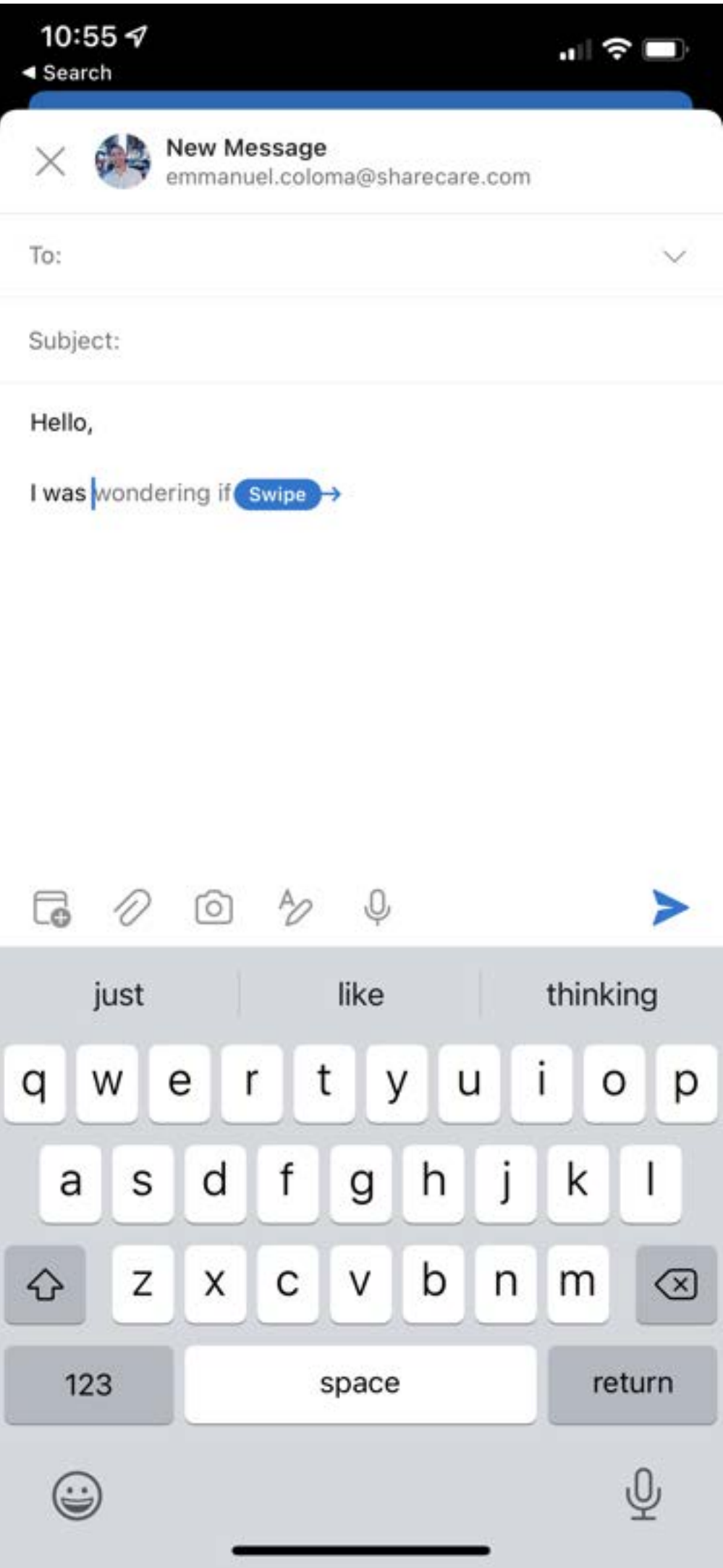
ETSY
Progressing automation



AAPTIV
Automating with user guidance

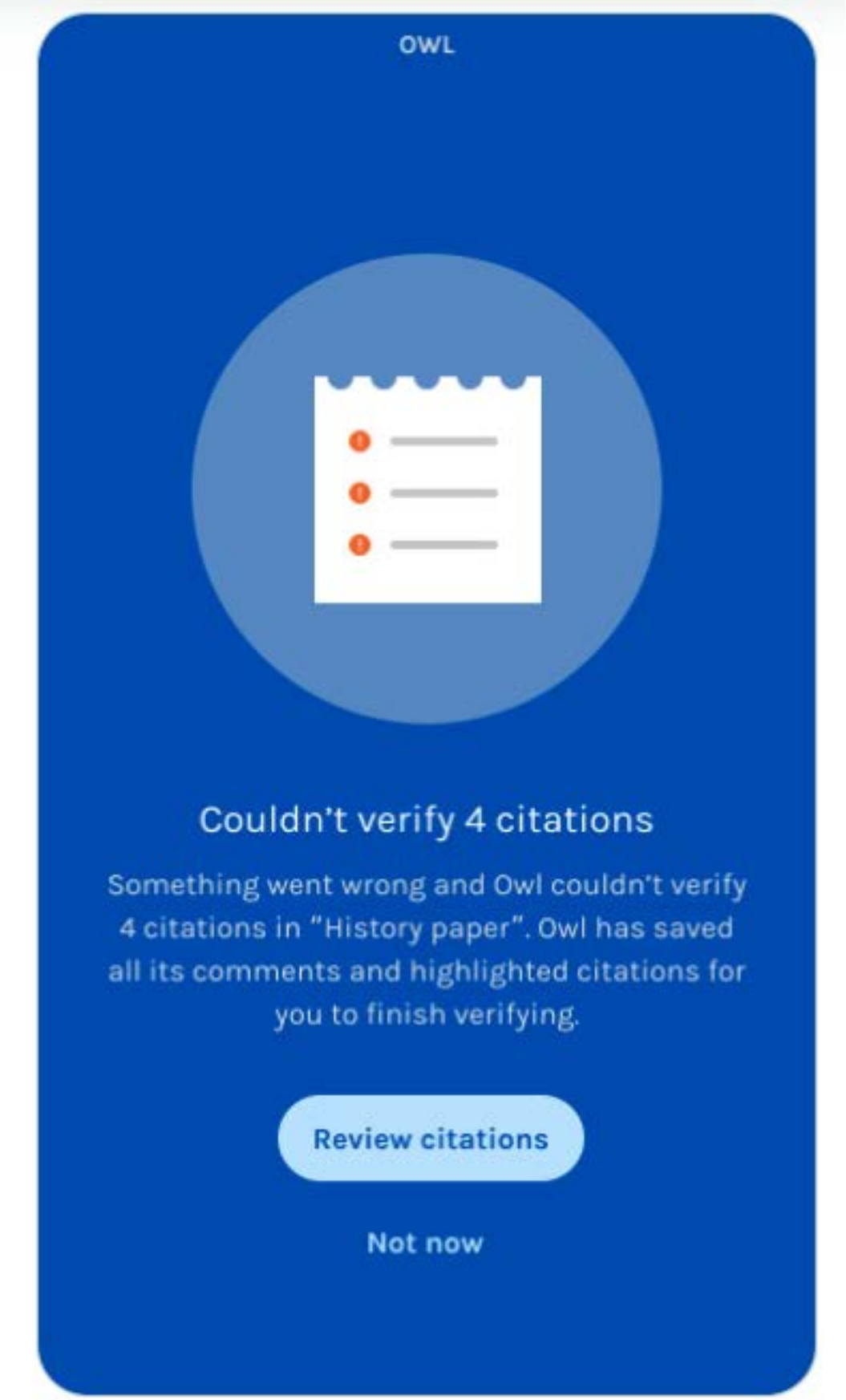


MICROSOFT OUTLOOK
Automating recommendations



Give control back to the user when automation fails

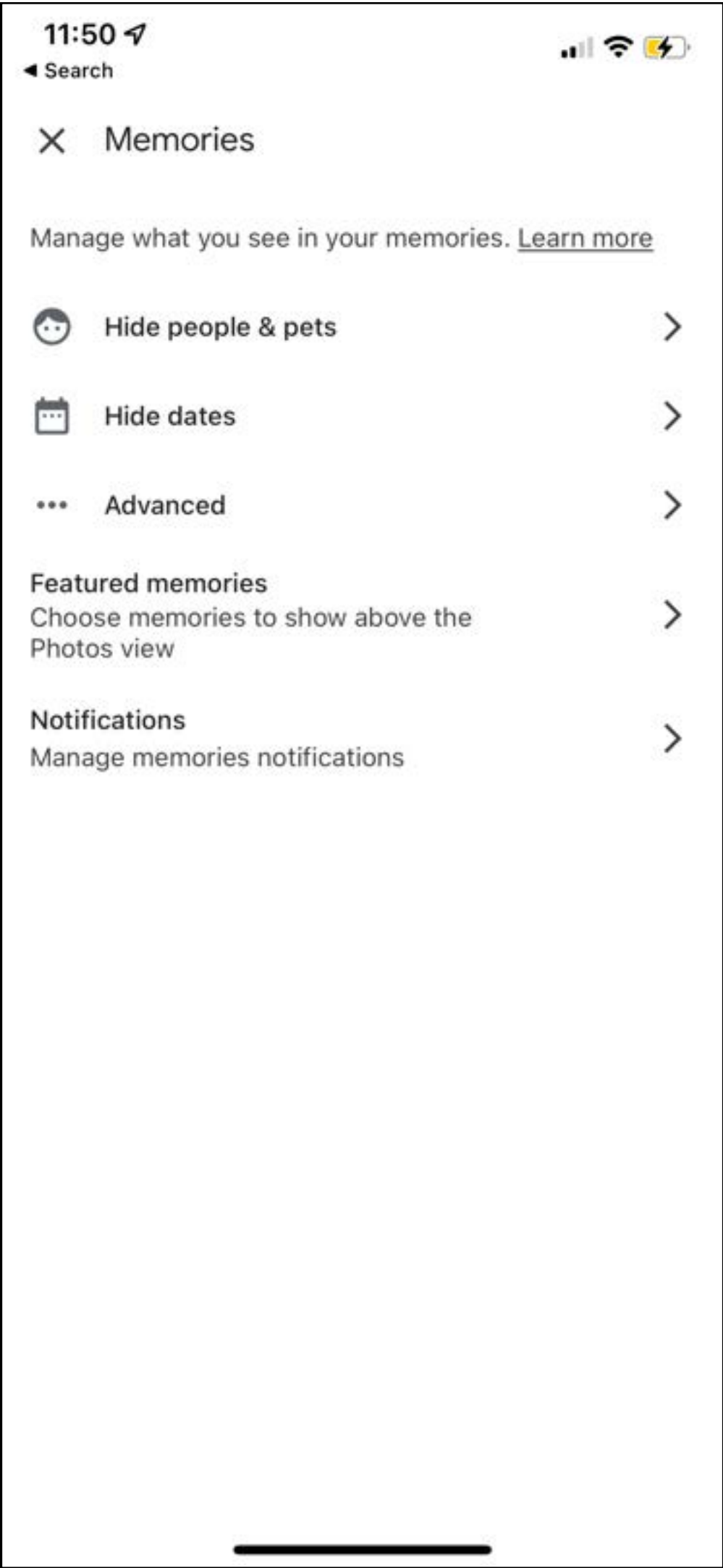
Give your users a way to move forward even when the system fails or offers poor quality output.



Aim for

Help users to take over when automation fails.

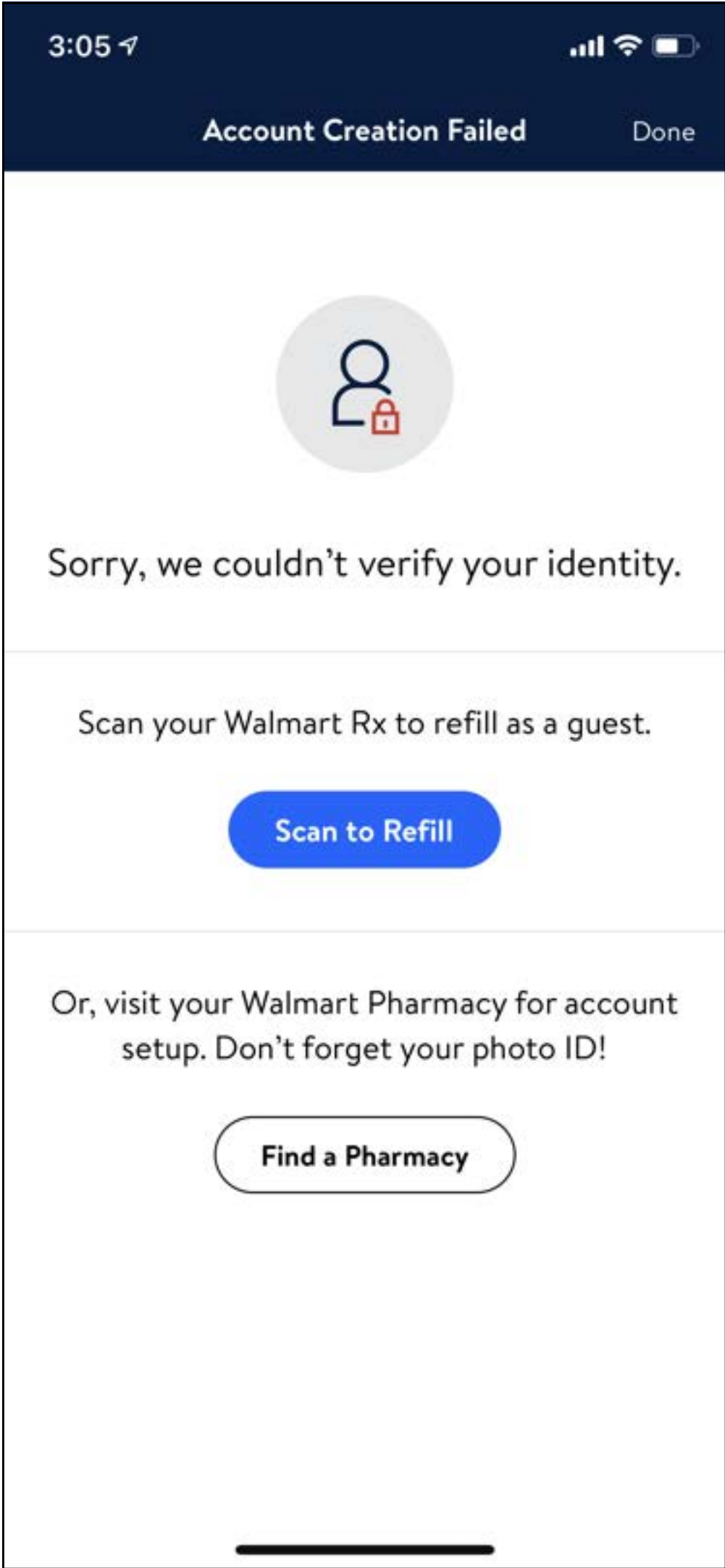
GOOGLE PHOTOS
Moving forward from failure



HOPPER
Taking action



WALMART
Redirecting users for support




Determine how to show model confidence, if at all

If you decide to show model confidence, make sure it's done in a way that's helpful to your users.

Plant pal

Sword plant

KNOLTANIUM



Most likely safe

Double check with an expert if you have kids, pets, or other concerns of accidental exposure

Learn more


Aim for

Show confidence in a way that is easier to interpret and understand when making a decision. Provide recourse for when the system is less than fully confident.

Plant pal

Sword plant

KNOLTANIUM

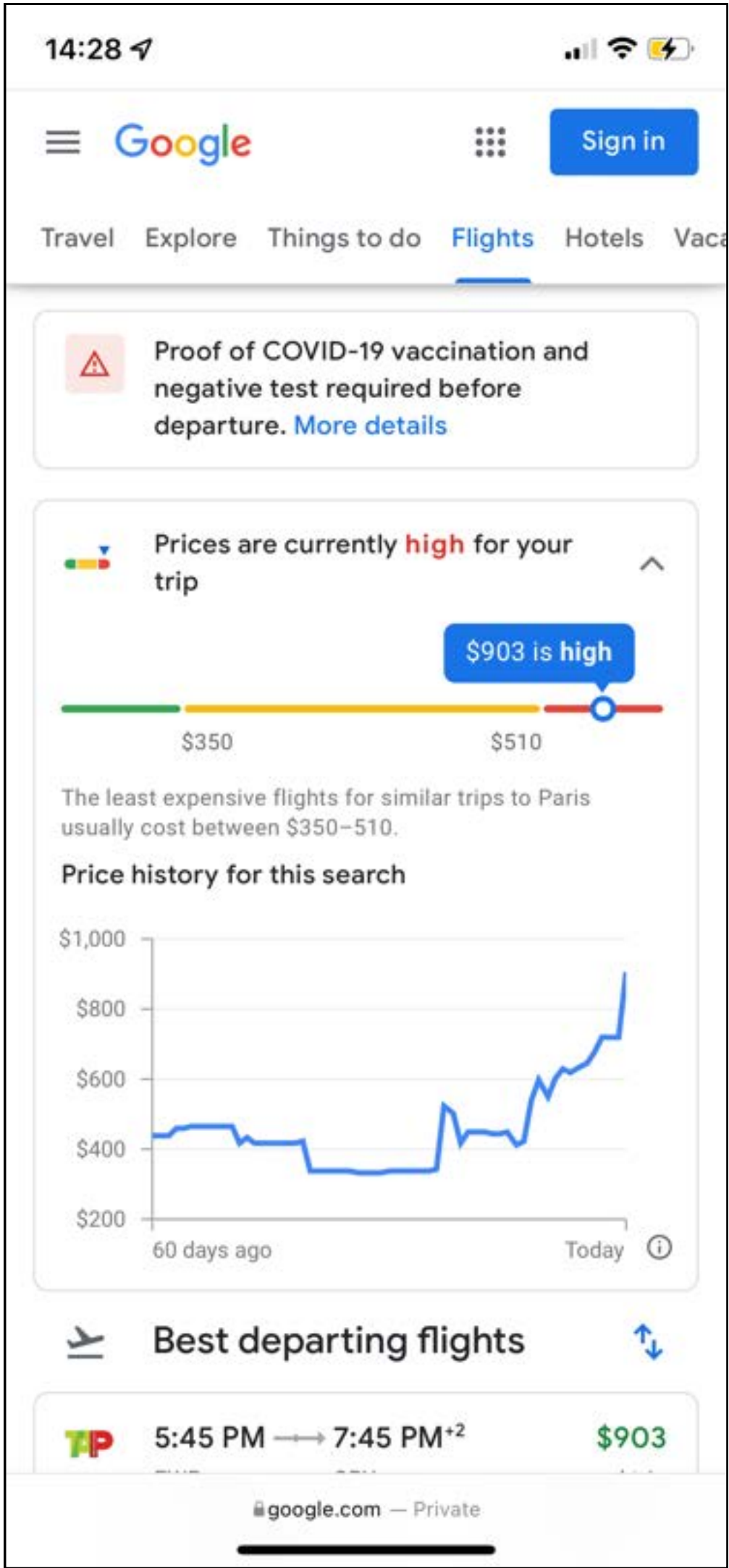


82% safe 🍌

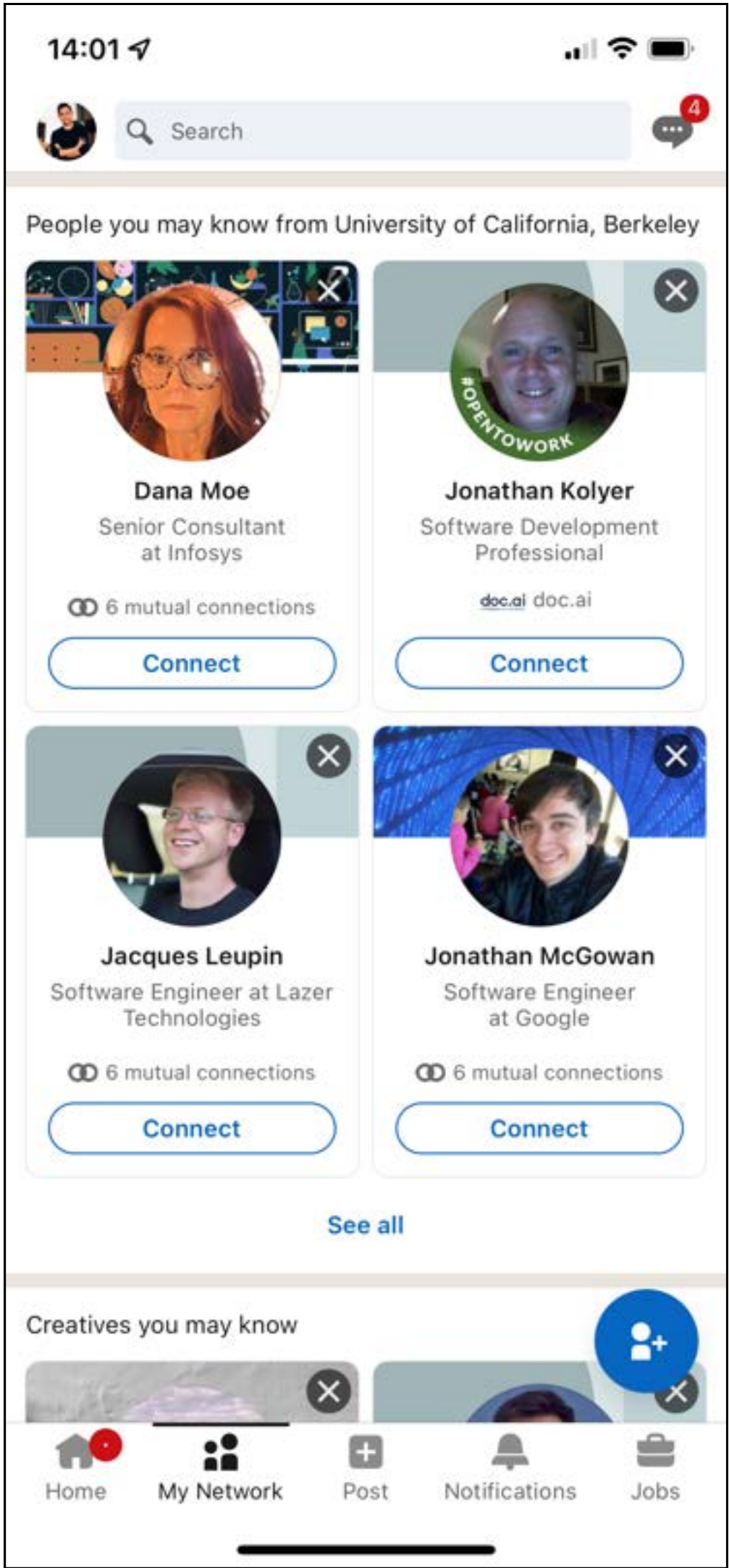
Avoid

Don't use numeric confidence in situations when it's difficult to interpret. Consider how the percentage compares to other similar items. Also consider the alternative: In this case, there's an 18% likelihood the plant is dangerous.

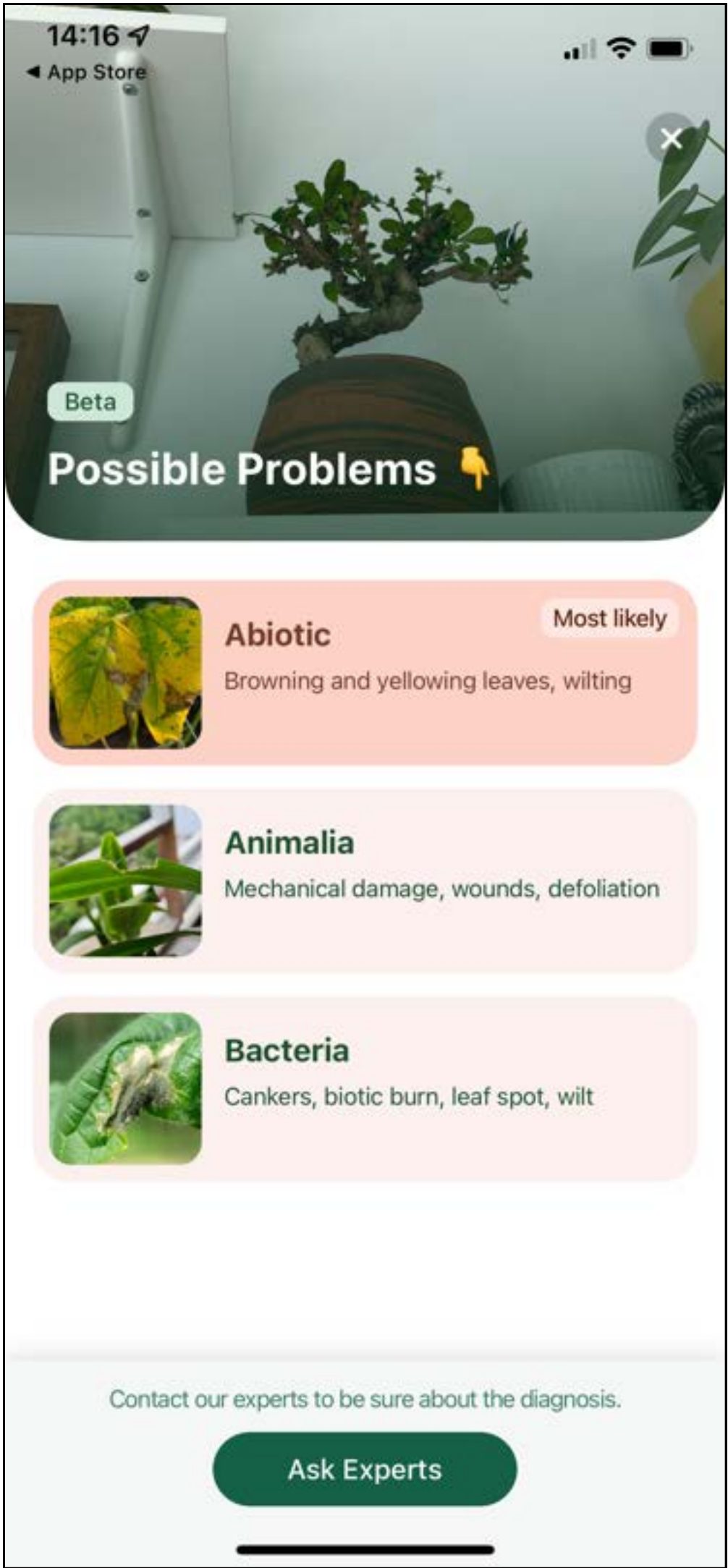
GOOGLE FLIGHTS
Showing helpful confidence



LINKEDIN
Interpreting helpful decisions

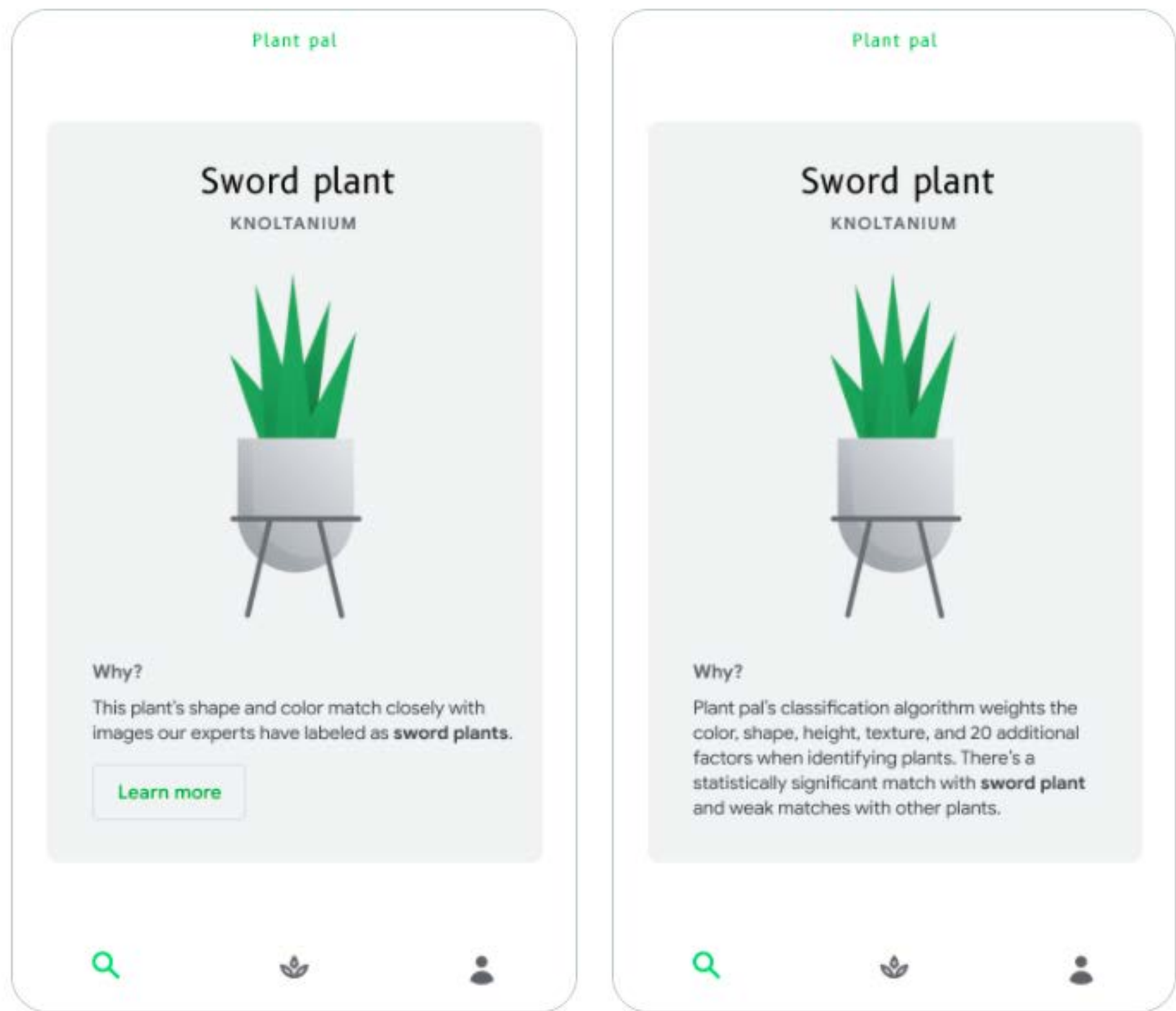


NATURE ID
Providing recourse



Explain for understanding, not completeness

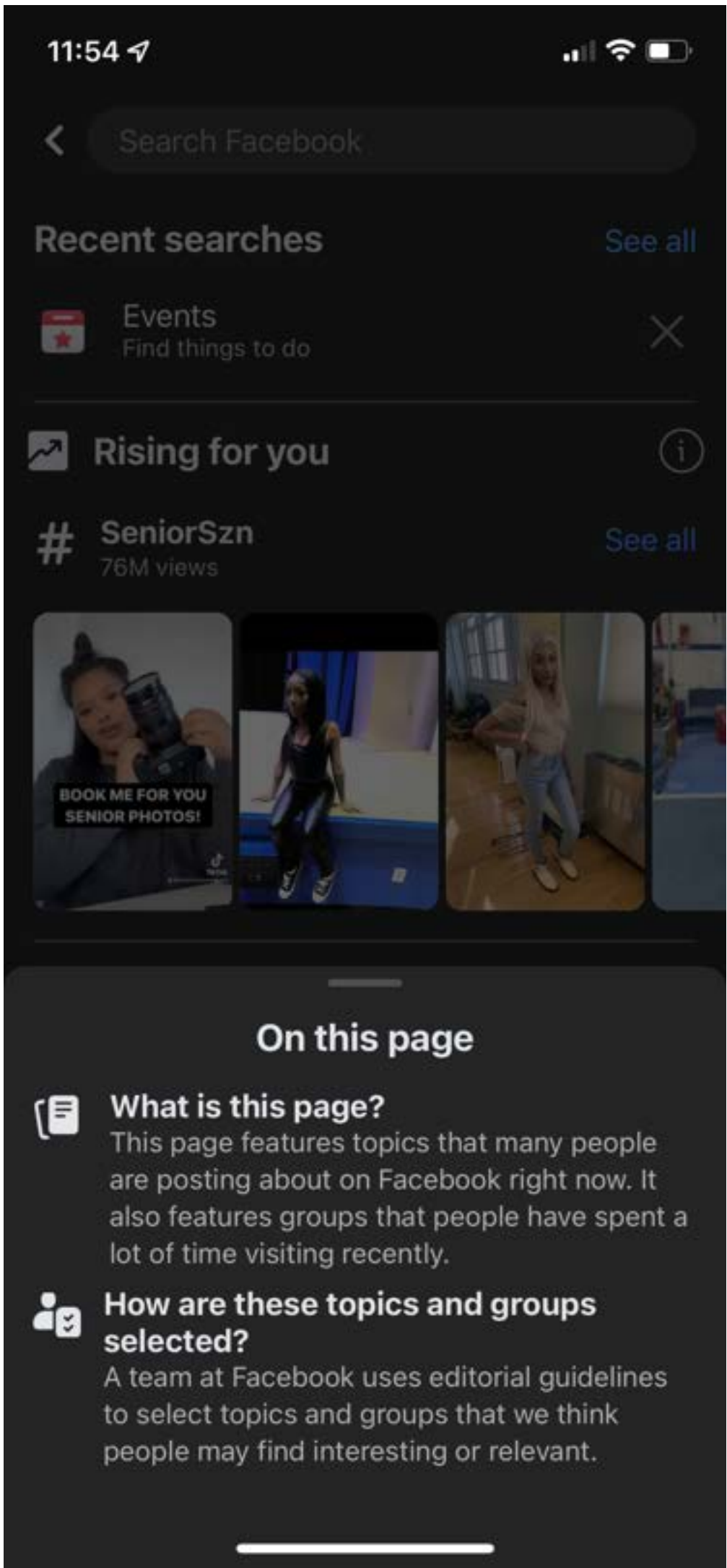
Focus on giving your users the information they need in the moment, rather than a full run-down of your system.



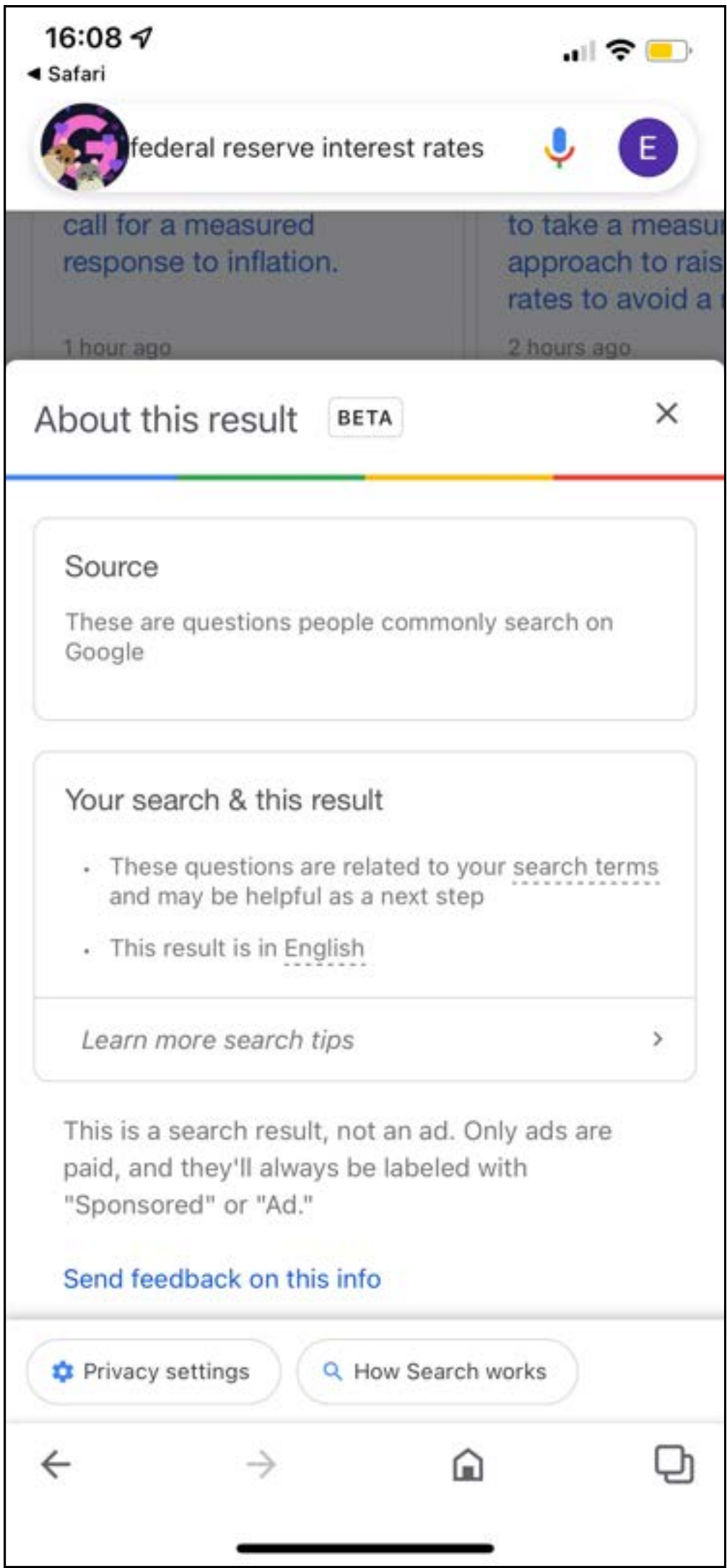
Aim for
Expose aspects that impact user trust and decision-making.

Avoid
Don't try to explain the entire system, especially when the rationale is complex or unknown.

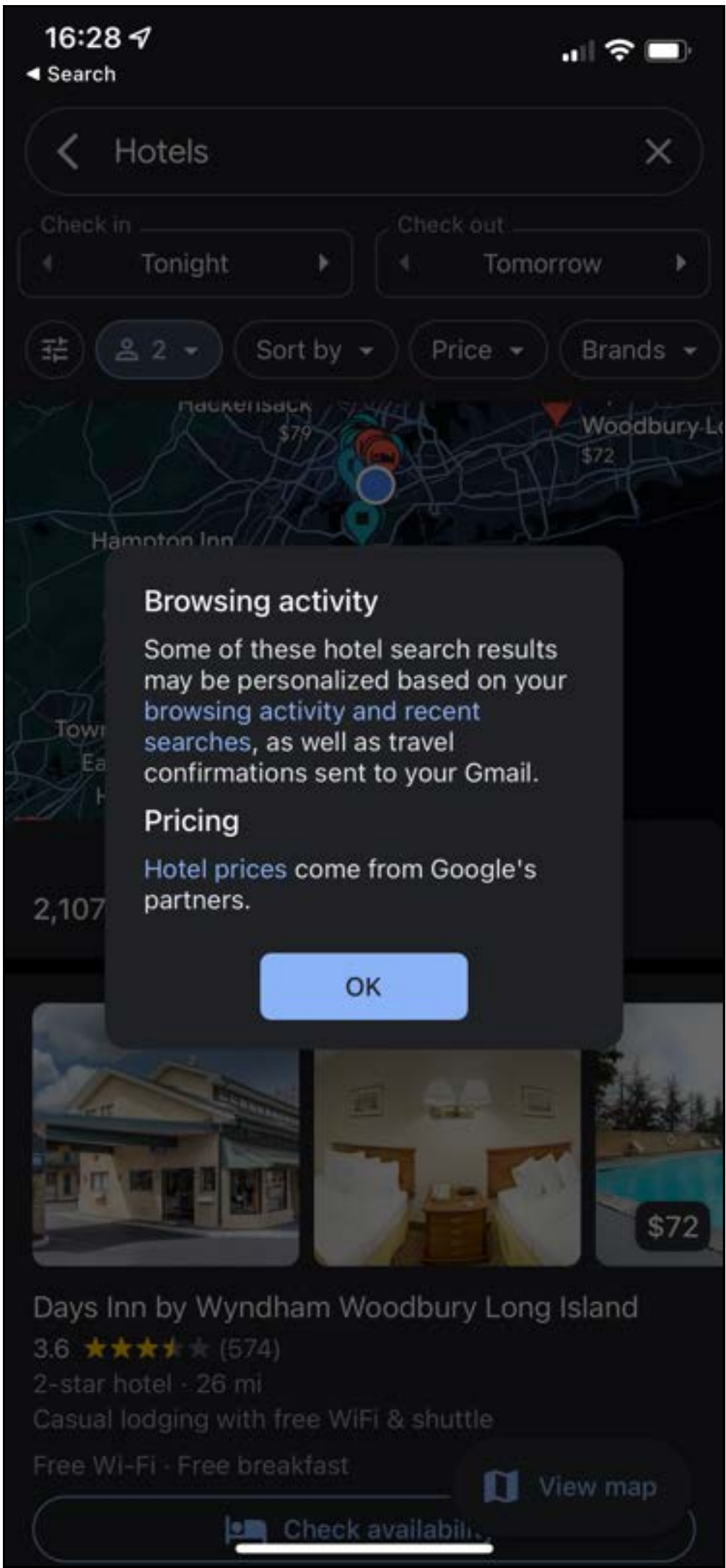
FACEBOOK
Including partial explanations



GOOGLE
Focusing on in the moment info

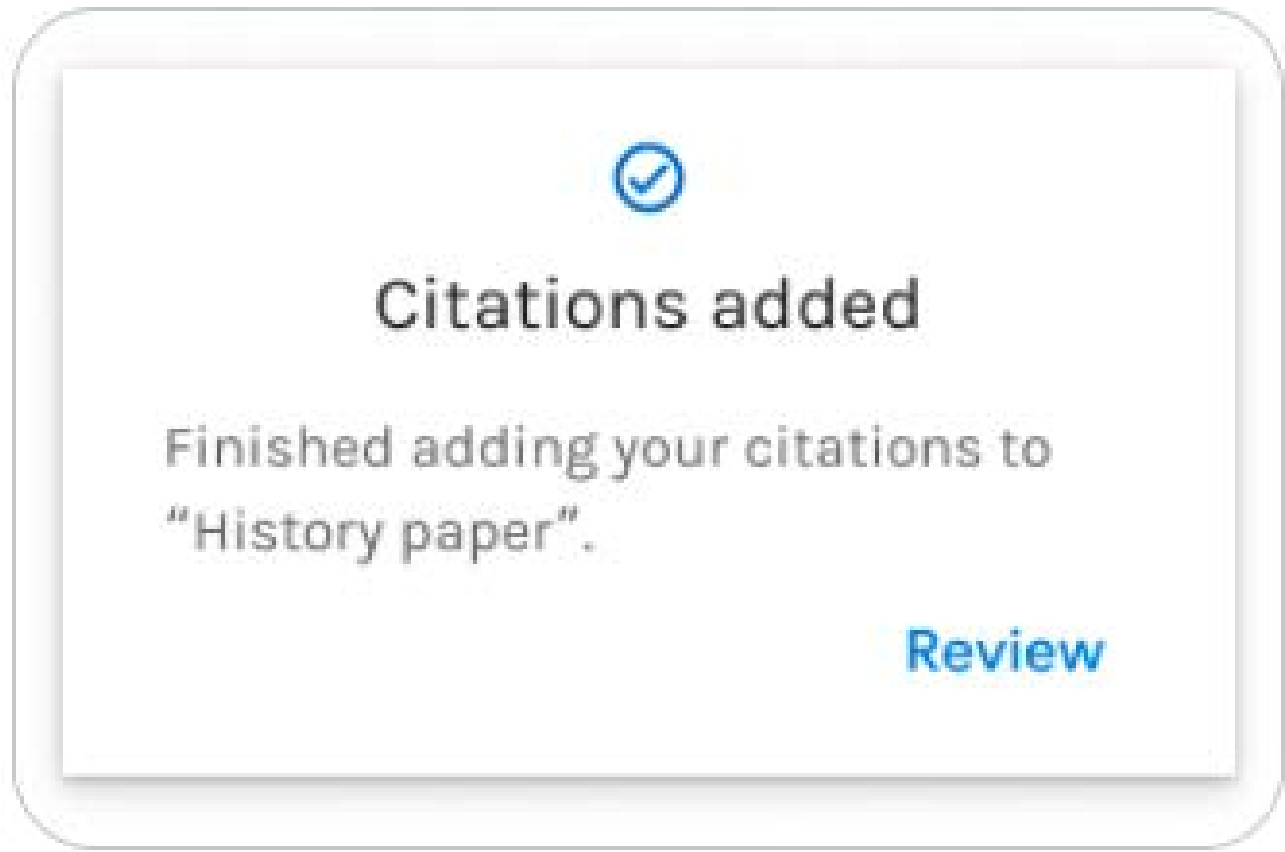


GOOGLE MAPS
Explaining for understanding

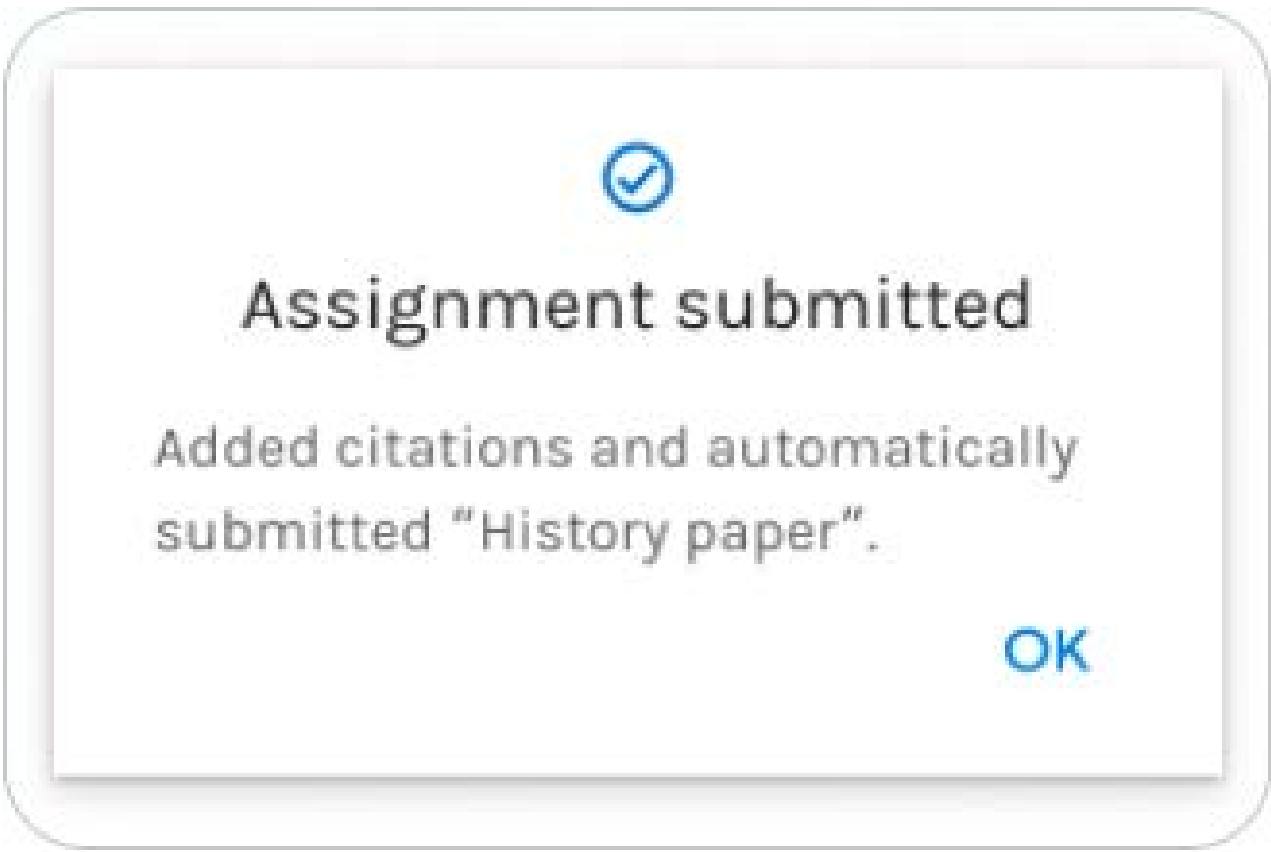


Automate more when risk is low

Consider user trust and the stakes of the situation when determining how much to automate.

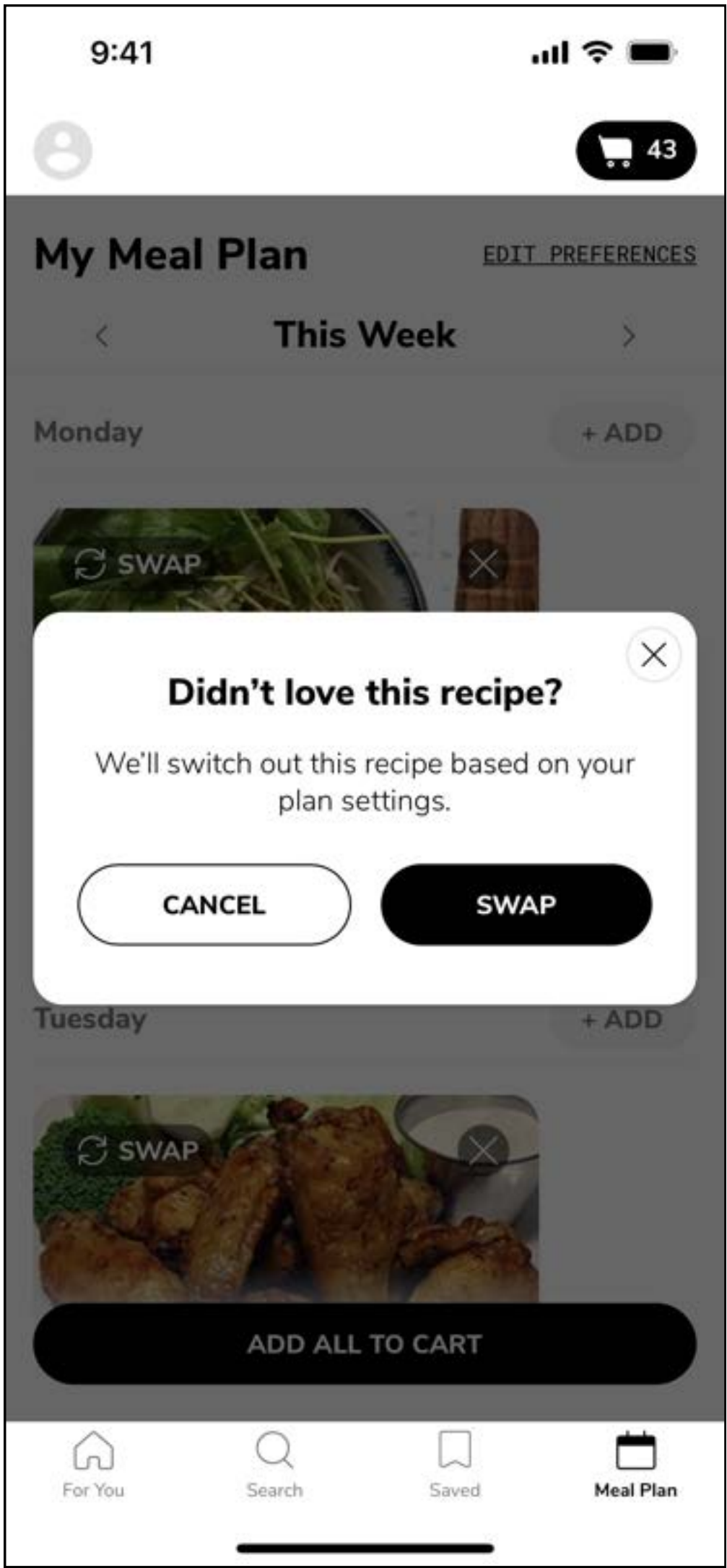


Aim for
Be more proactive with automation when failure tolerance is higher.

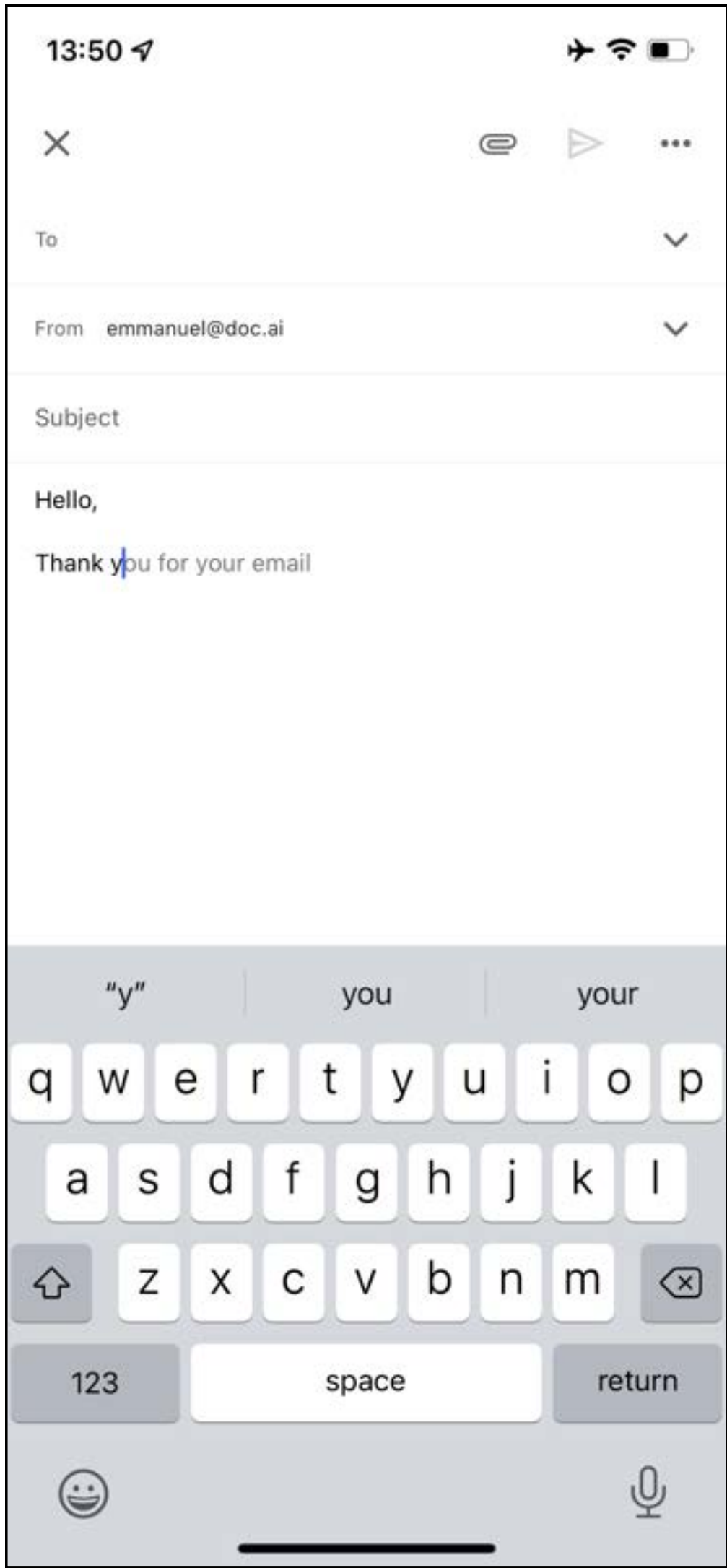


Avoid
Avoid automating without user control in high-stakes situations.

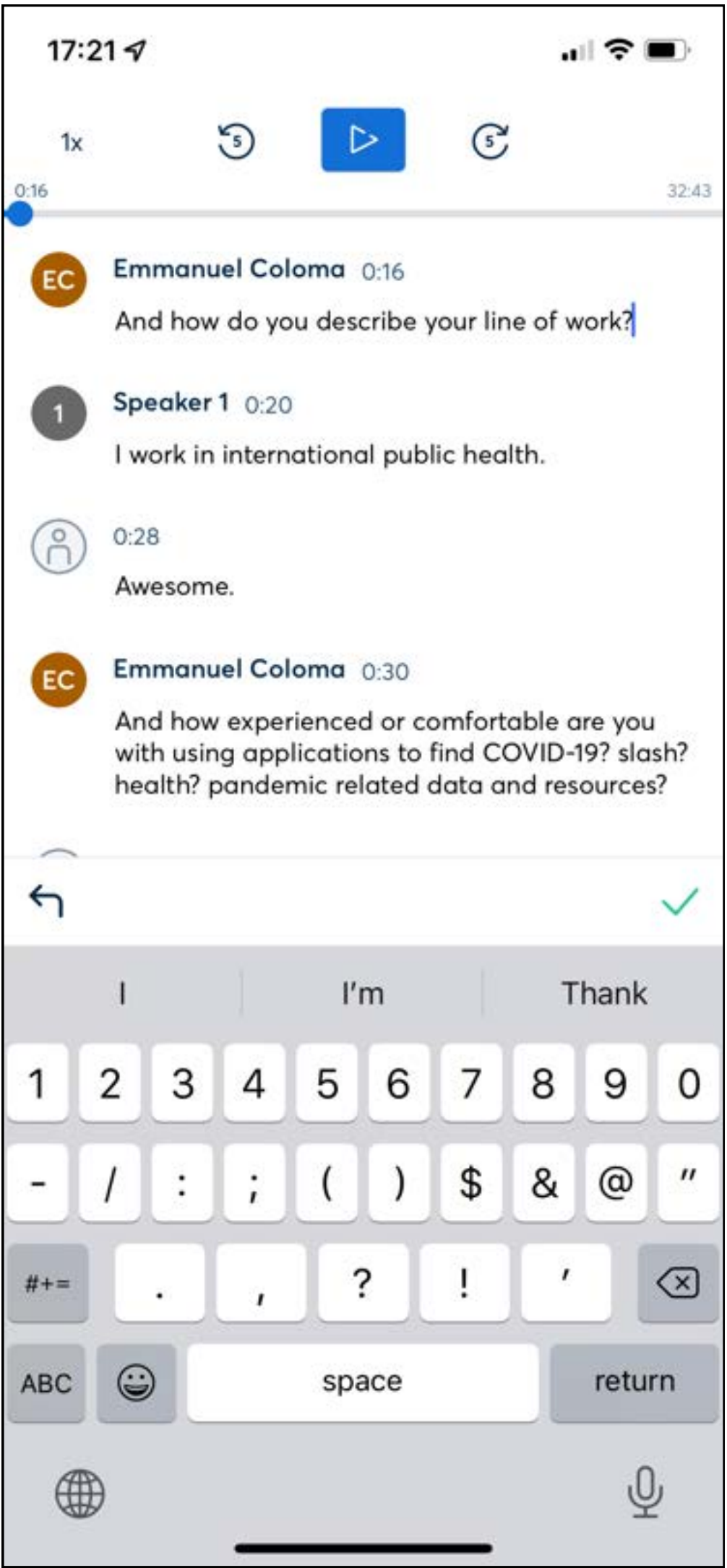
SIDECHEF
Automating when risk is low



GMAIL
Controlling is optional

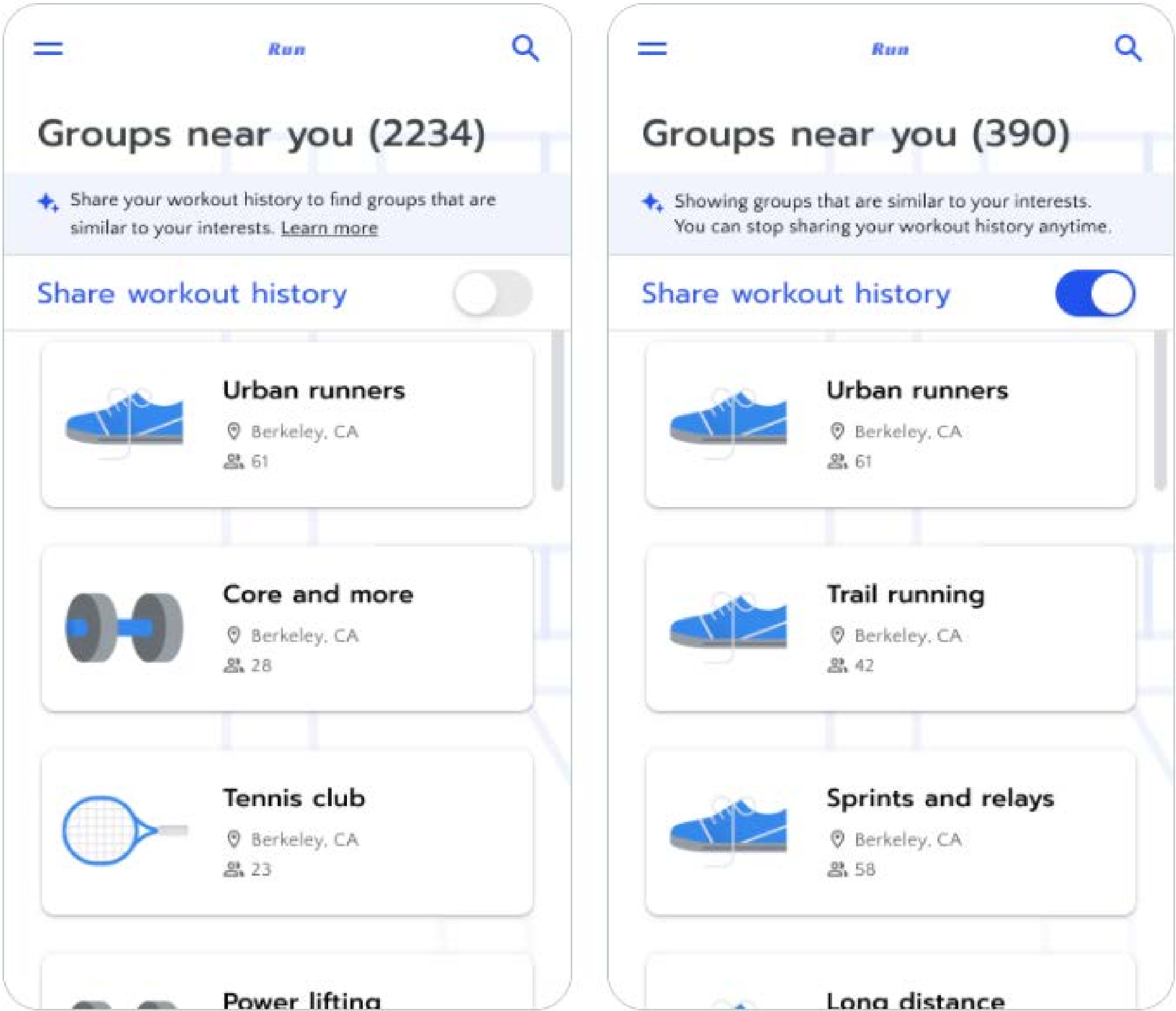


OTTER
Automating product flow



Make it safe to explore

Let users test drive the system with easily reversible actions.



Before

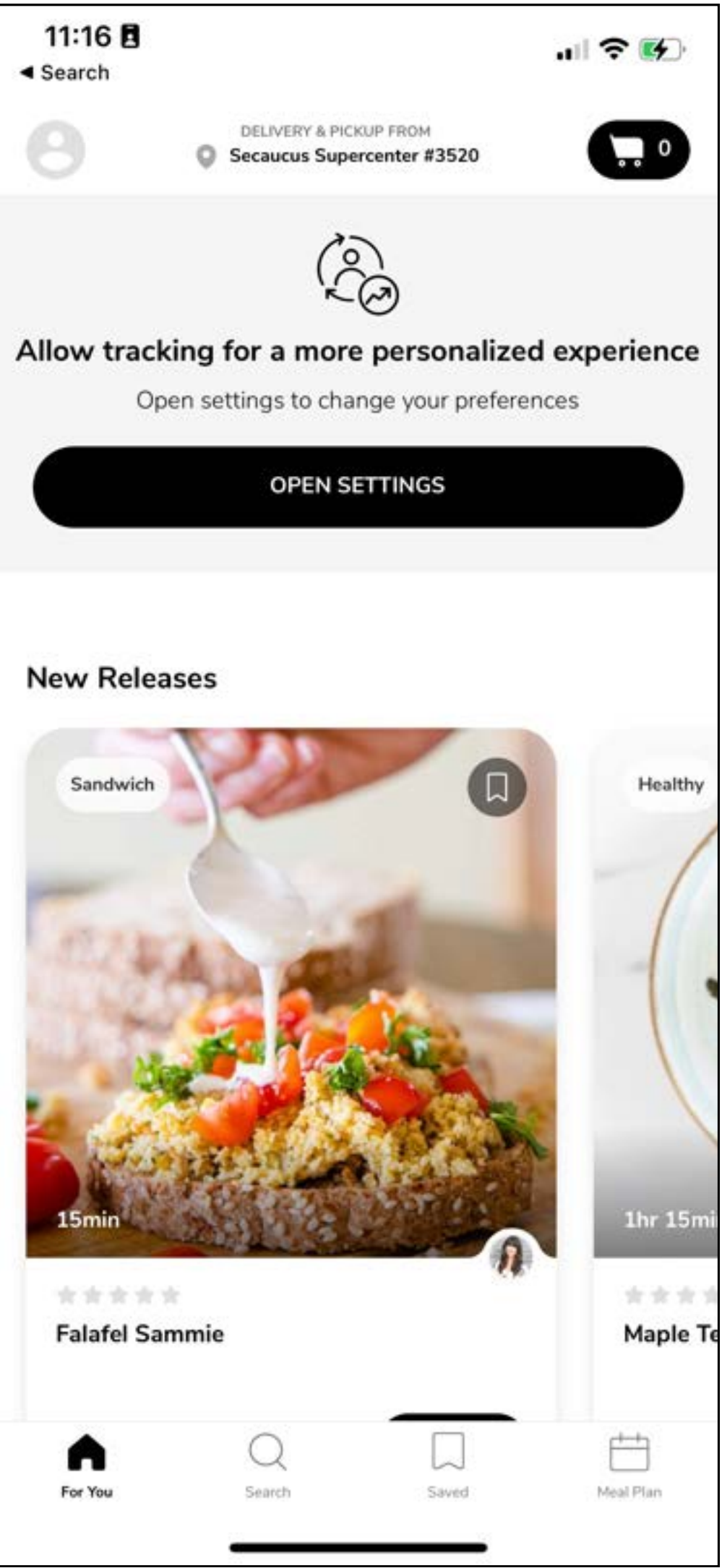
Users can see the quality of recommendations without sharing their workout history.

After

Users see how the recommendations change with shared history. This allows them to make an informed choice on whether to share data.

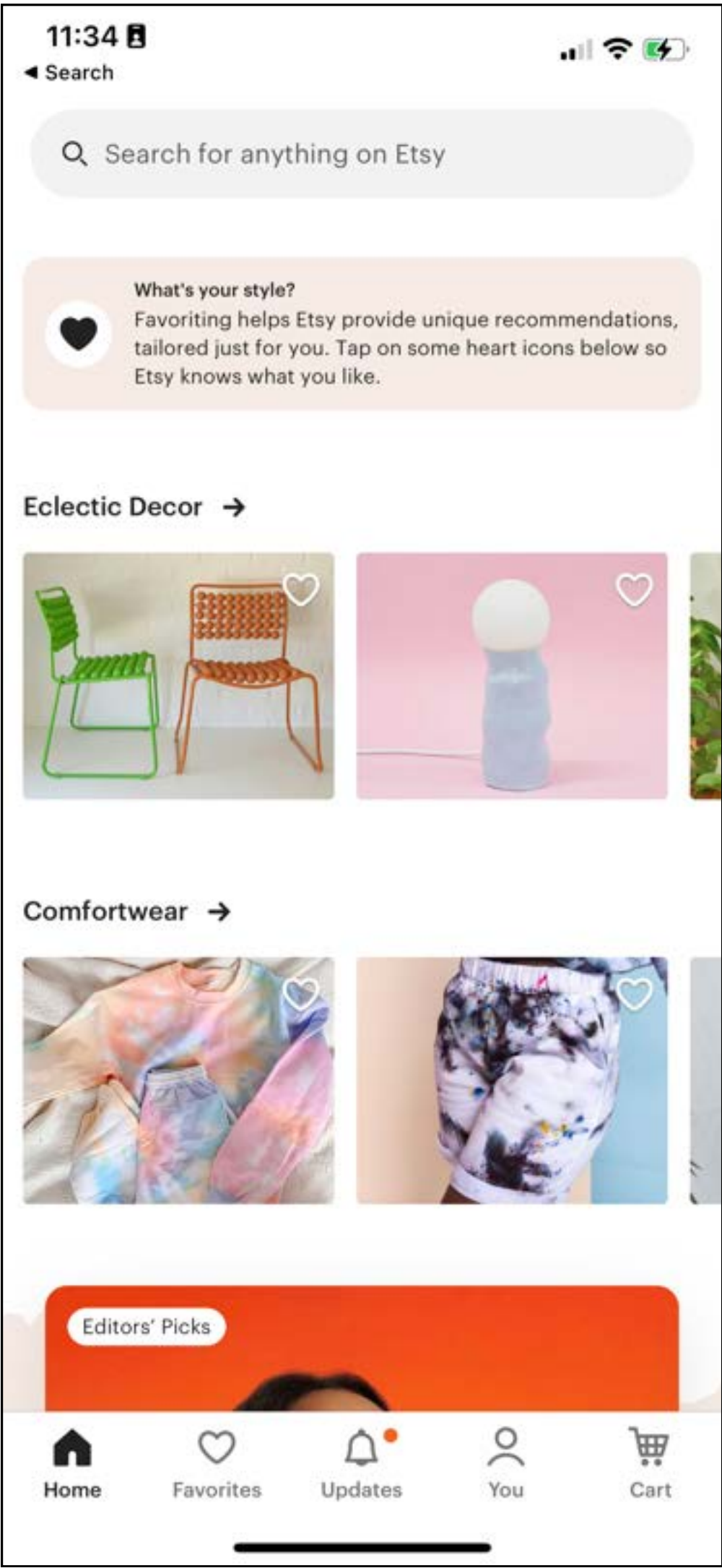
SIDECHEF

Opportunity to test



ETSY

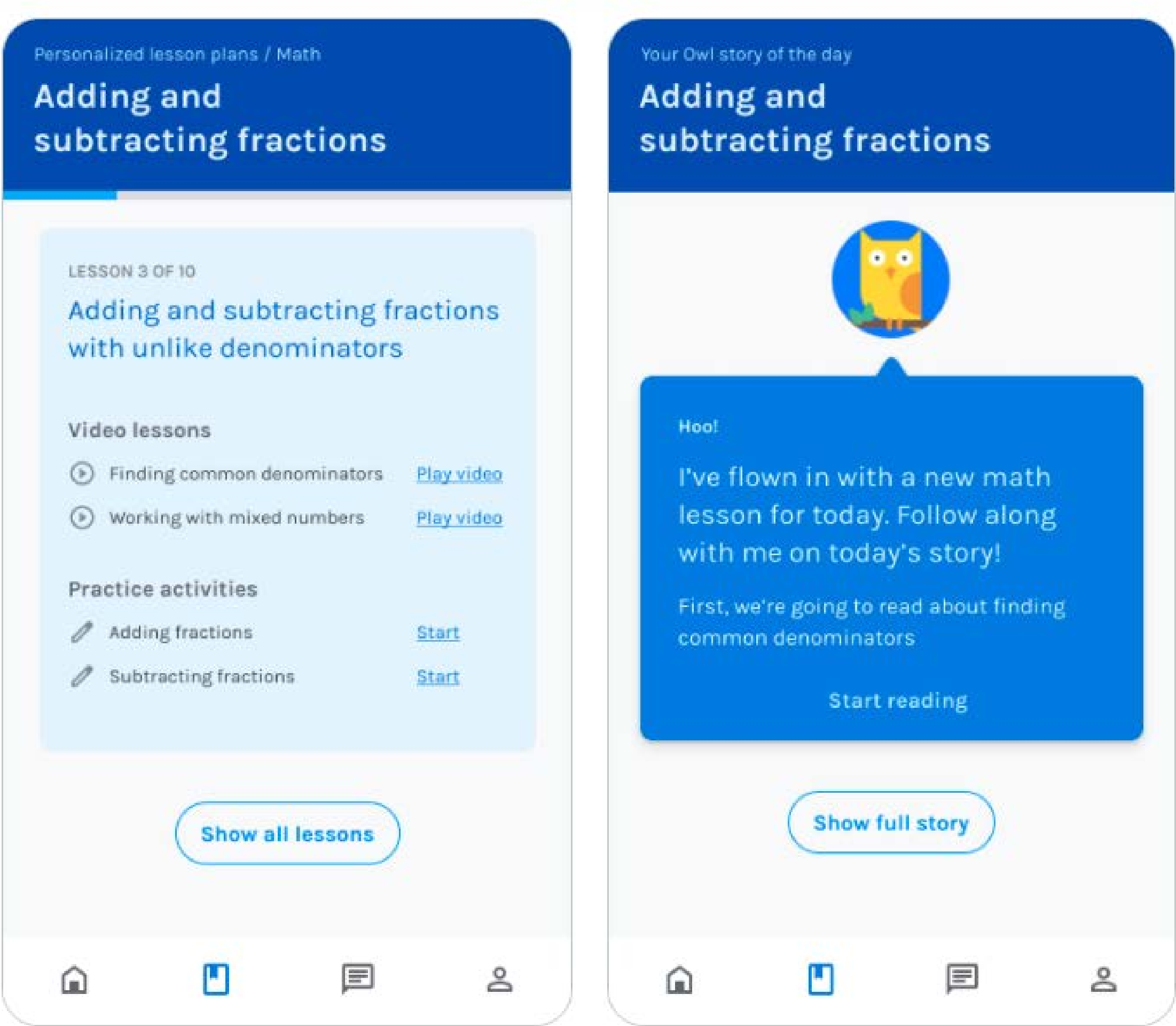
Experimenting with experience



This will help new users who are eager to get started, or who don't have time to fully consider and configure their preferences before diving in. It will also support users who are wary of sharing this information before they fully understand what the system offers in return. User preferences and context are always changing. Giving piecemeal undo options allows them to manipulate preferences recommendations without needing to fully reset.

Anchor on familiarity

As you onboard users to a new AI-driven product or feature, guide them with familiar touchpoints



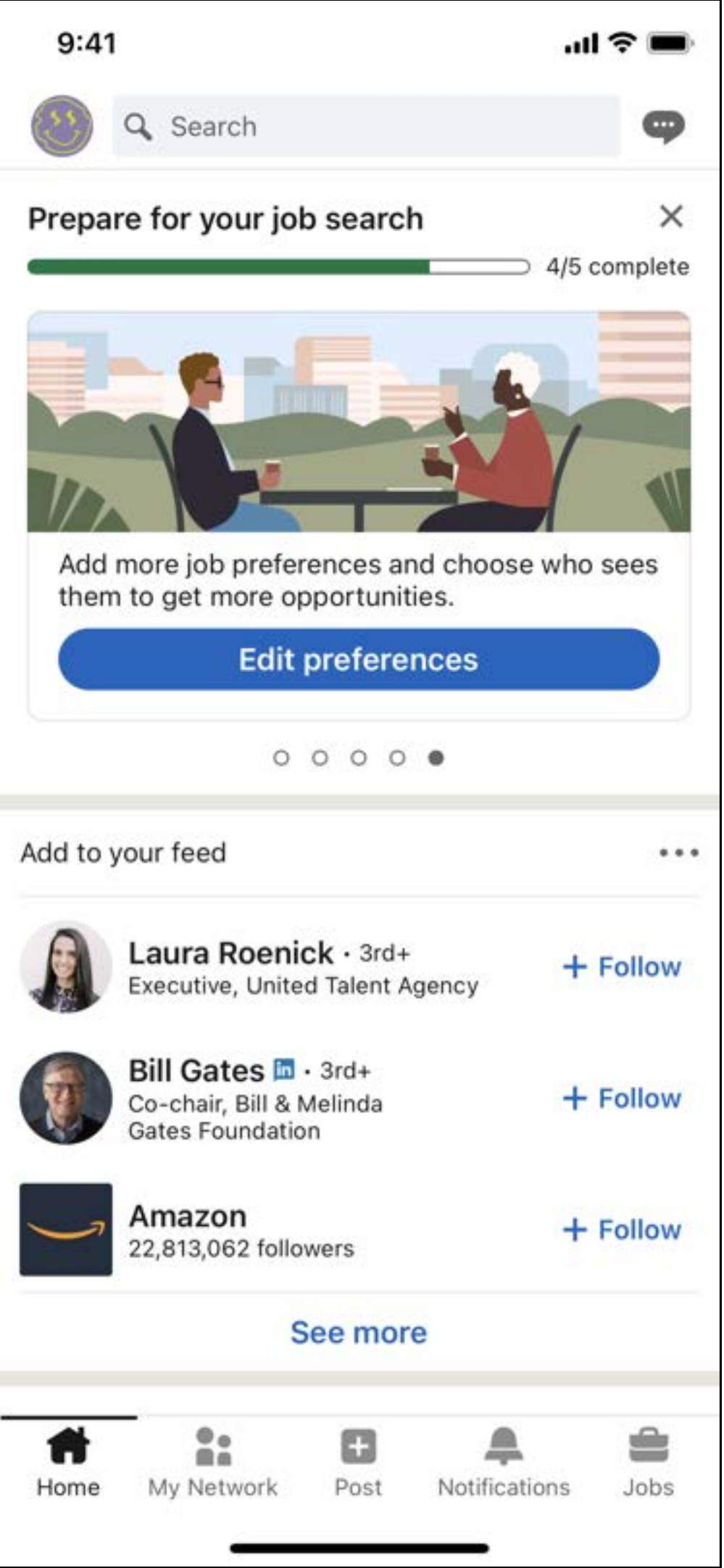
Aim for

Use familiar concepts from your product's domain to help users set expectations and feel comfortable with the material.

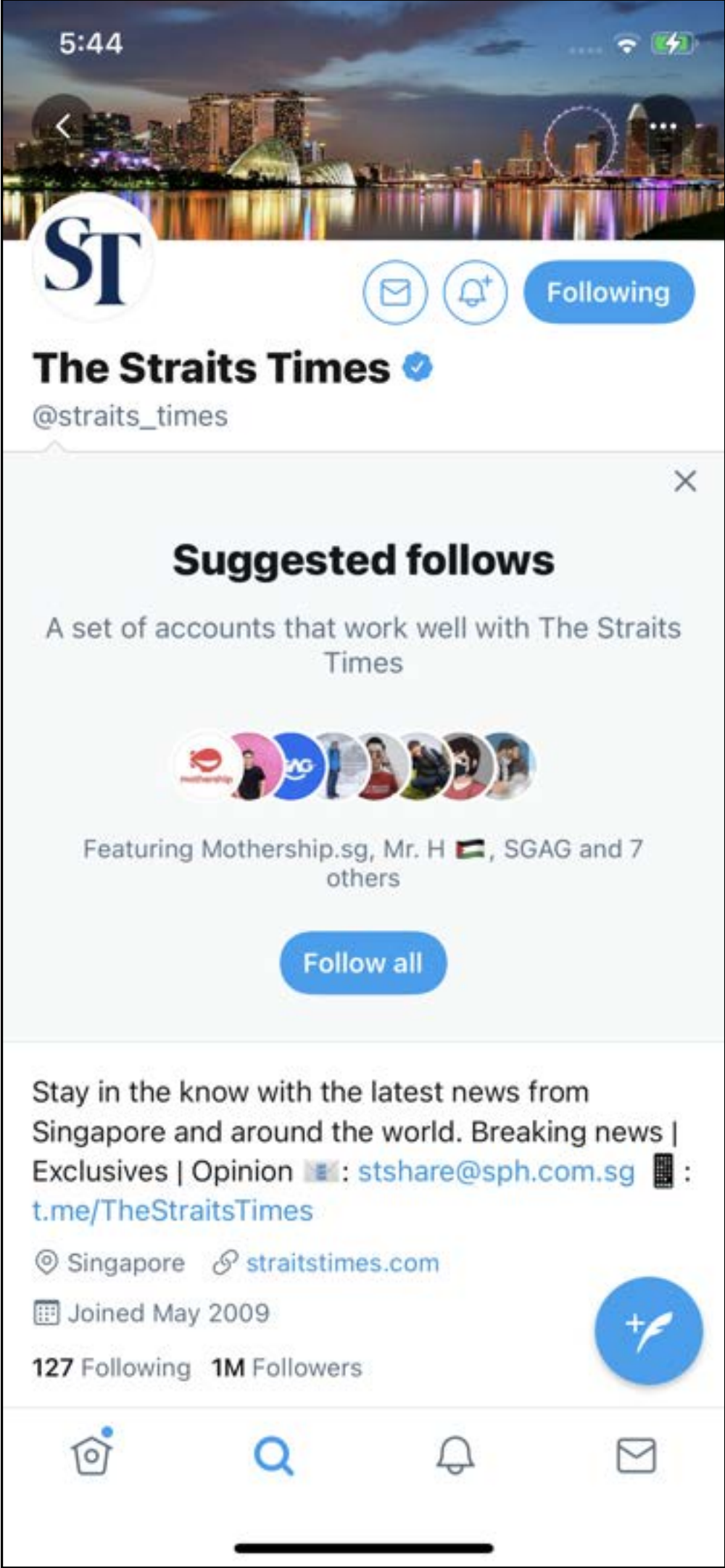
Avoid

Avoid using clever and novel solutions just for the sake of it when a familiar solution will be more effective.

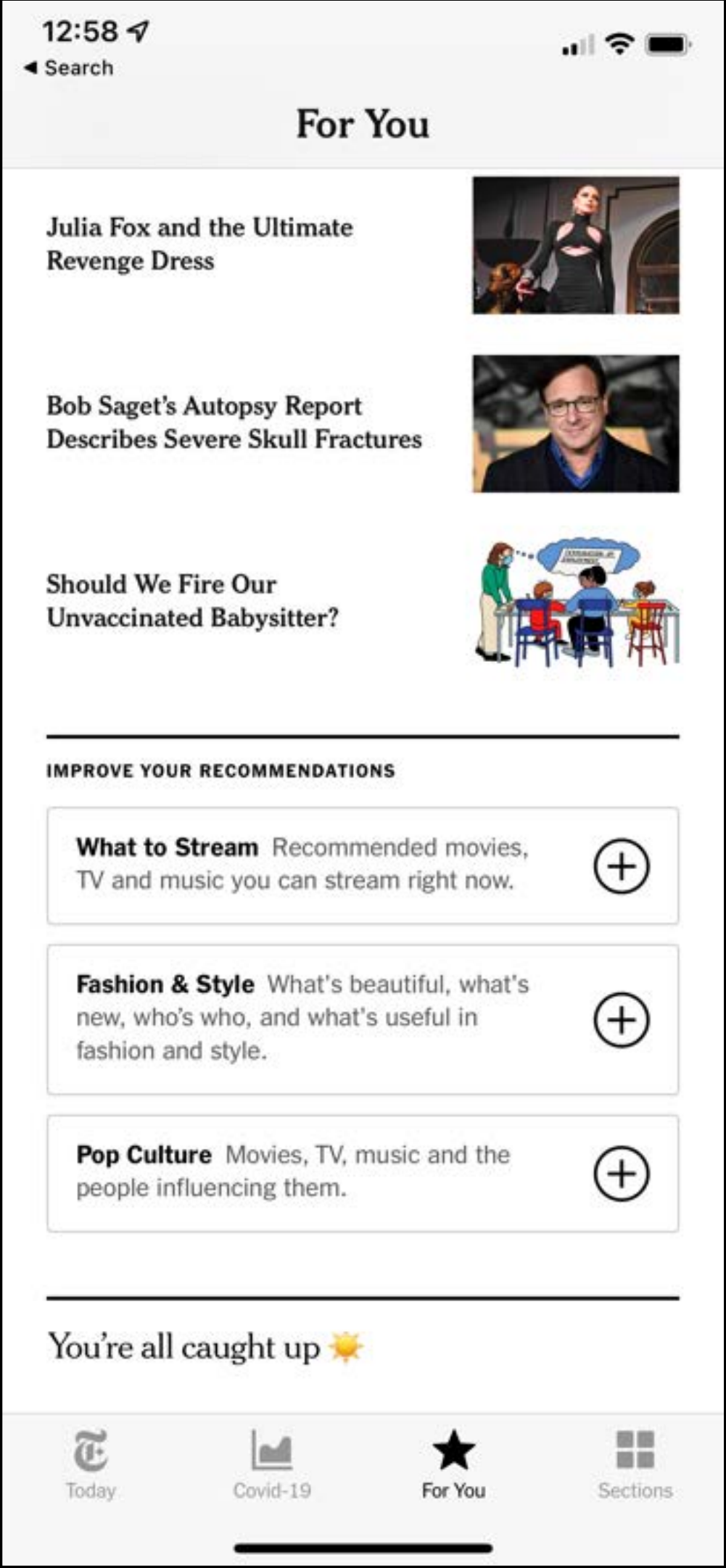
LINKEDIN
Using familiar UI touchpoints



TWITTER
Calibrating trust in system

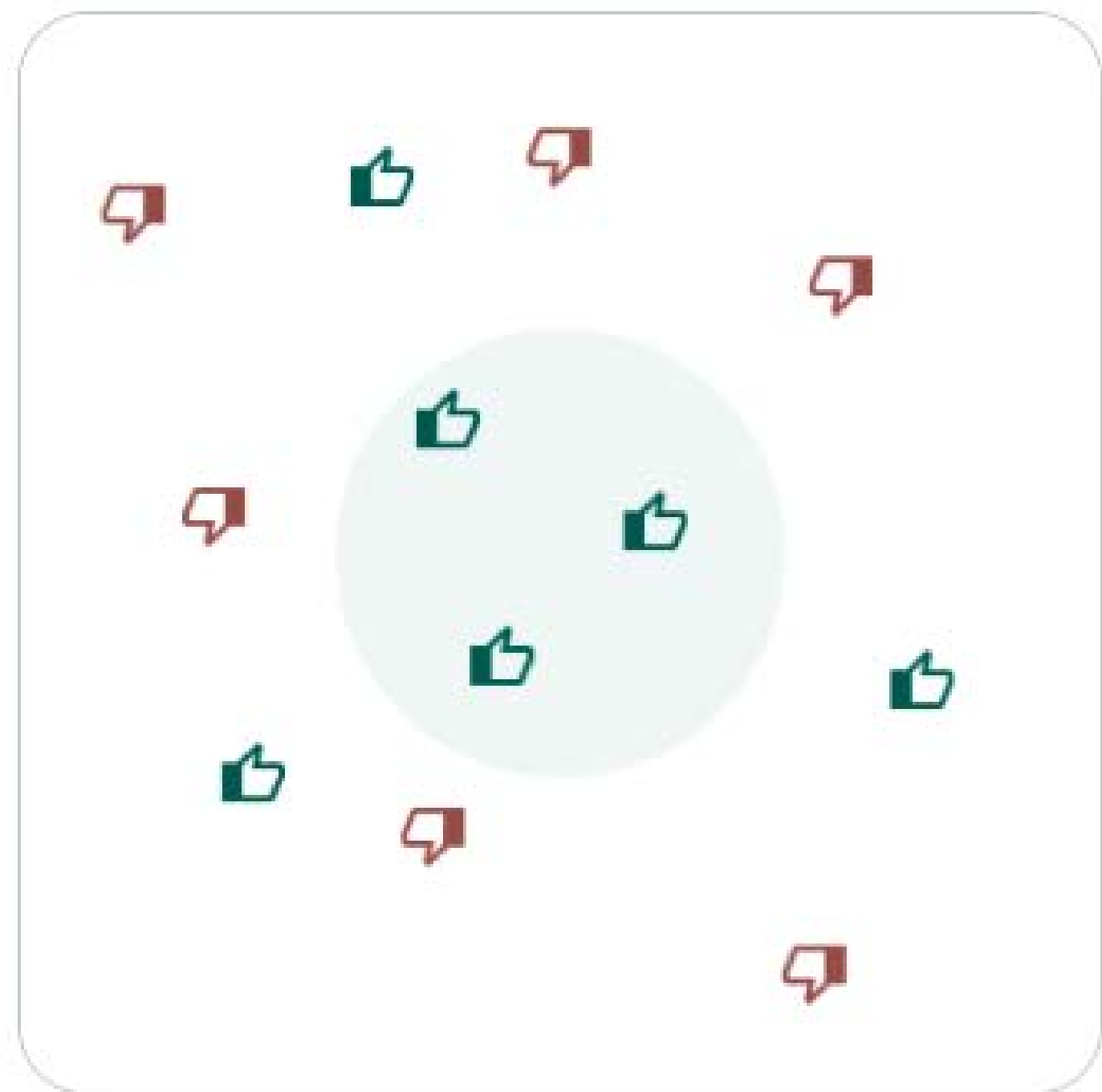


NEW YORK TIMES
Focusing on the key task



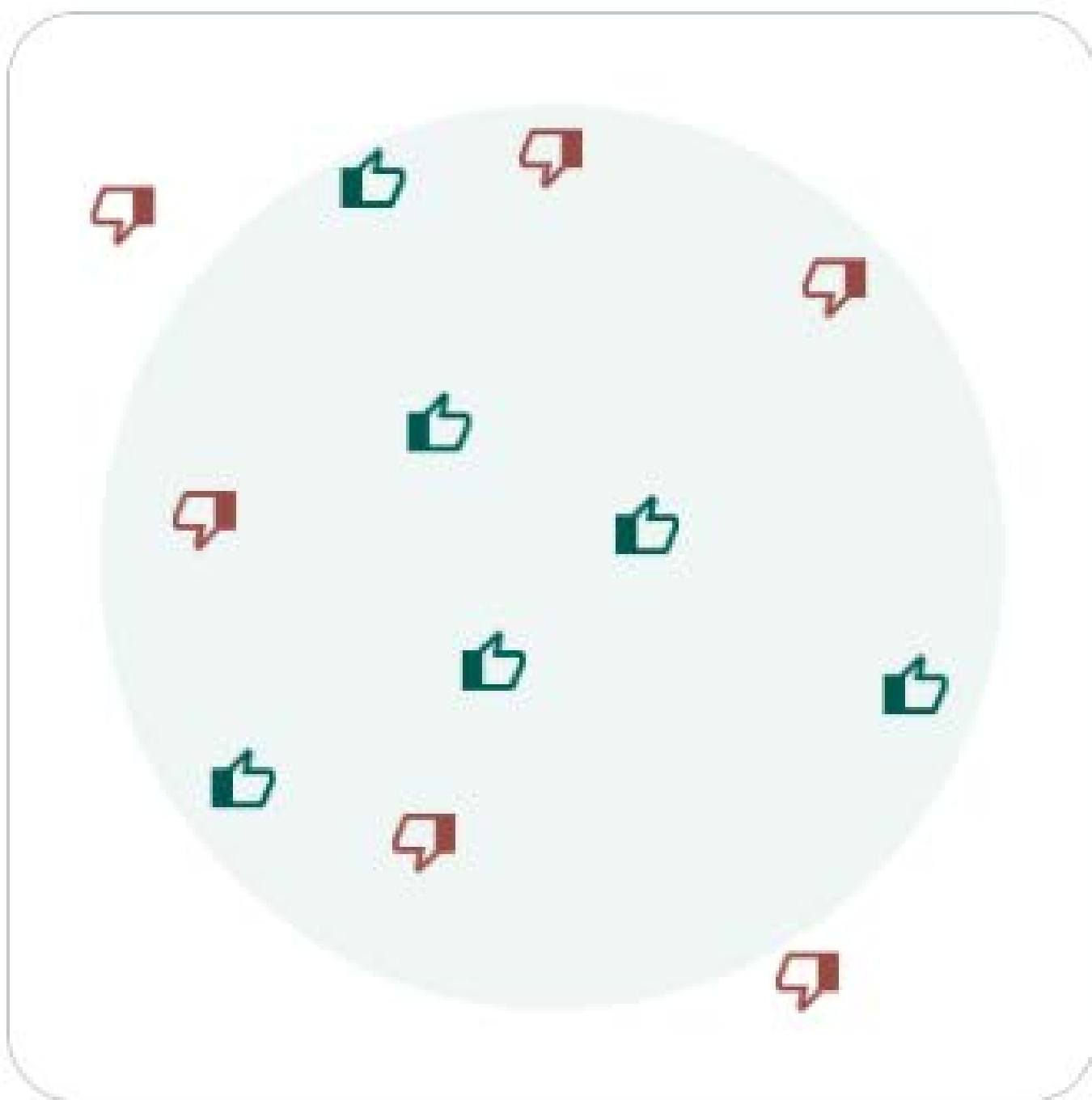
Make precision and recall tradeoffs carefully

Determine whether to prioritize more results or higher quality results based on your product's goals.



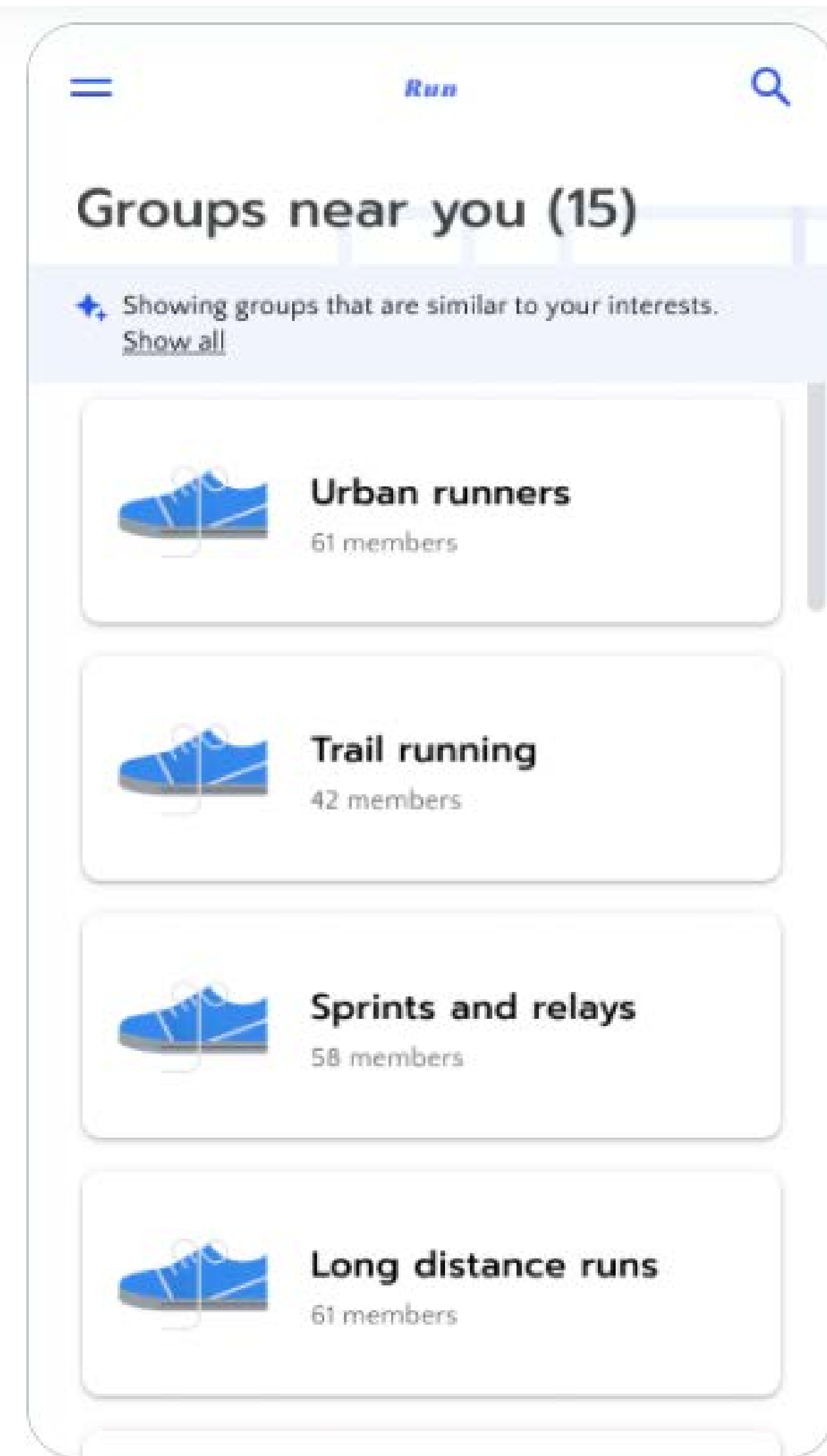
Precision

No false positives are classified, but some true positives are missed.



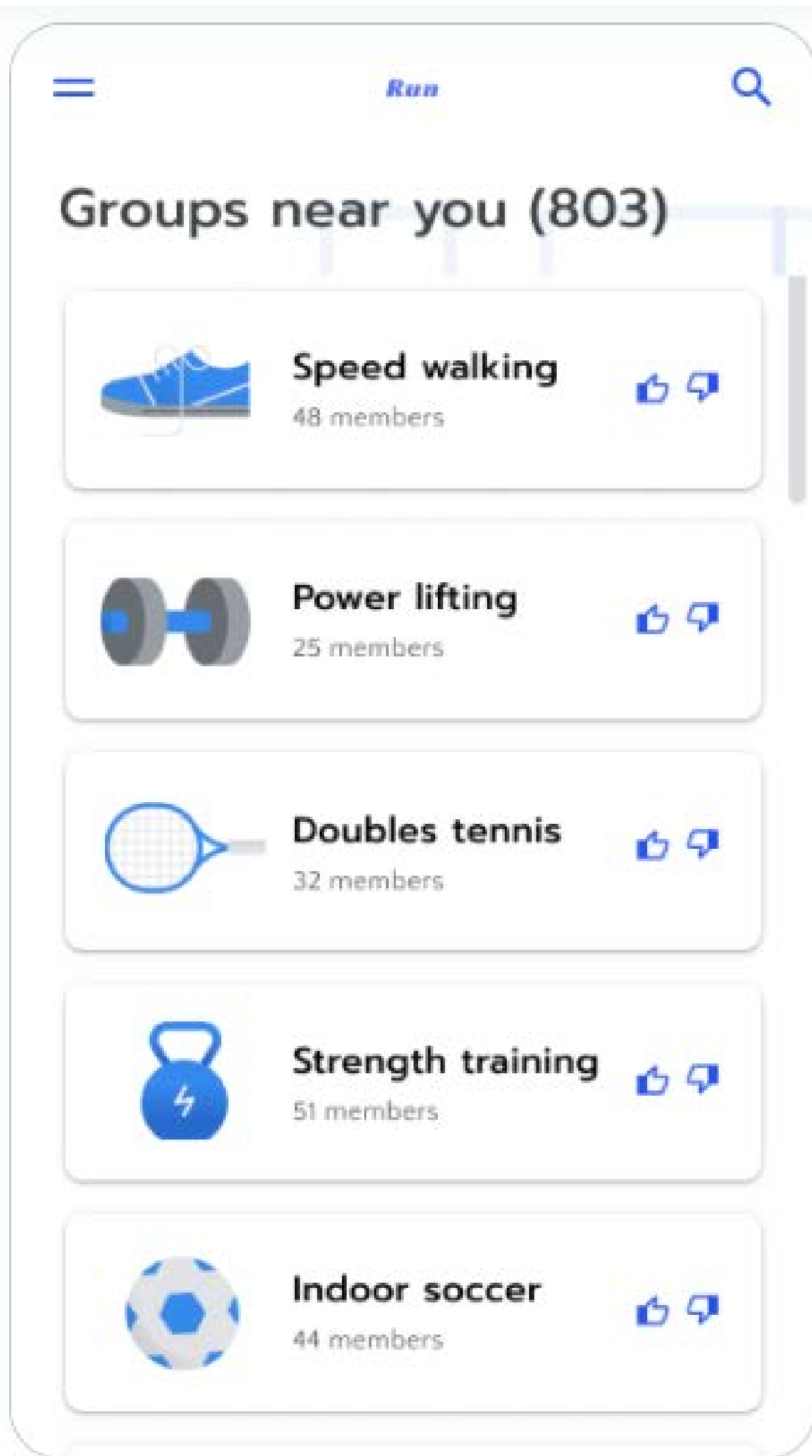
Recall

All true positives are classified, but some false positives are captured.



Precision

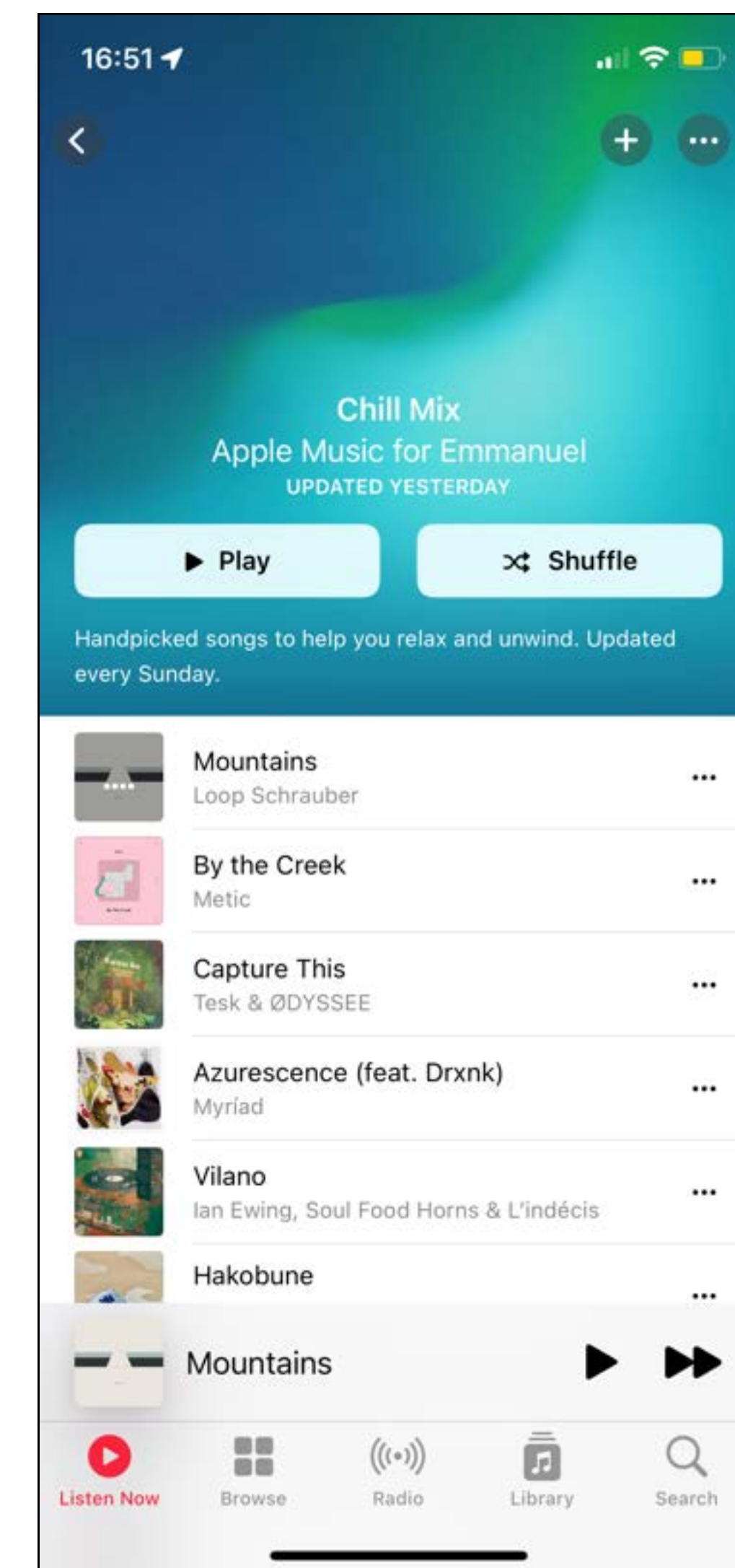
Enable users to include results (true positives) that may have been excluded.



Recall

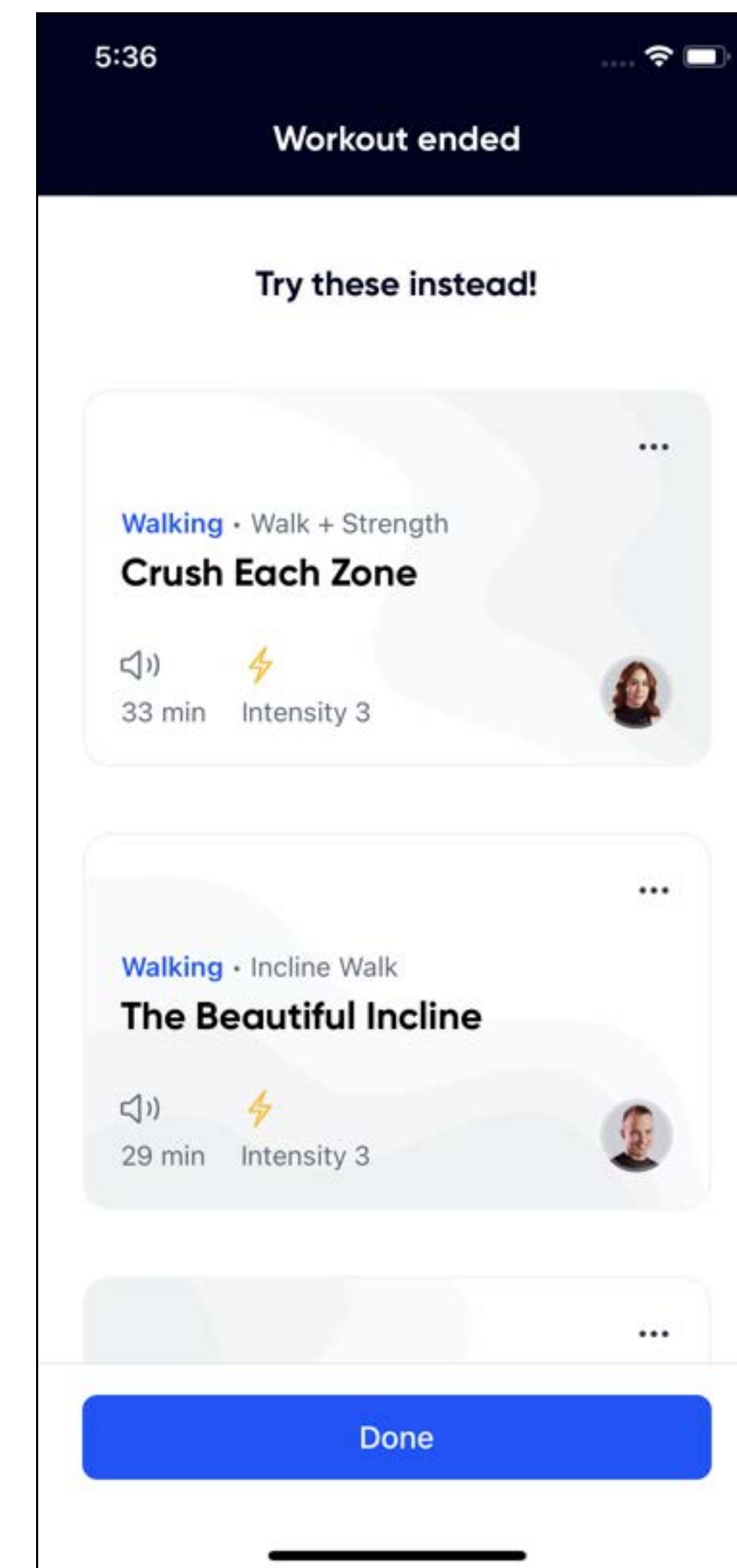
Enable users to exclude results (false positives) that may have been included.

APPLE MUSIC Prioritizing recall



If your product is in a lower stakes domain and it's not a problem for users to sort through a longer list of recommendations. Your user will get a larger set of results, some of which may be less relevant, though offering more discovery.

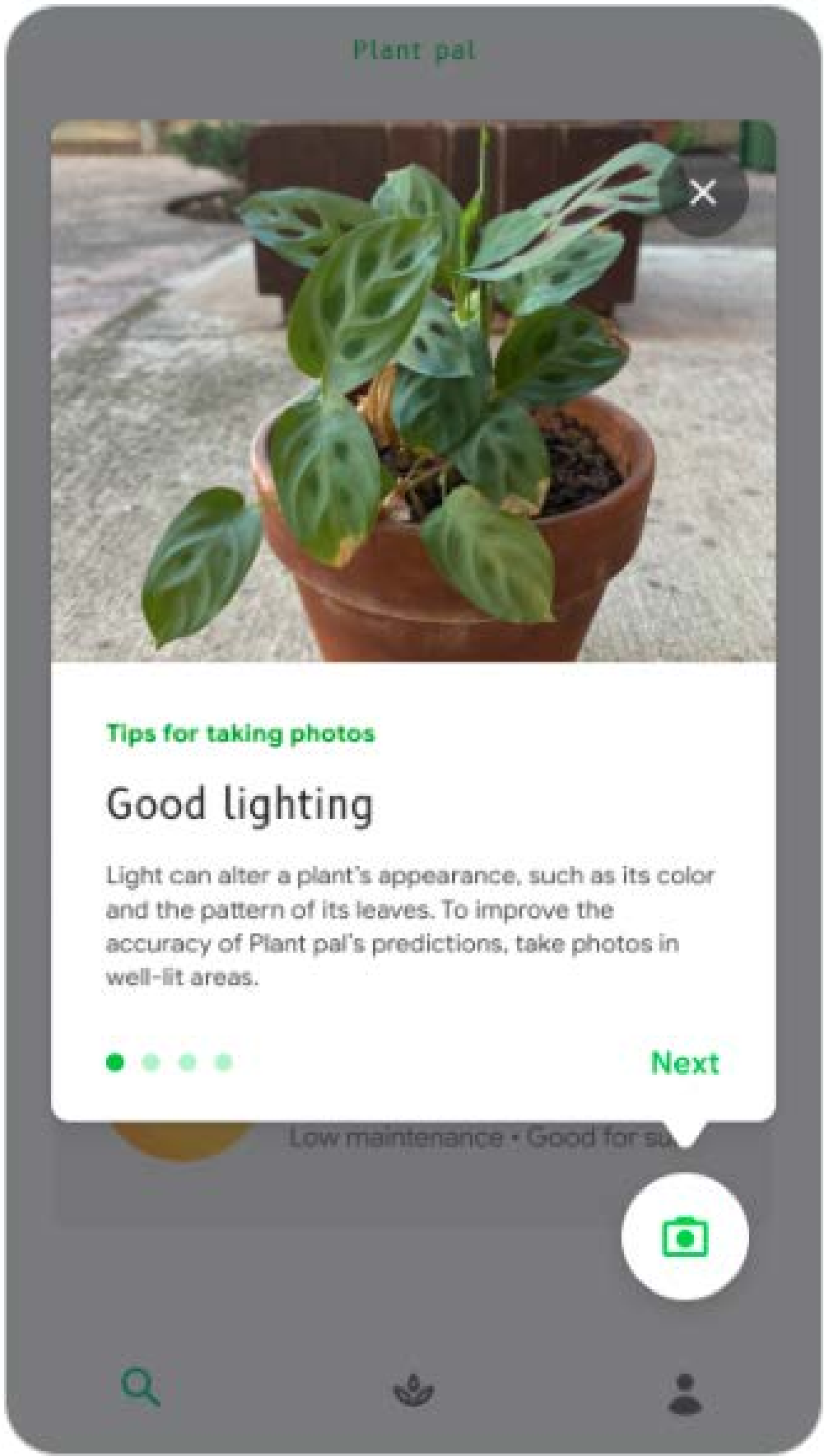
AAPTIV Prioritizing precision



If you are building a product in a high stakes domain (such as healthcare), and the risks stemming from an error are high, you will likely want to be more conservative with your model output, and only give recommendations for the things the system is most confident of.

Go beyond in-the-moment explanations

Help users better understand your product with deeper explanations outside immediate product flows.



The screenshot shows the Plant pal app interface. At the top, there's a header 'Plant pal'. Below it is a photo of a potted plant. A white overlay box titled 'Tips for taking photos' is positioned over the bottom part of the photo. It contains the sub-header 'Good lighting' and a paragraph: 'Light can alter a plant's appearance, such as its color and the pattern of its leaves. To improve the accuracy of Plant pal's predictions, take photos in well-lit areas.' Below the text are four green dots, with the first one filled. A 'Next' button is at the bottom right of the overlay. At the bottom of the app screen, there's a navigation bar with a magnifying glass, a leaf icon, and a person icon. A camera icon in a white circle is also visible on the right side of the screen.

Onboarding

Help users understand how the system works at a higher-level.

AIRBNB

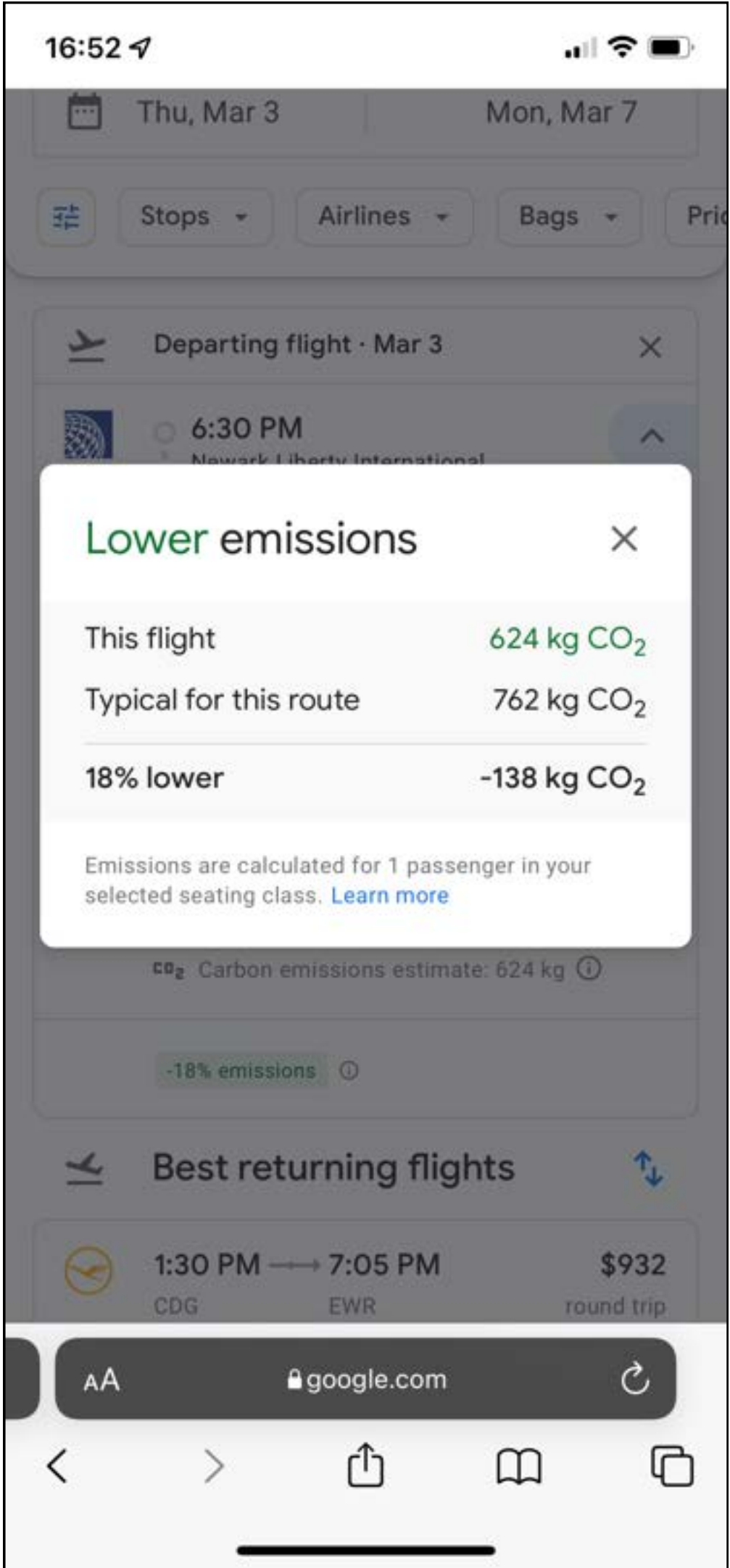
Helping better understand



The screenshot shows the Airbnb app interface. At the top, there's a header '1:31'. Below it is a photo of a blue card with the text 'LIVE IN DINE IN PLAY IN'. A white overlay box is positioned over the bottom part of the photo. It contains the sub-header 'Take your first photo—front of your ID' and a paragraph: 'Make sure there's good lighting and adjust until the front of your ID fits within the white border—then tap the camera icon.' Below the text is a red camera icon in a white circle.

GOOGLE FLIGHTS

Providing deeper explanations



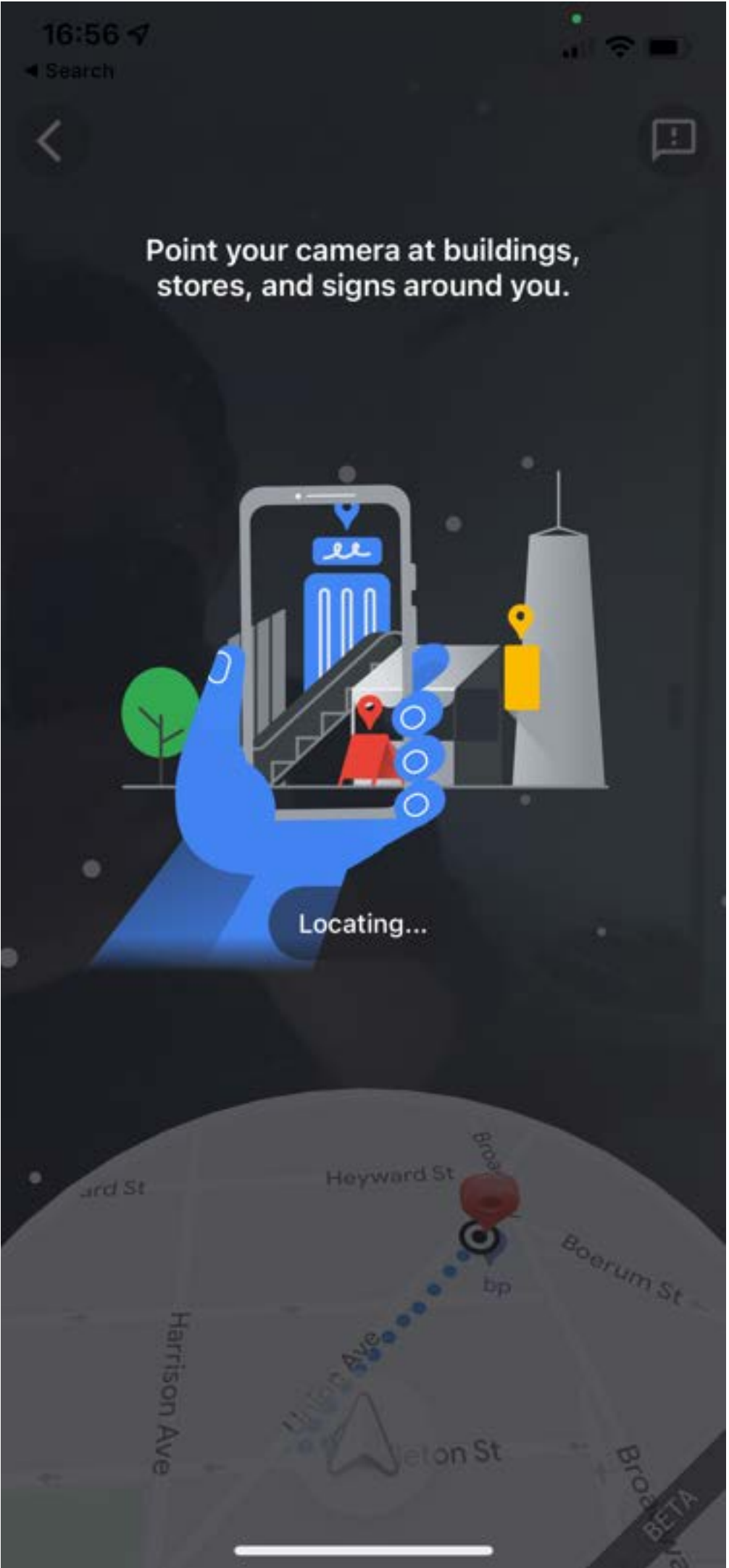
The screenshot shows the Google Flights app interface. At the top, there's a header '16:52'. Below it is a flight search results page. A white overlay box titled 'Lower emissions' is positioned over the flight details. It contains a table with the following data:

This flight	624 kg CO ₂
Typical for this route	762 kg CO ₂
18% lower	-138 kg CO ₂

Below the table is a paragraph: 'Emissions are calculated for 1 passenger in your selected seating class. [Learn more](#)'.

GOOGLE MAPS

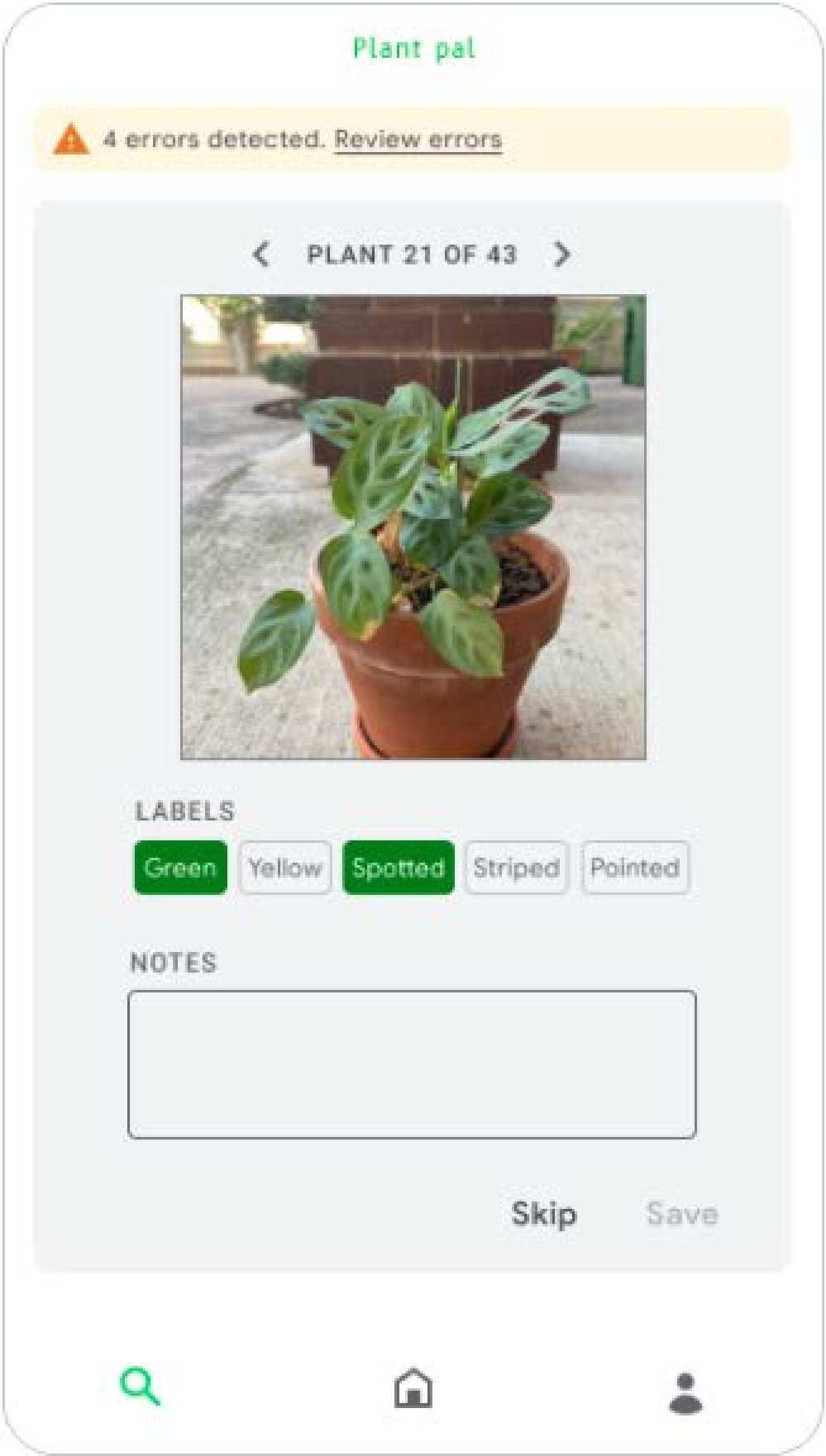
Showing how it works



The screenshot shows the Google Maps app interface. At the top, there's a header '16:56'. Below it is a map with a blue hand icon pointing at a building. A white overlay box is positioned over the map. It contains the sub-header 'Point your camera at buildings, stores, and signs around you.' Below the text is a blue hand icon pointing at a building. A 'Locating...' button is at the bottom right of the overlay.

Design for your data labelers

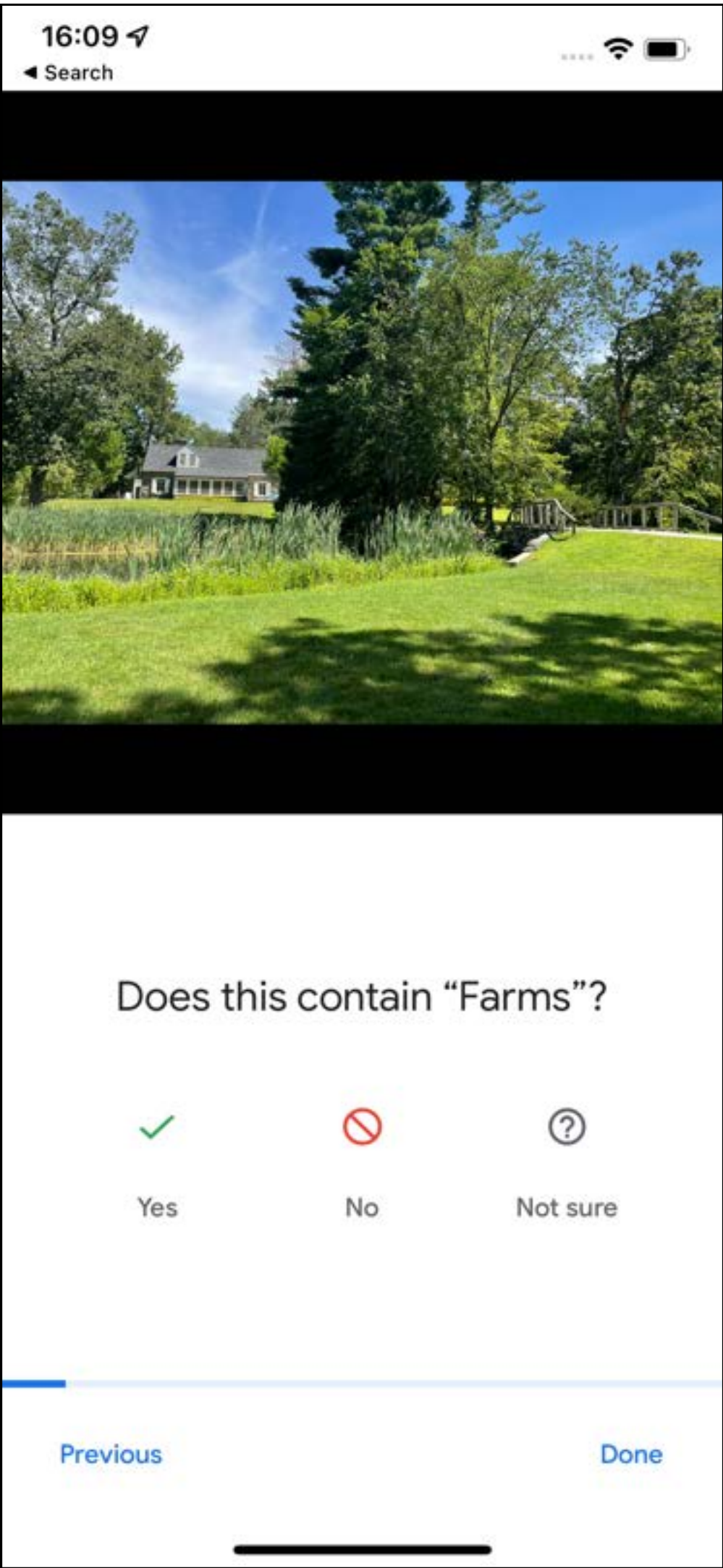
Make sure that data labelers have well designed tools and workflows.



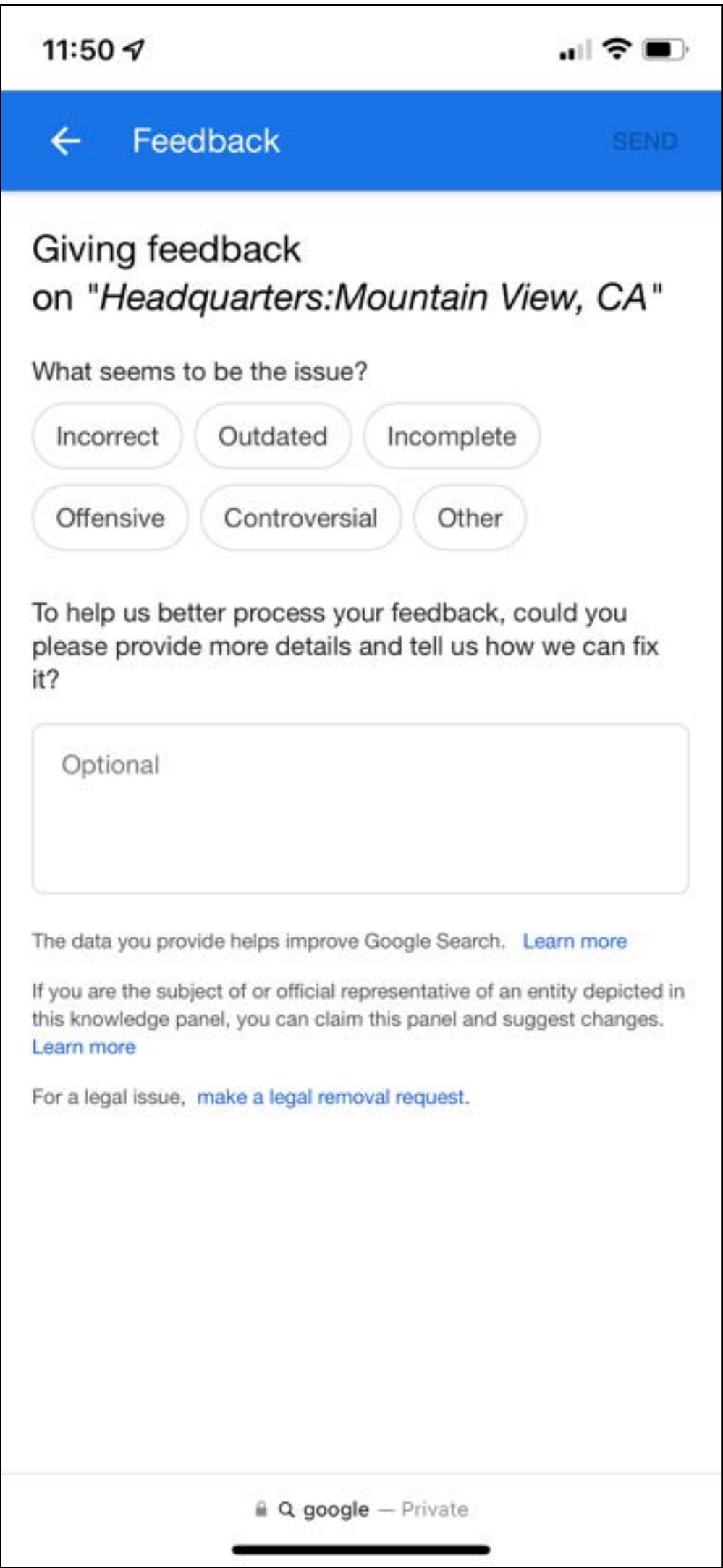
Aim for

Use multiple shortcuts to optimize key flows, provide easy access to labels, let raters change their minds, and auto-detect and display errors.

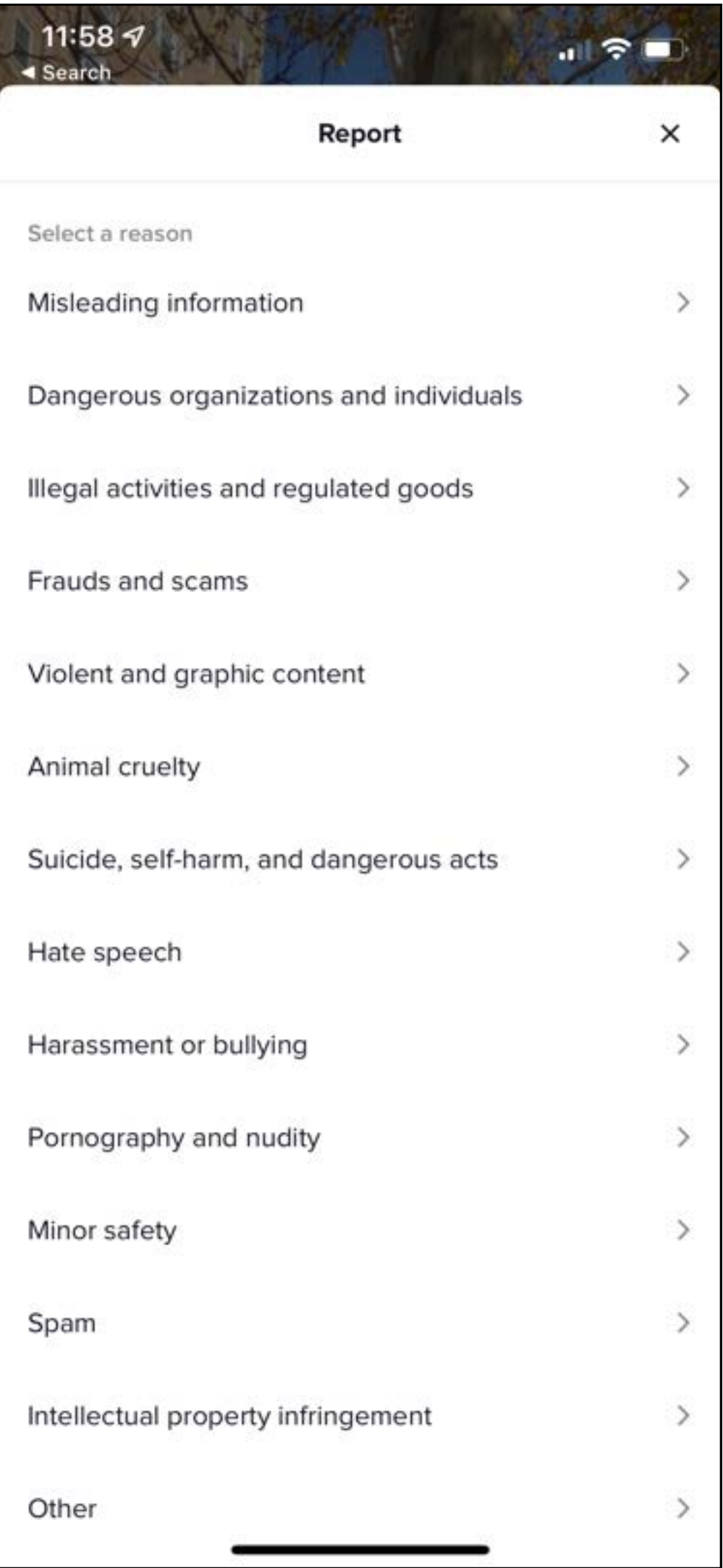
GOOGLE PHOTOS
Designing for data labeling



GOOGLE SEARCH
Accessing labels with ease



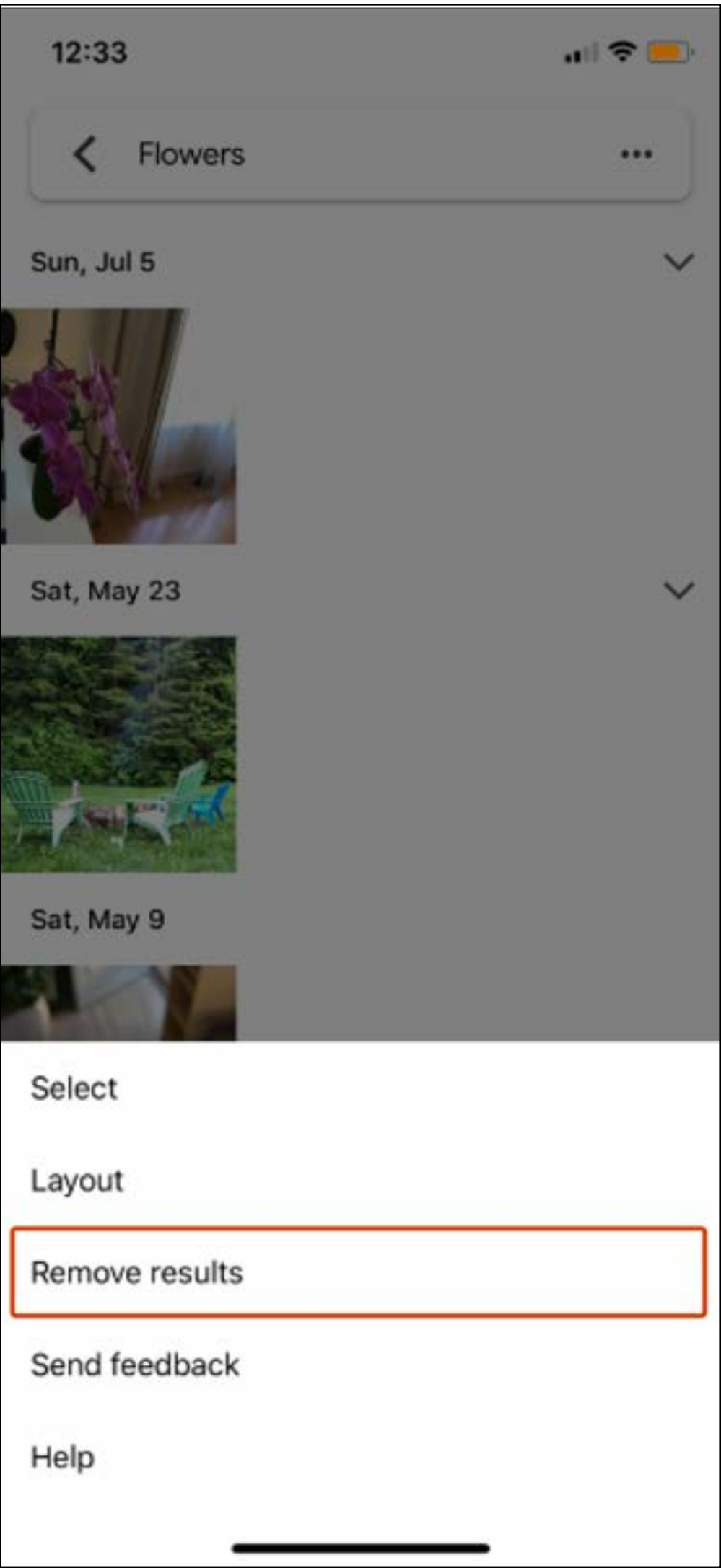
TIKTOK
Understanding the labels



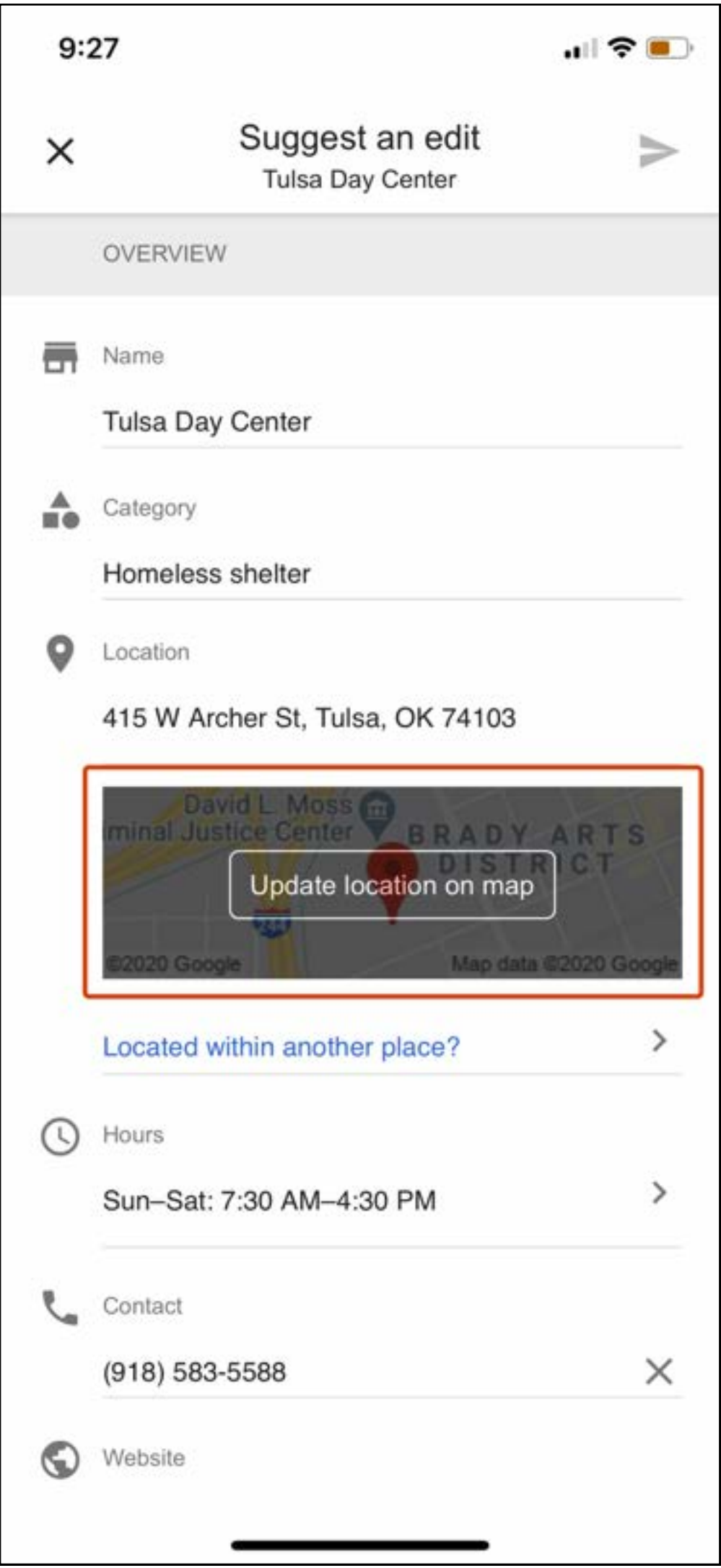
Support efficient correction

Make it easy to edit, refine, or recover when the AI system is wrong.

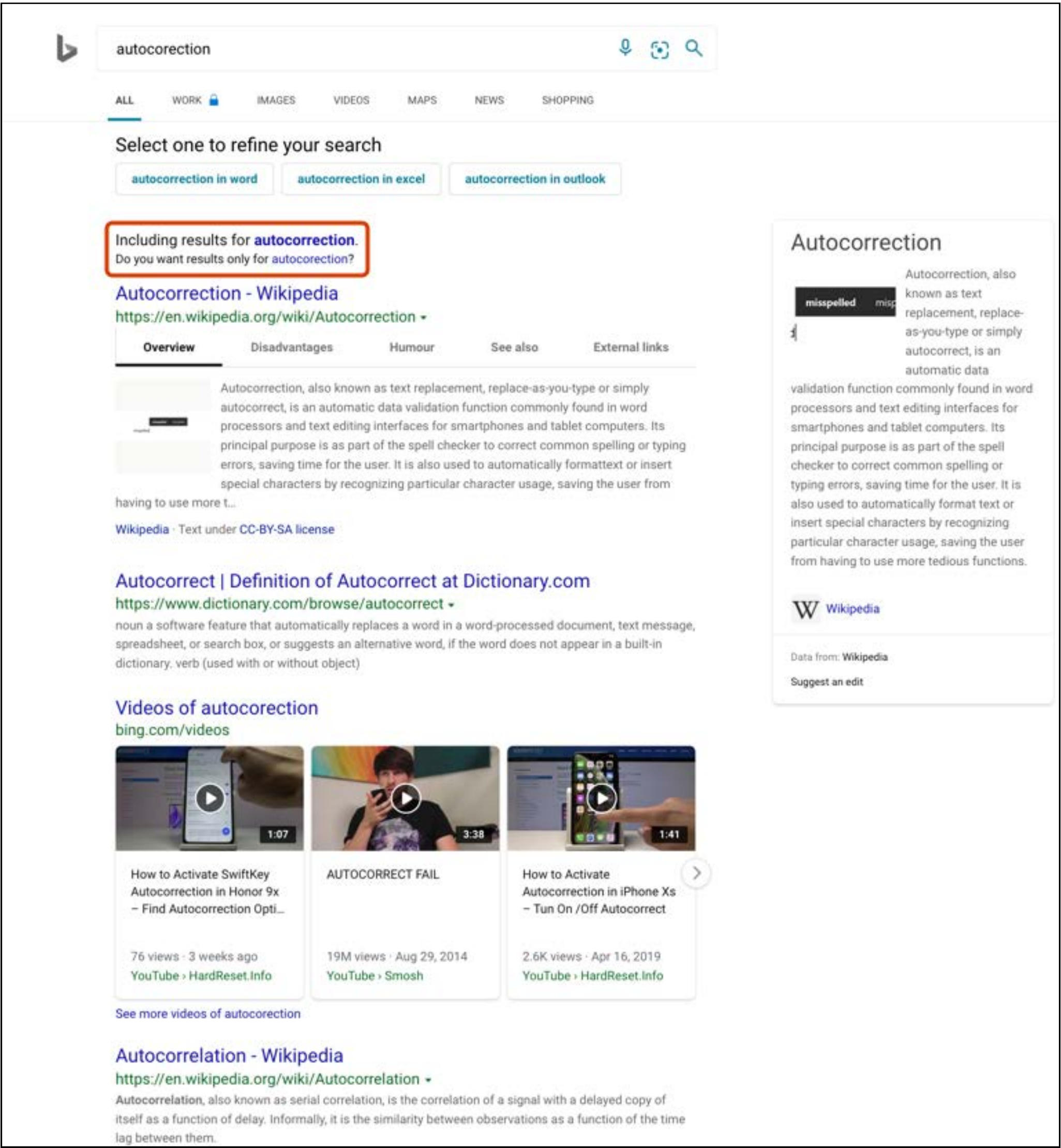
GOOGLE PHOTOS
Switching classifications



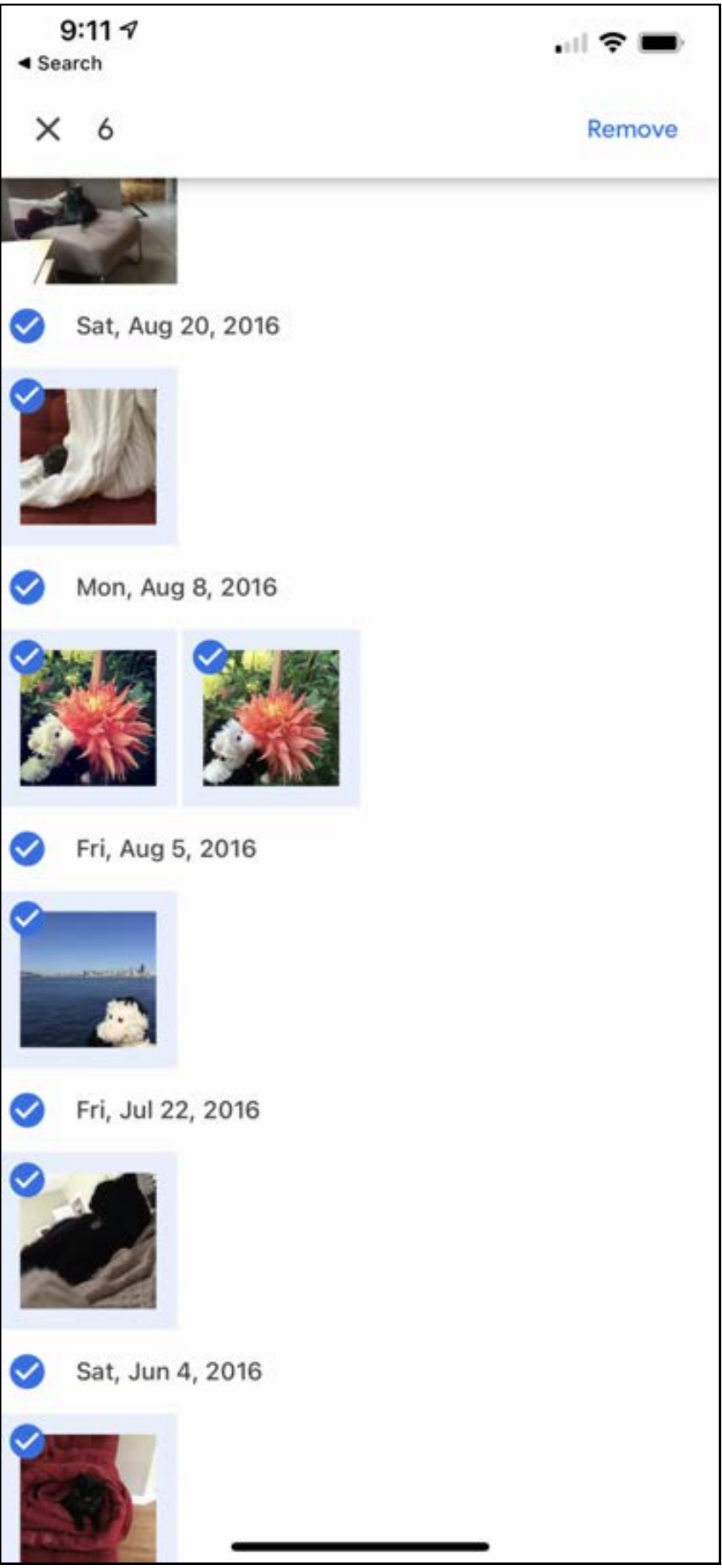
GOOGLE MAPS
Giving user control for edits



BING SEARCH
Undoing automated actions



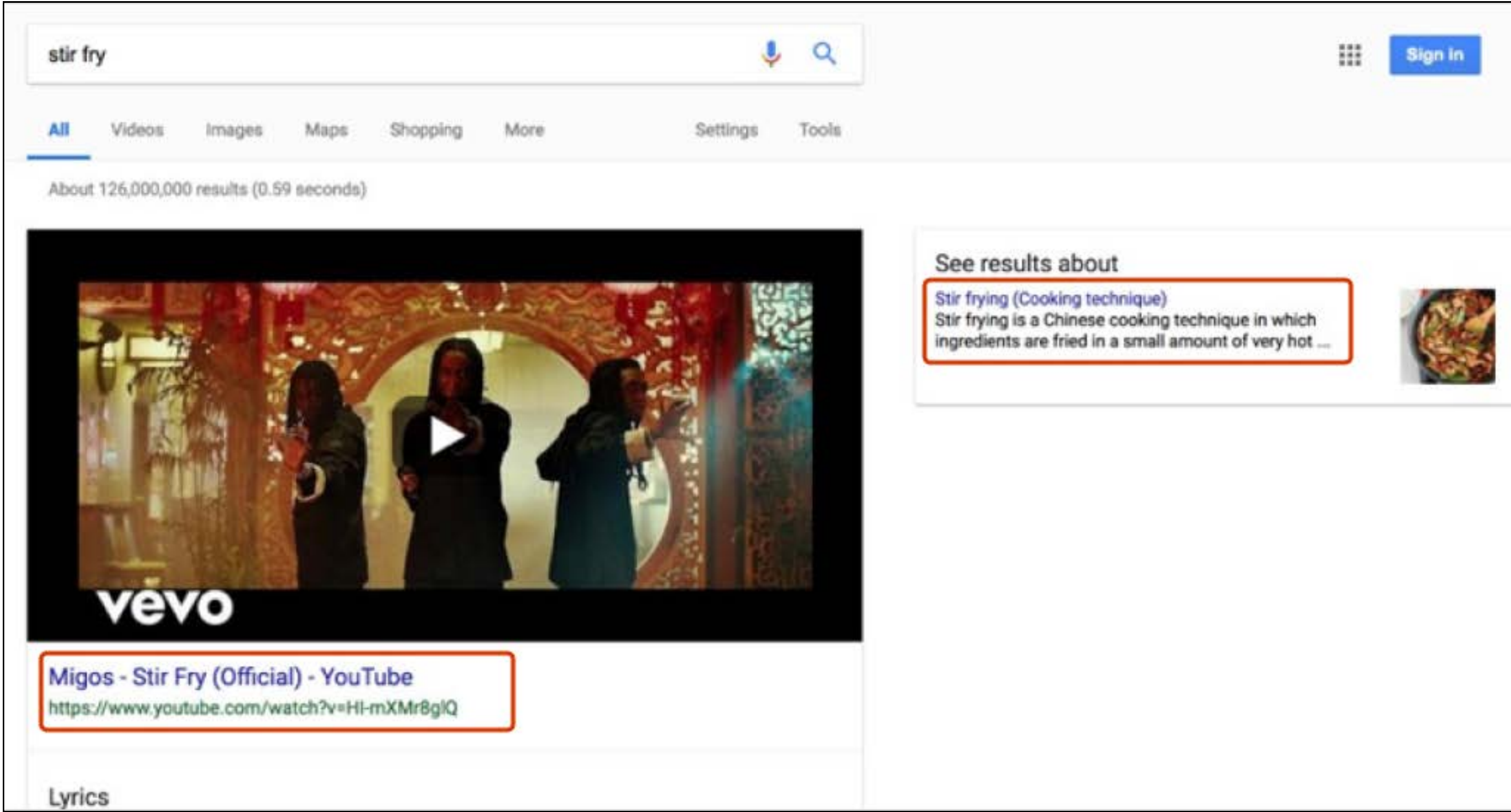
GOOGLE PHOTOS
Batch-editing data



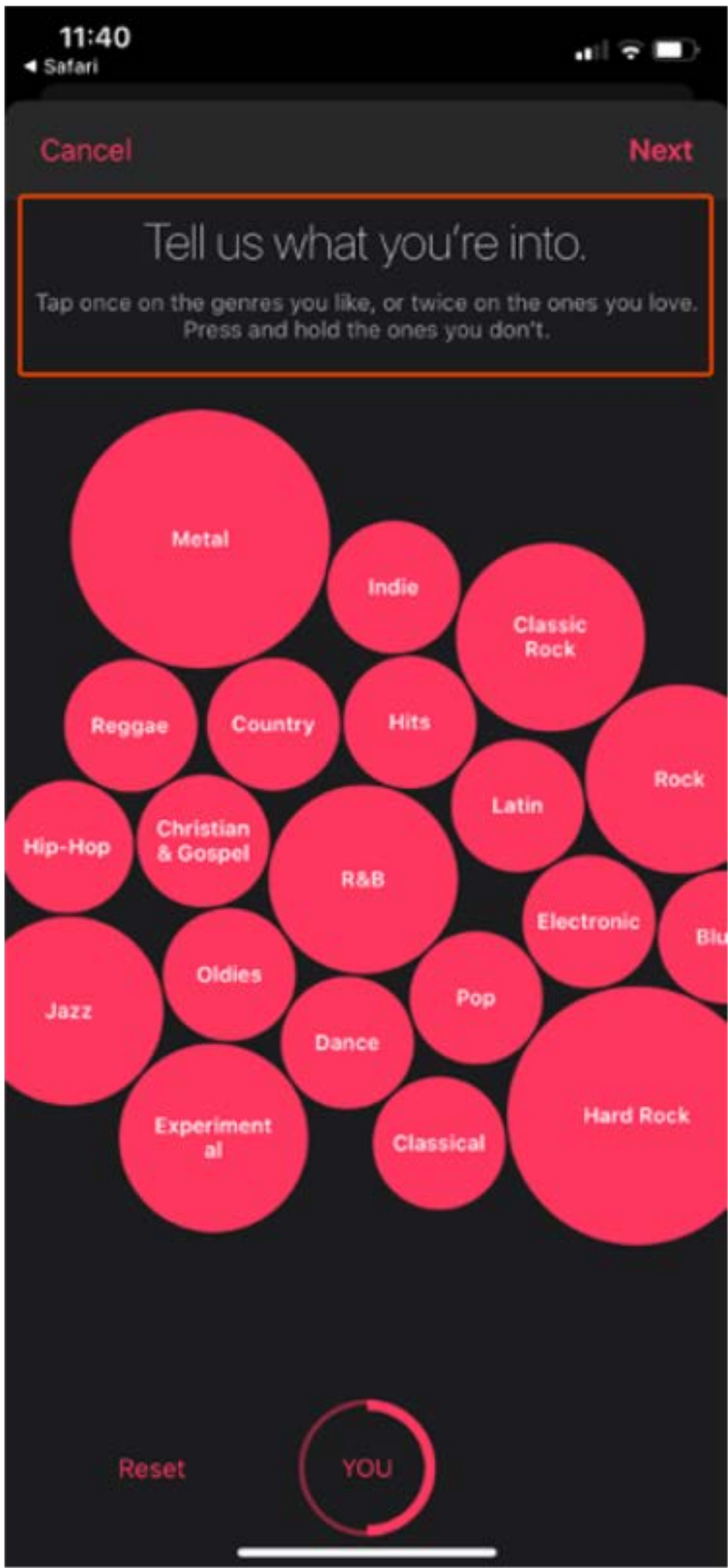
Scope services when in doubt

Engage in disambiguation or gracefully degrade the AI system’s services when uncertain about a user’s goals.

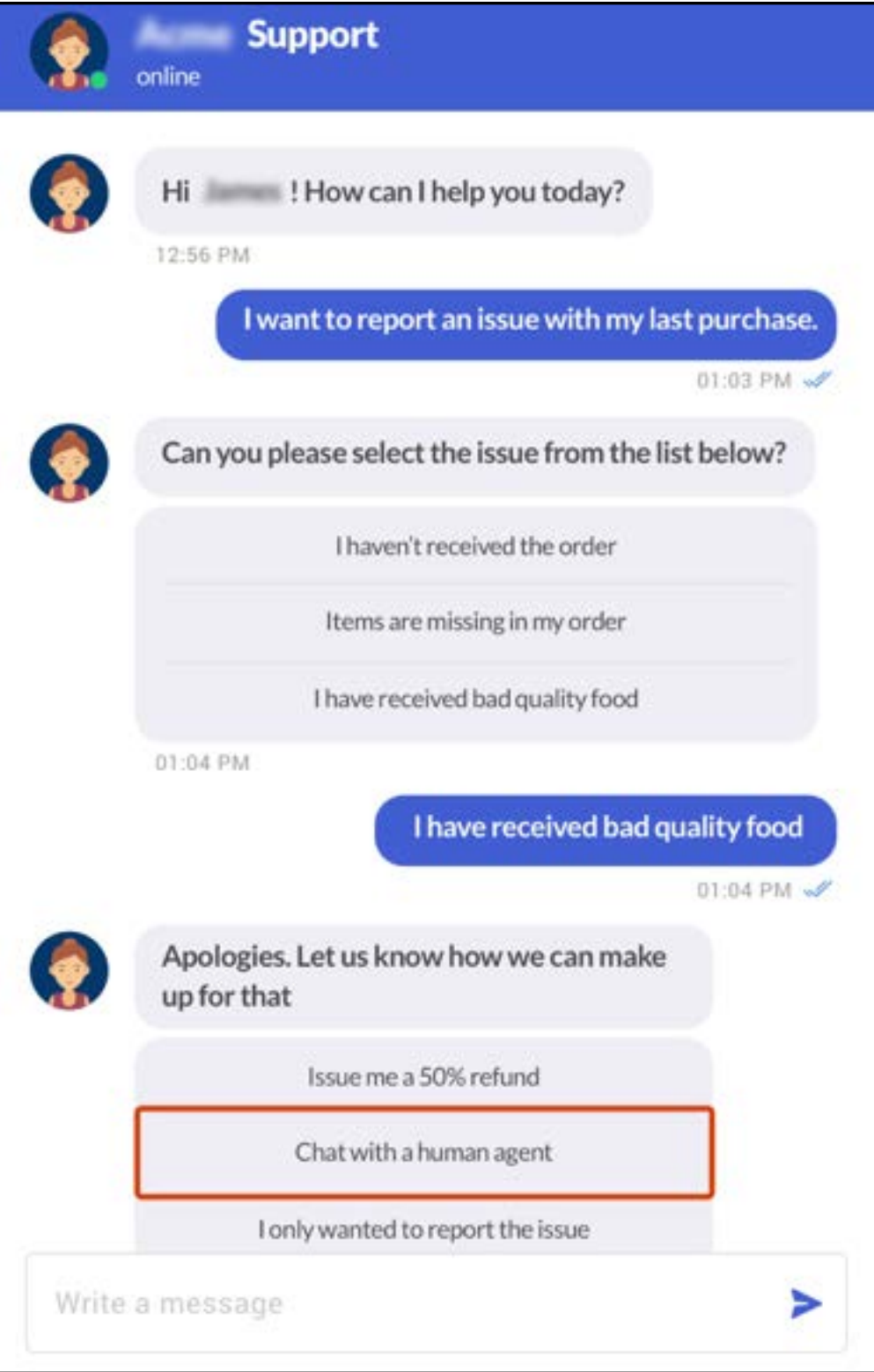
GOOGLE SEARCH
Disambiguating before acting



APPLE MUSIC
Avoiding cold starts



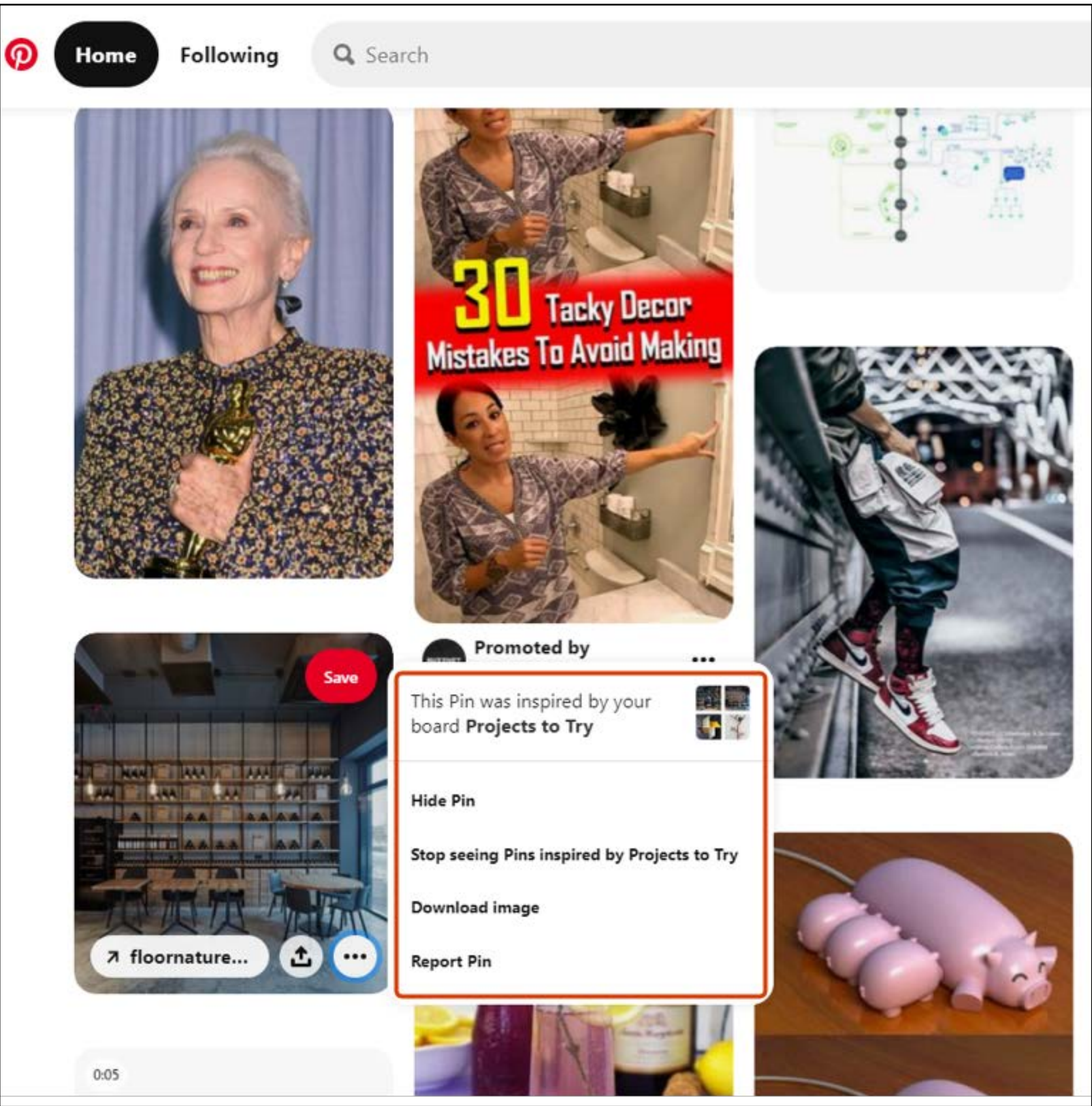
KOMMUNICATE CHATBOT
Falling back to other strategies



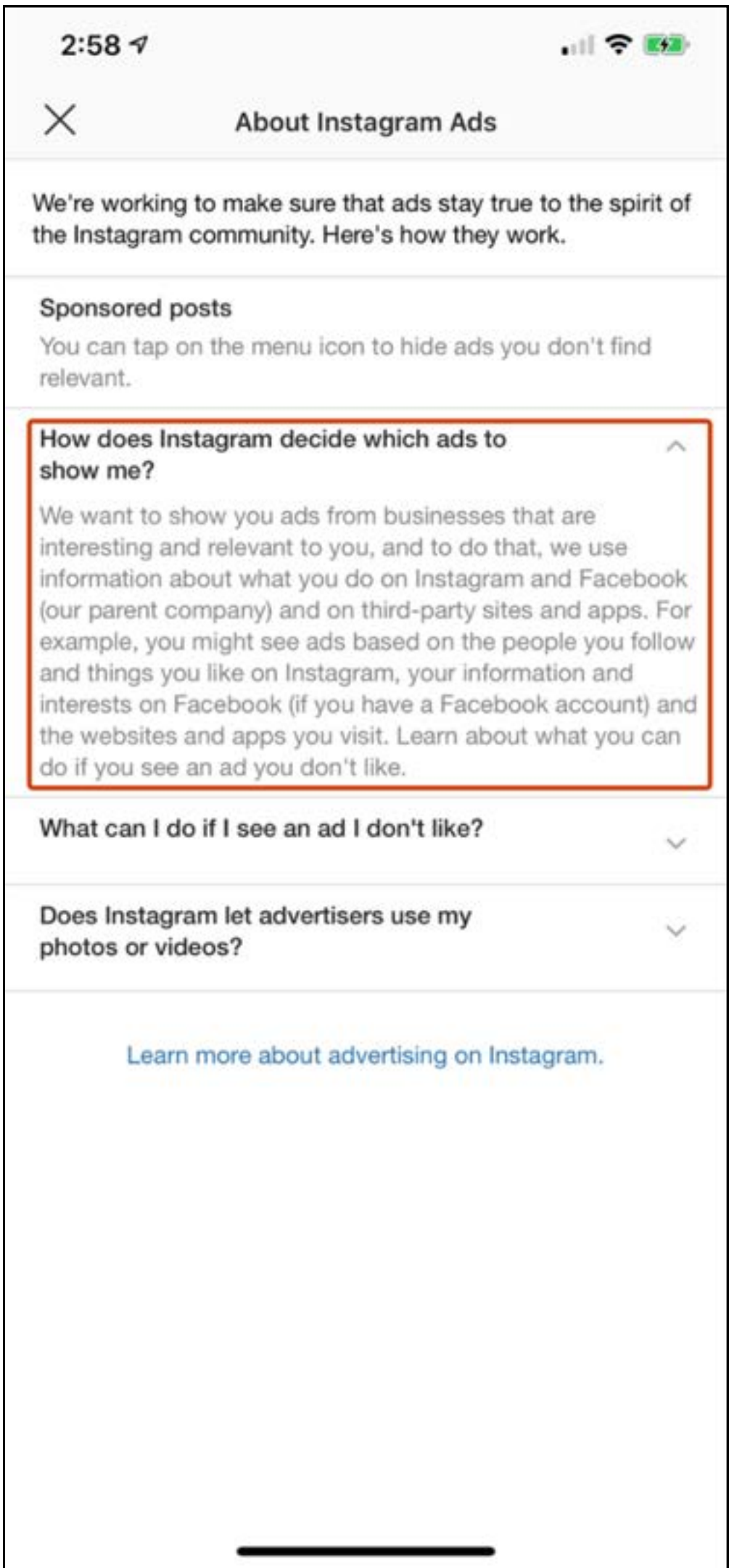
Make clear why the system did what it did

Enable the user to access an explanation of why the AI system behaved as it did.

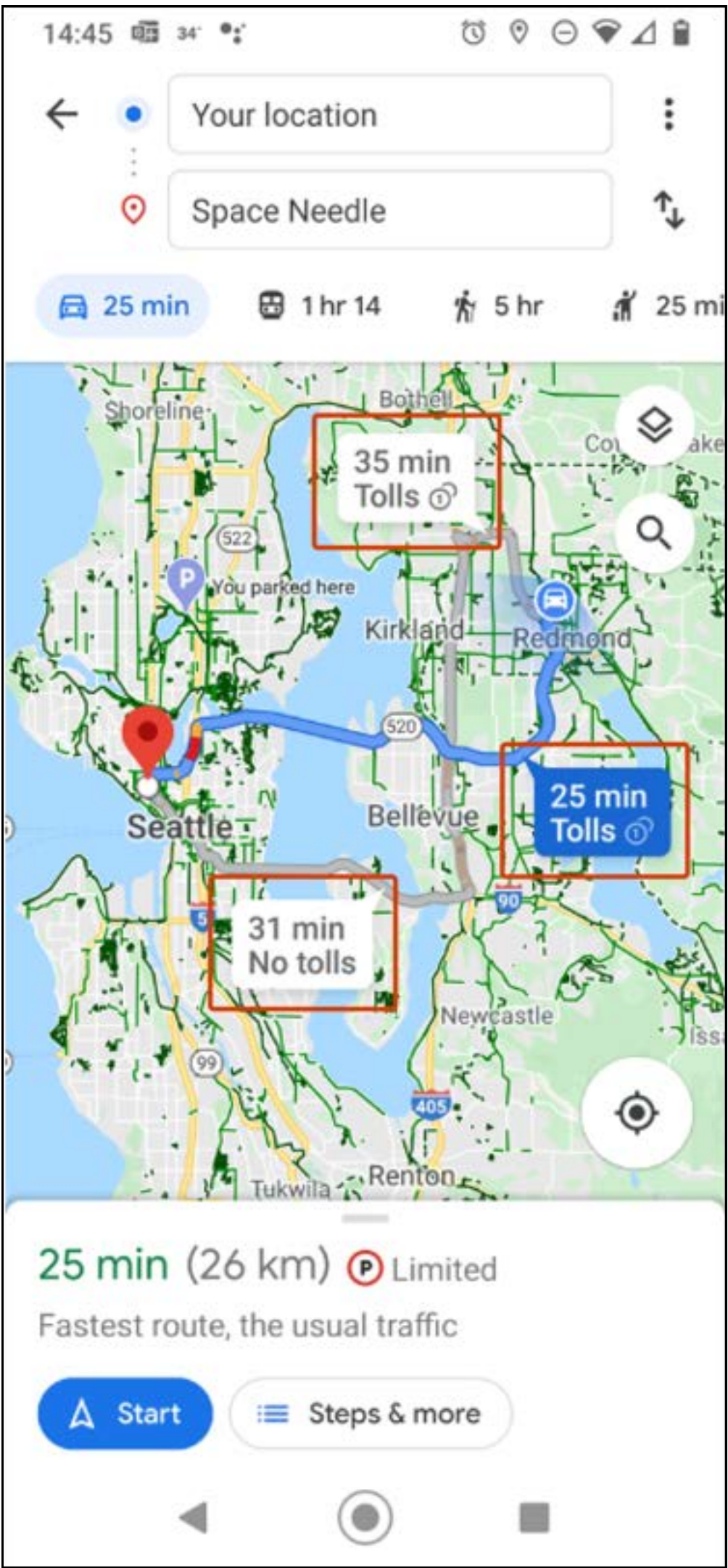
PINTEREST
Localizing explanations



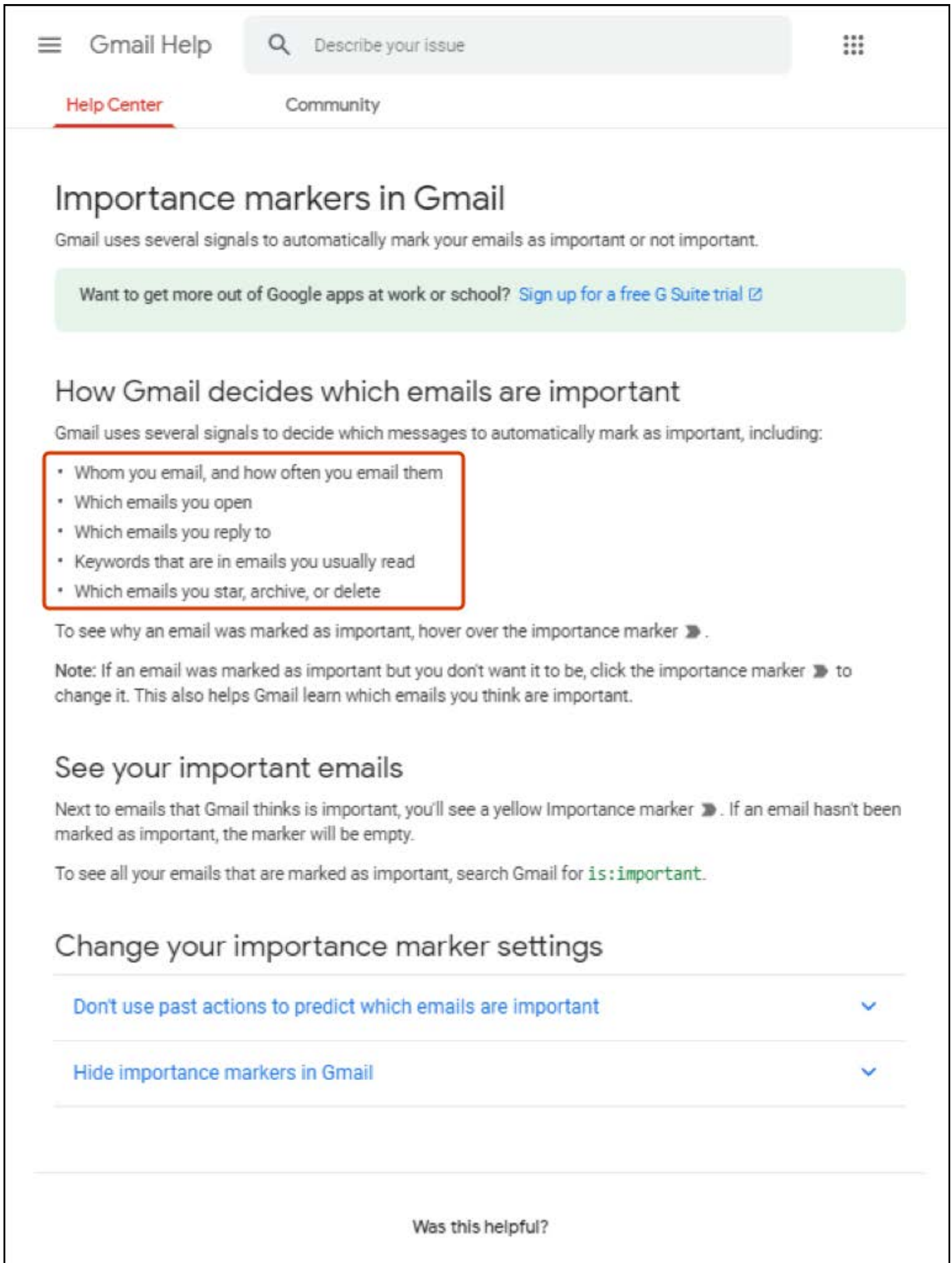
INSTAGRAM
Globalizing explanations



GOOGLE MAPS
Presenting properties of outputs



GMAIL
Mapping input attrib. to outputs



NETFLIX
Mapping behaviors to outputs

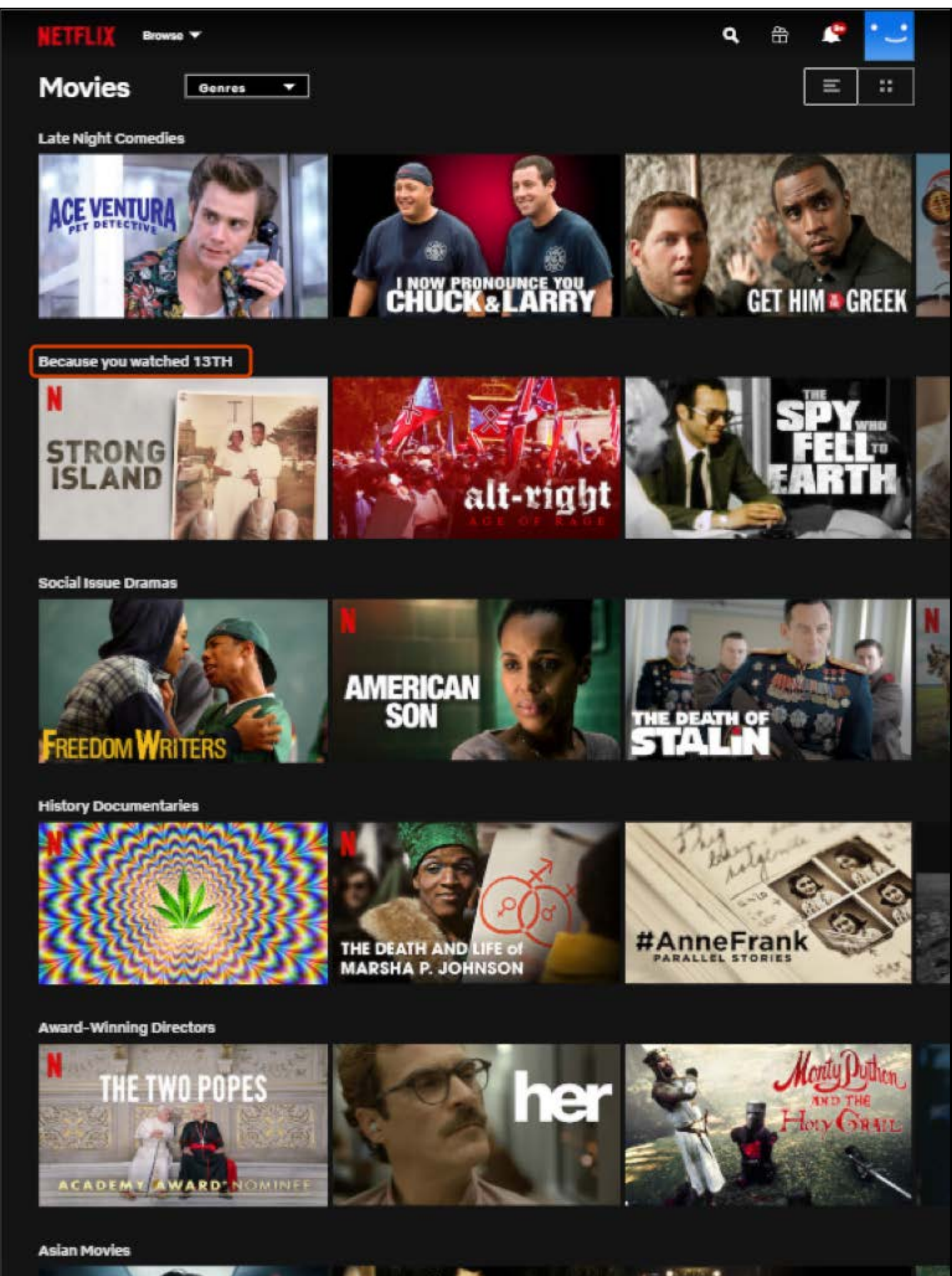
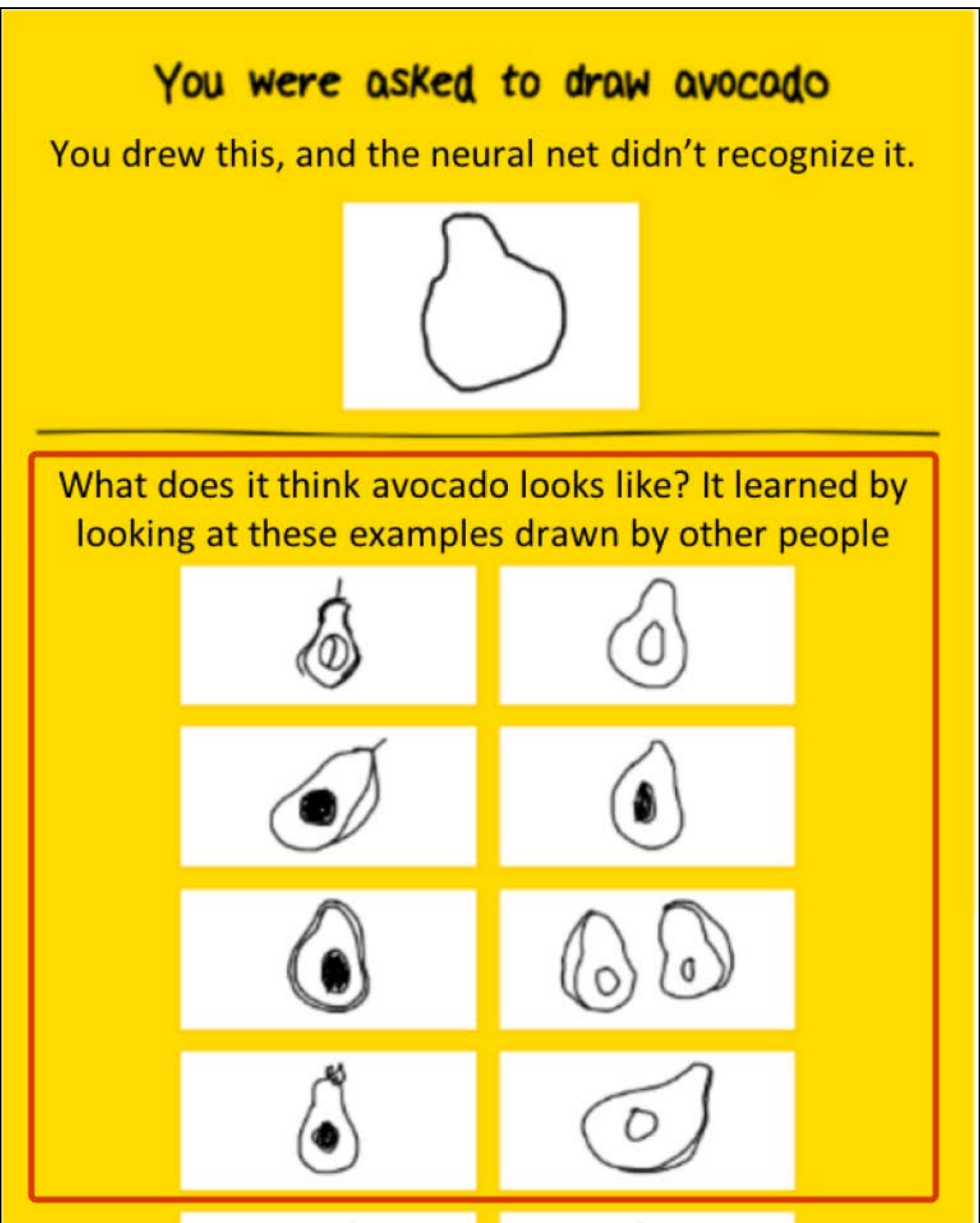
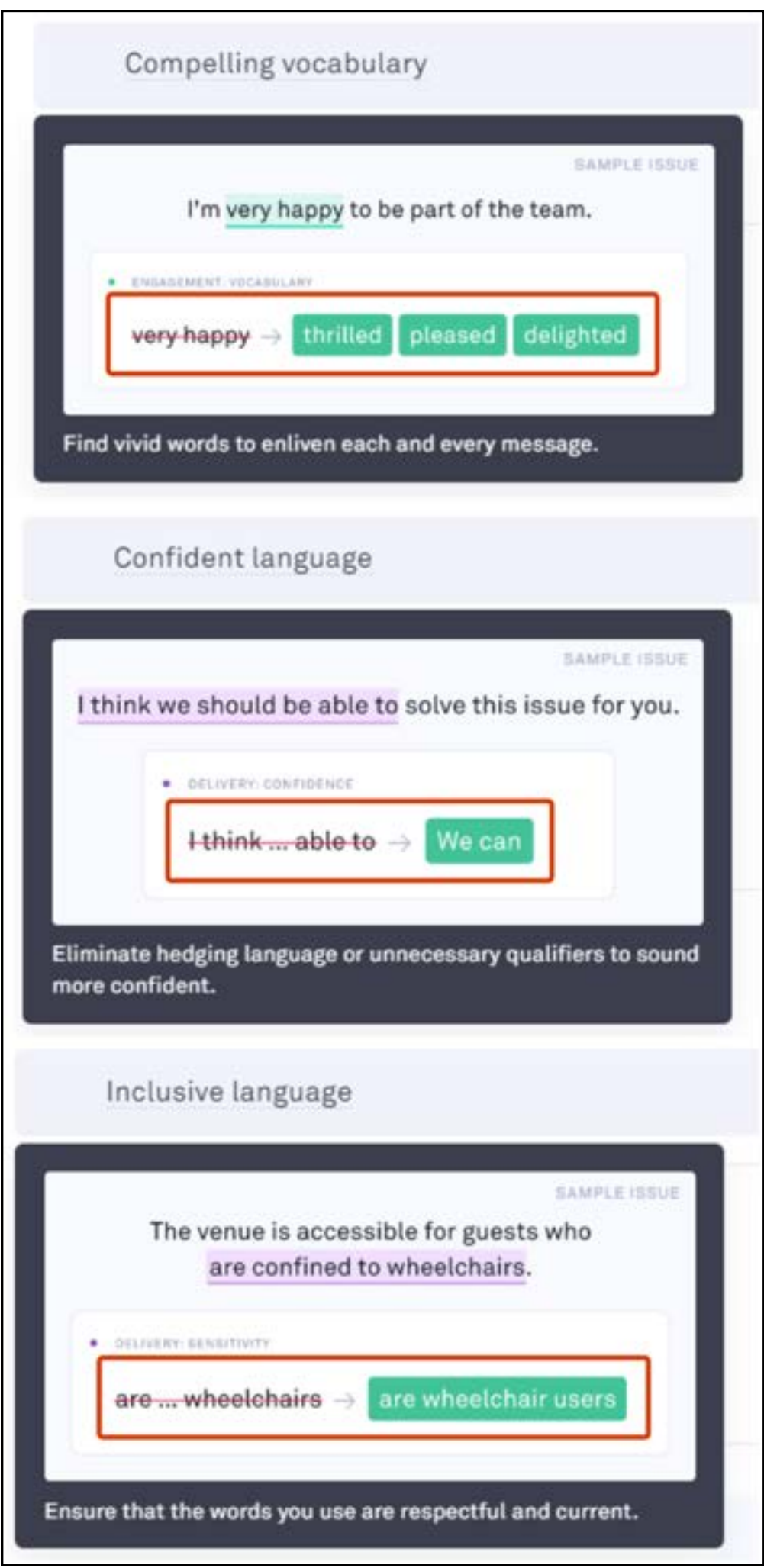


IMAGE RECOGNITION
Explaining through examples



GRAMMARLY
Explaining through “what if”

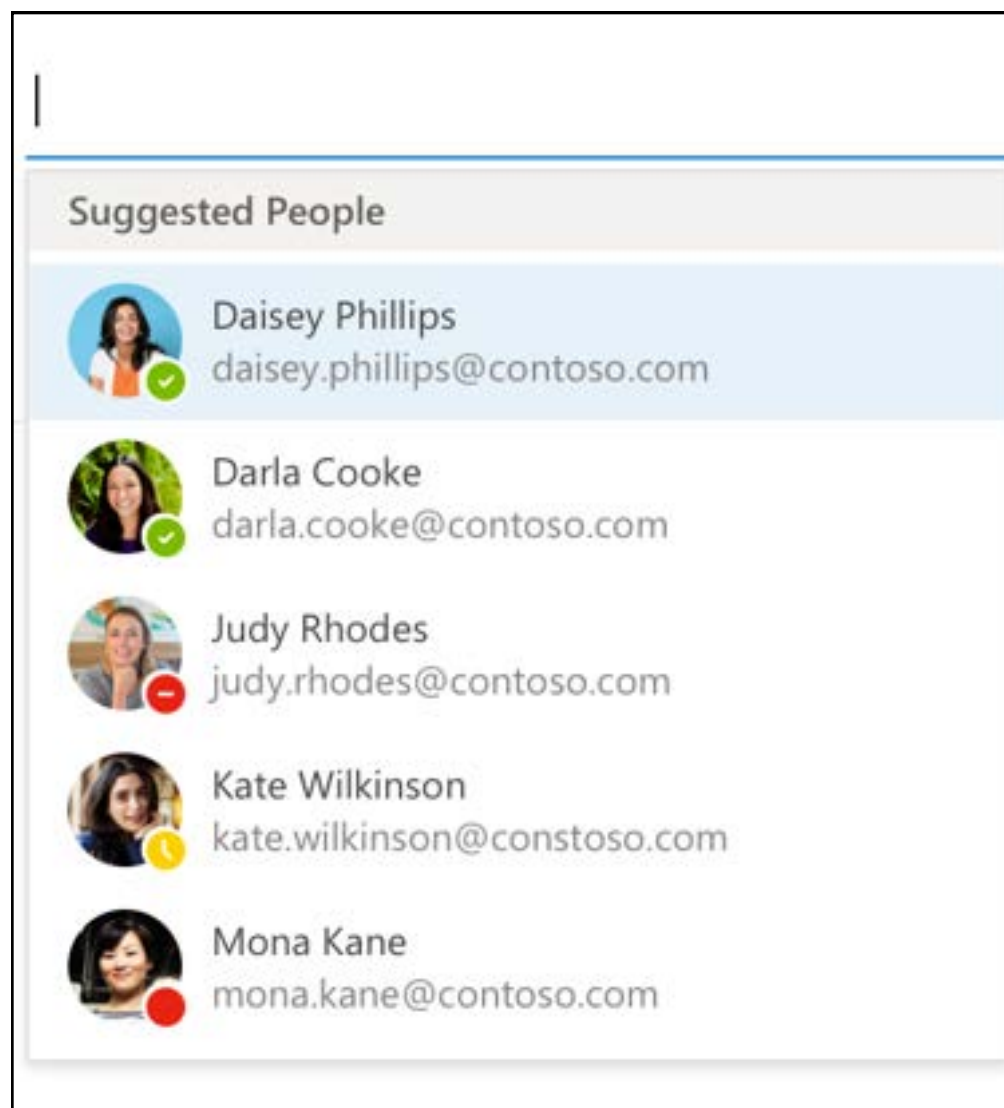


Remember recent interactions

Maintain short-term memory and allow the user to make efficient references to that memory.

OUTLOOK

Displaying recent interactions



SIRI

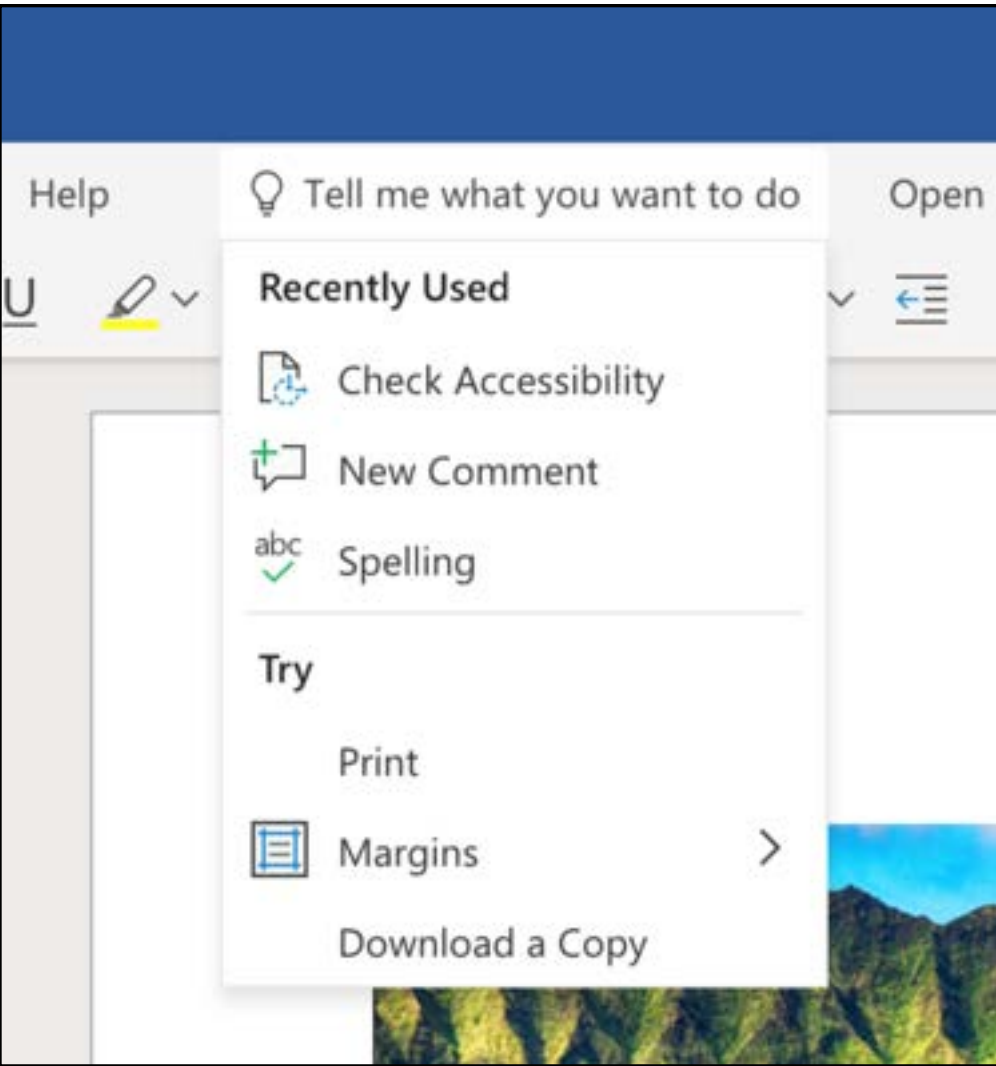
Carrying the context



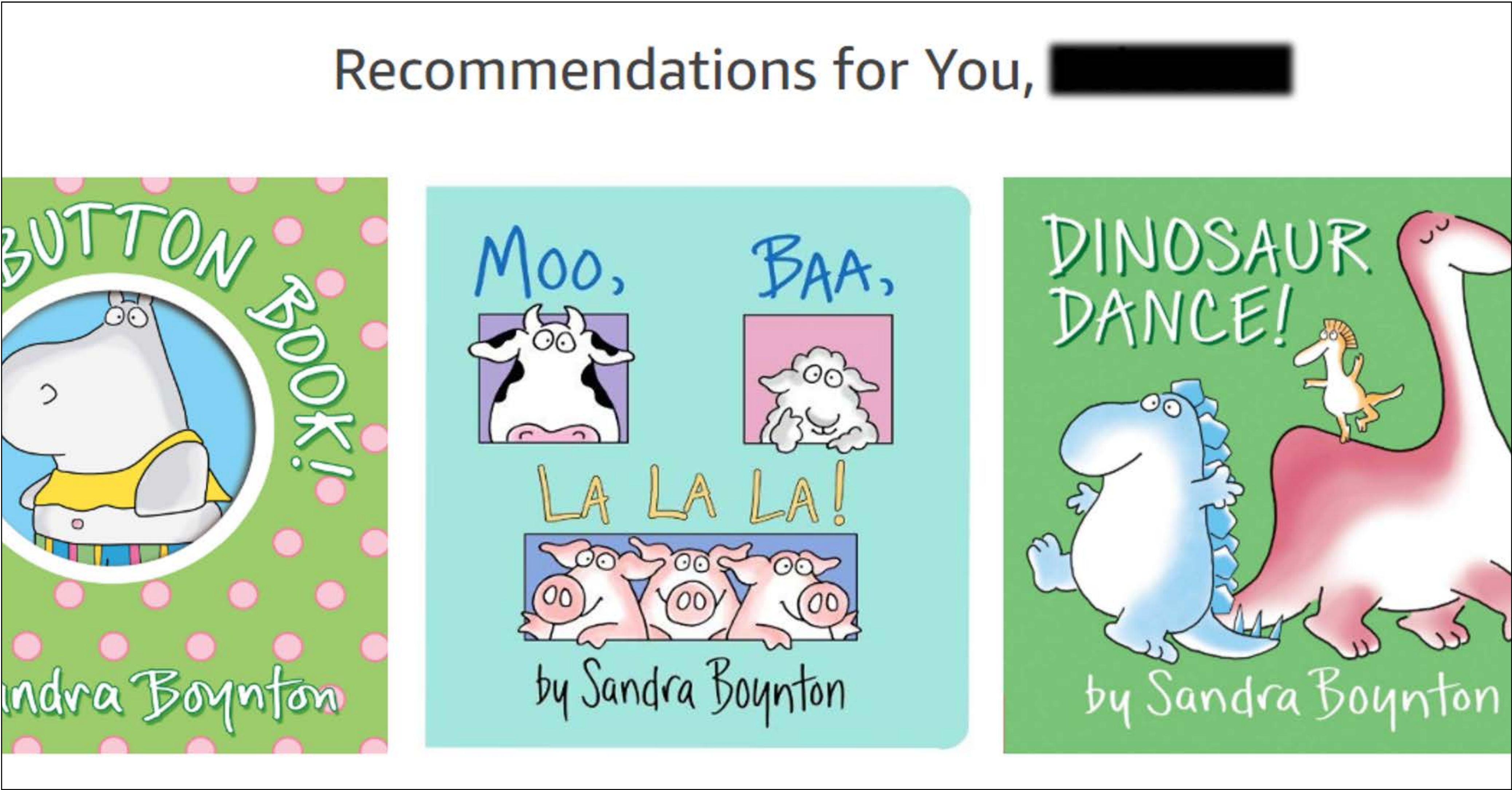
Learn from user behavior

Personalize the user's experience by learning from their actions over time.

MICROSOFT OFFICE
Listing likely need and behavior



AMAZON
Personalizing recommendations



Update and adapt cautiously

Limit disruptive changes when updating and adapting the AI system's behaviors.

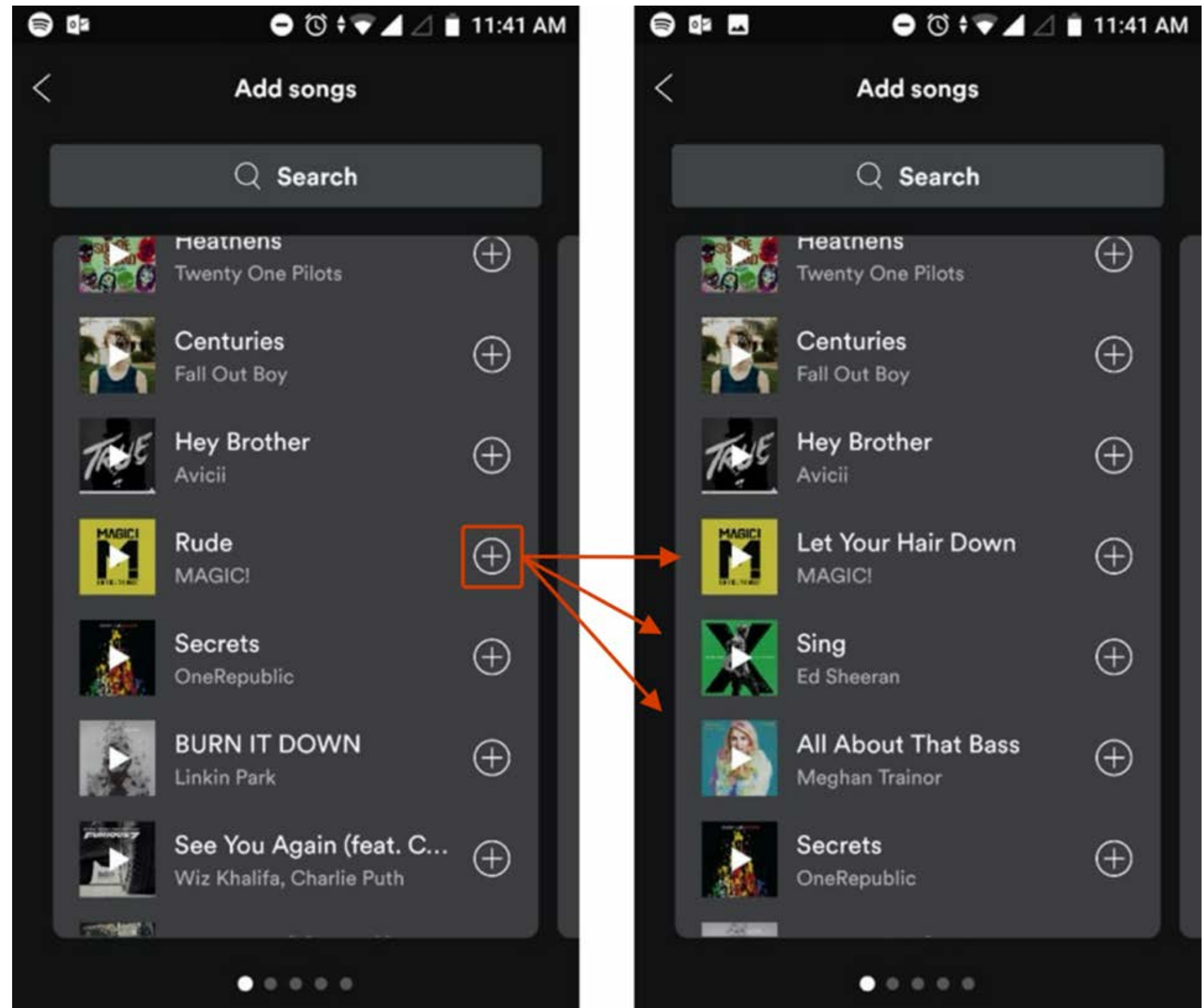
FACEBOOK

Comprehensive updates



SPOTIFY

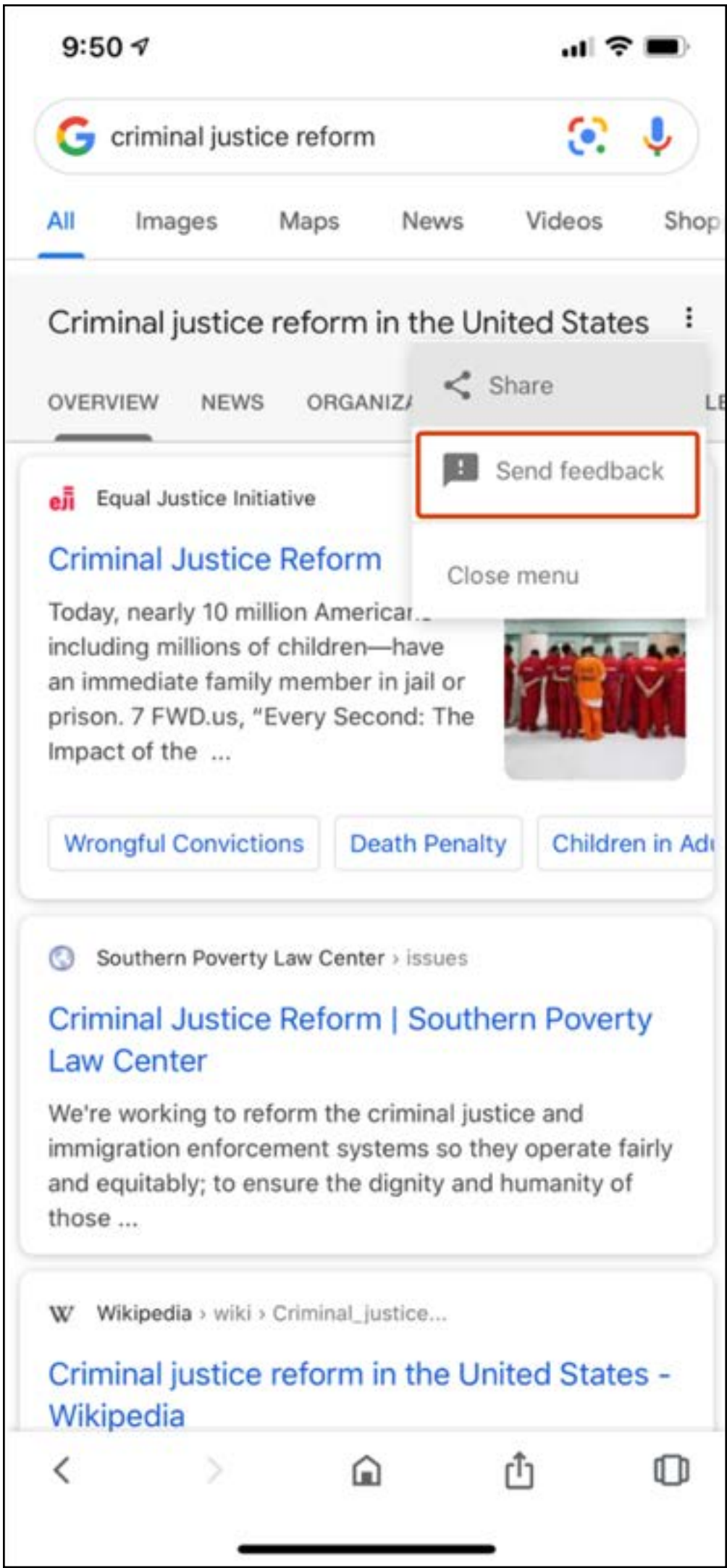
Immediate and partial updates



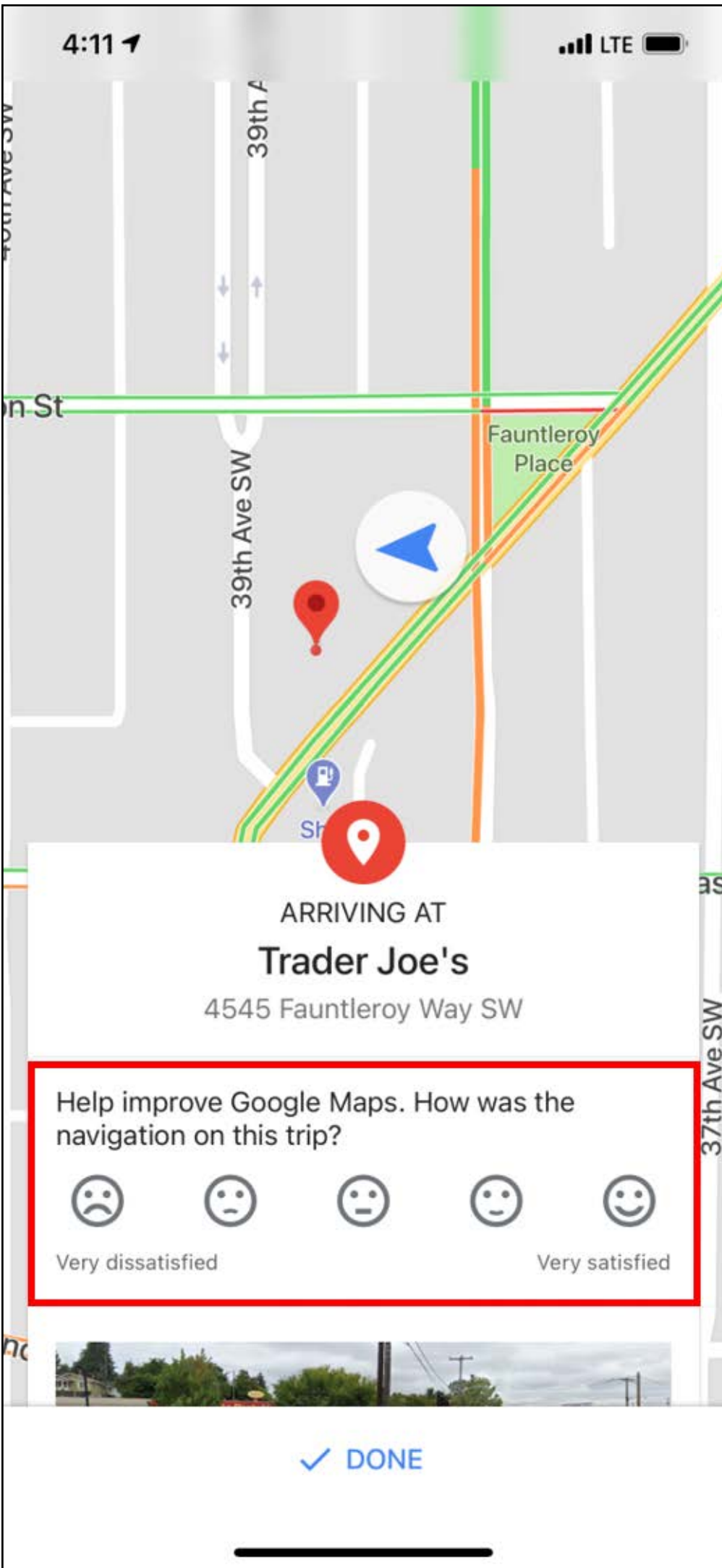
Encourage granular feedback

Enable the user to provide feedback indicating their preferences during regular interaction with the AI system.

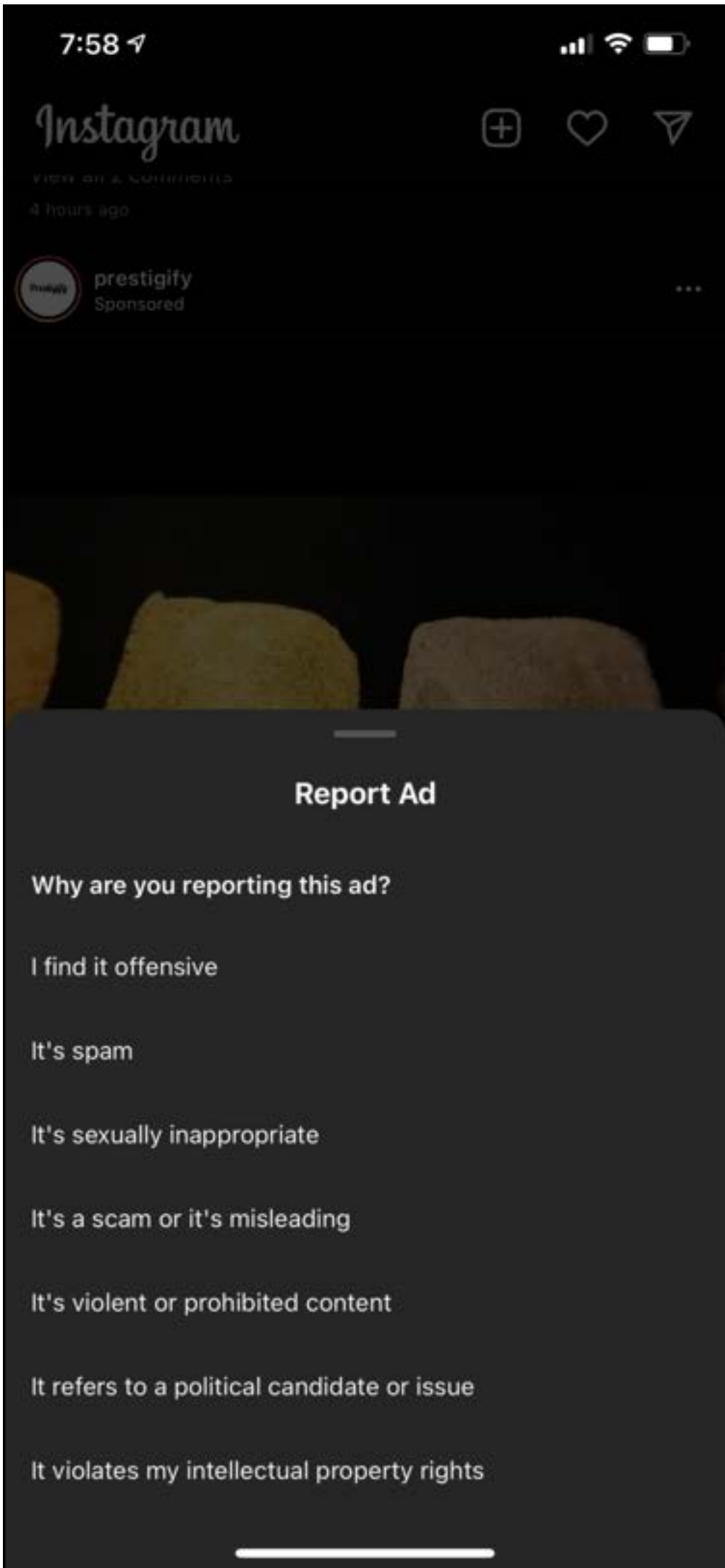
GOOGLE
Encouraging explicit feedback



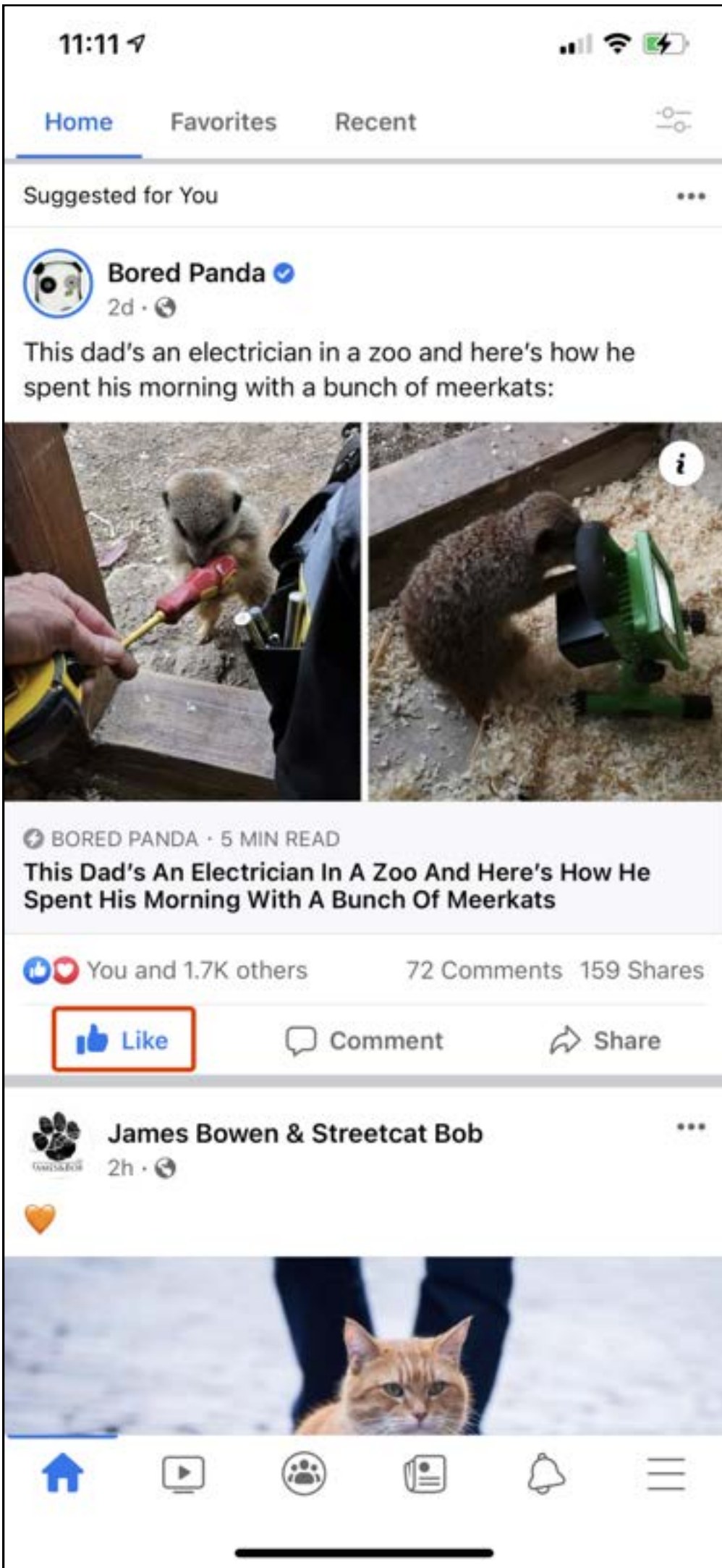
GOOGLE MAPS
Requesting feedback on outputs



INSTAGRAM
Reporting inappropriate content



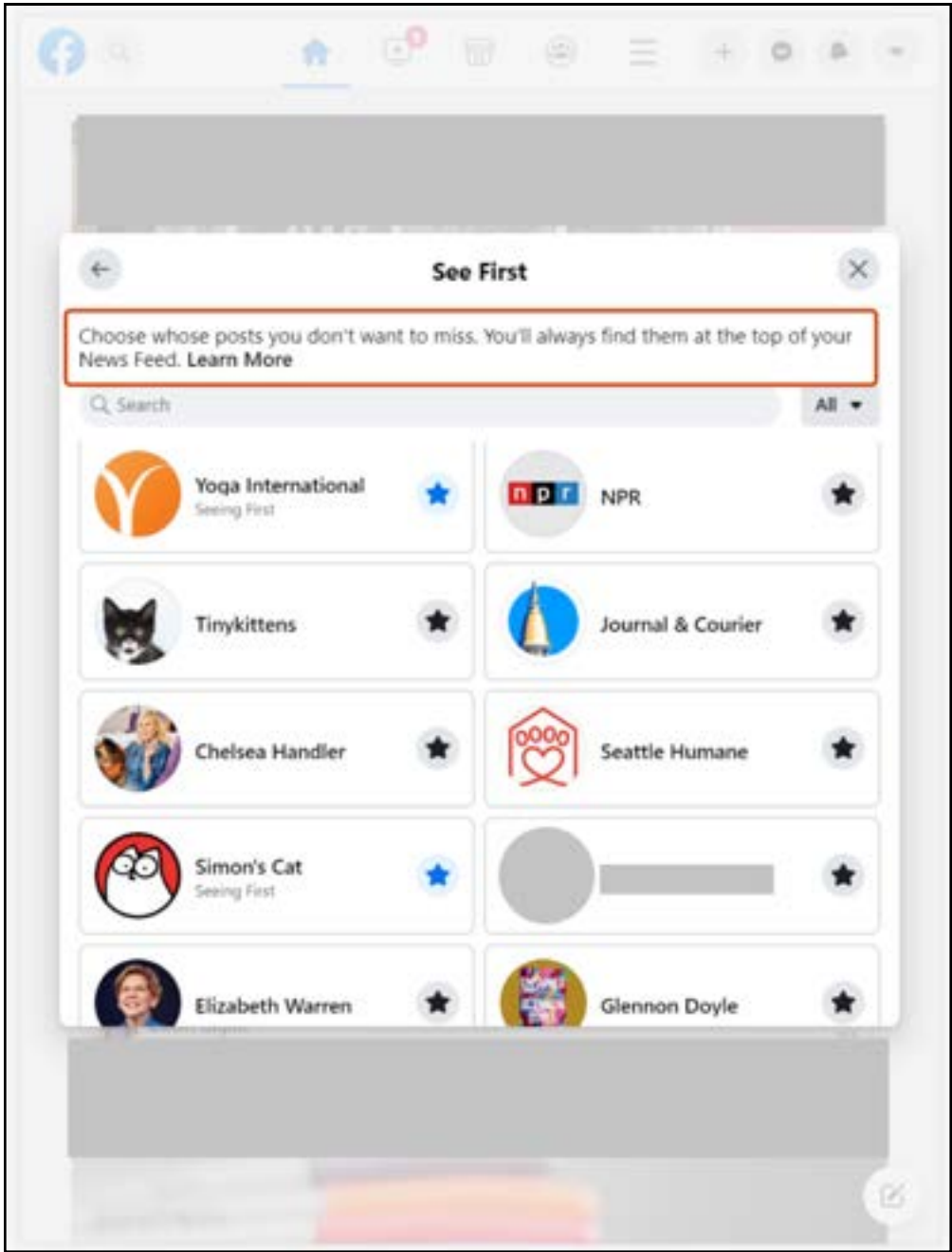
FACEBOOK
Using interaction as feedback



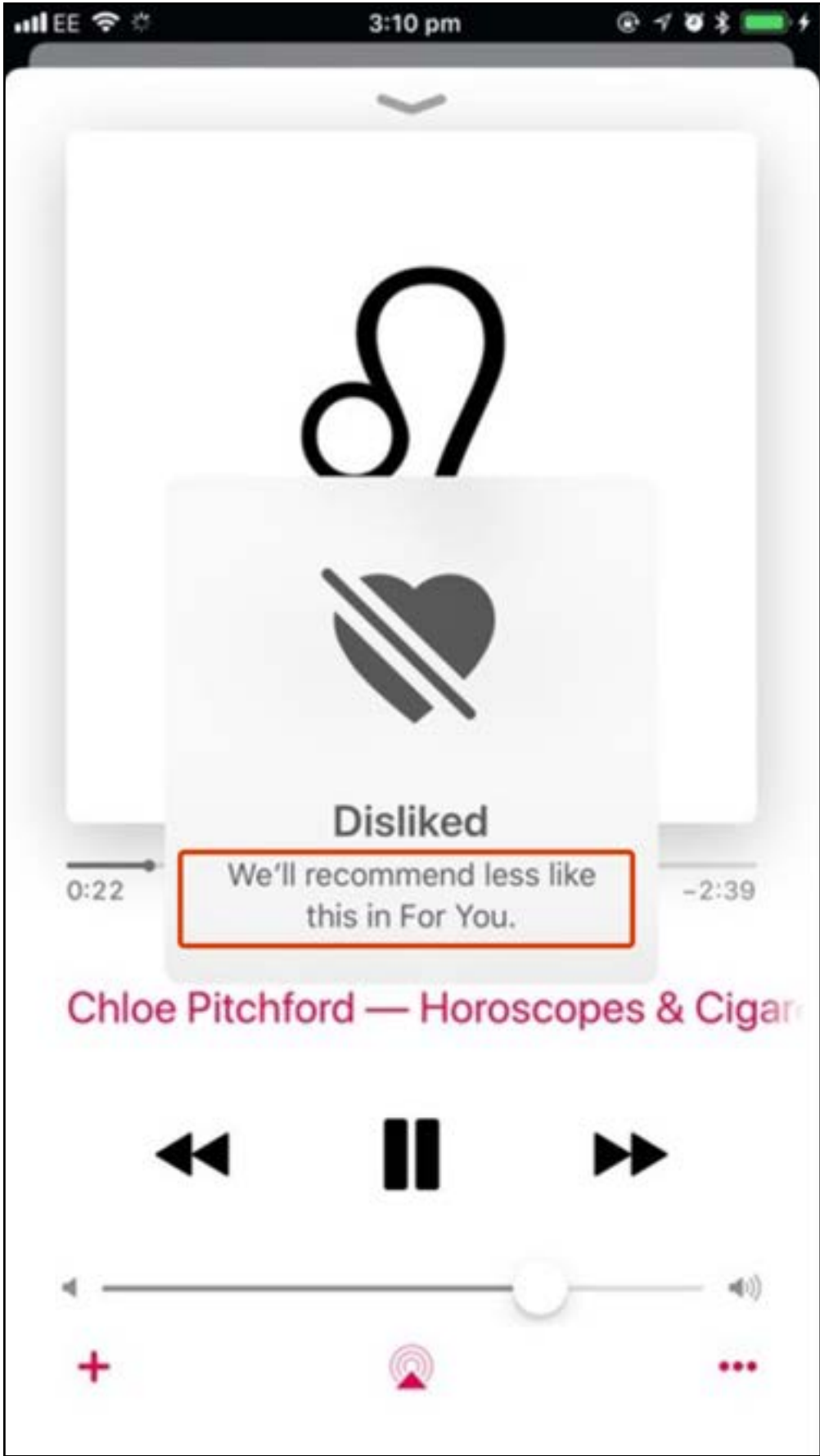
Convey the consequences of user actions

Immediately update or convey how user actions will impact future behaviors of the AI system.

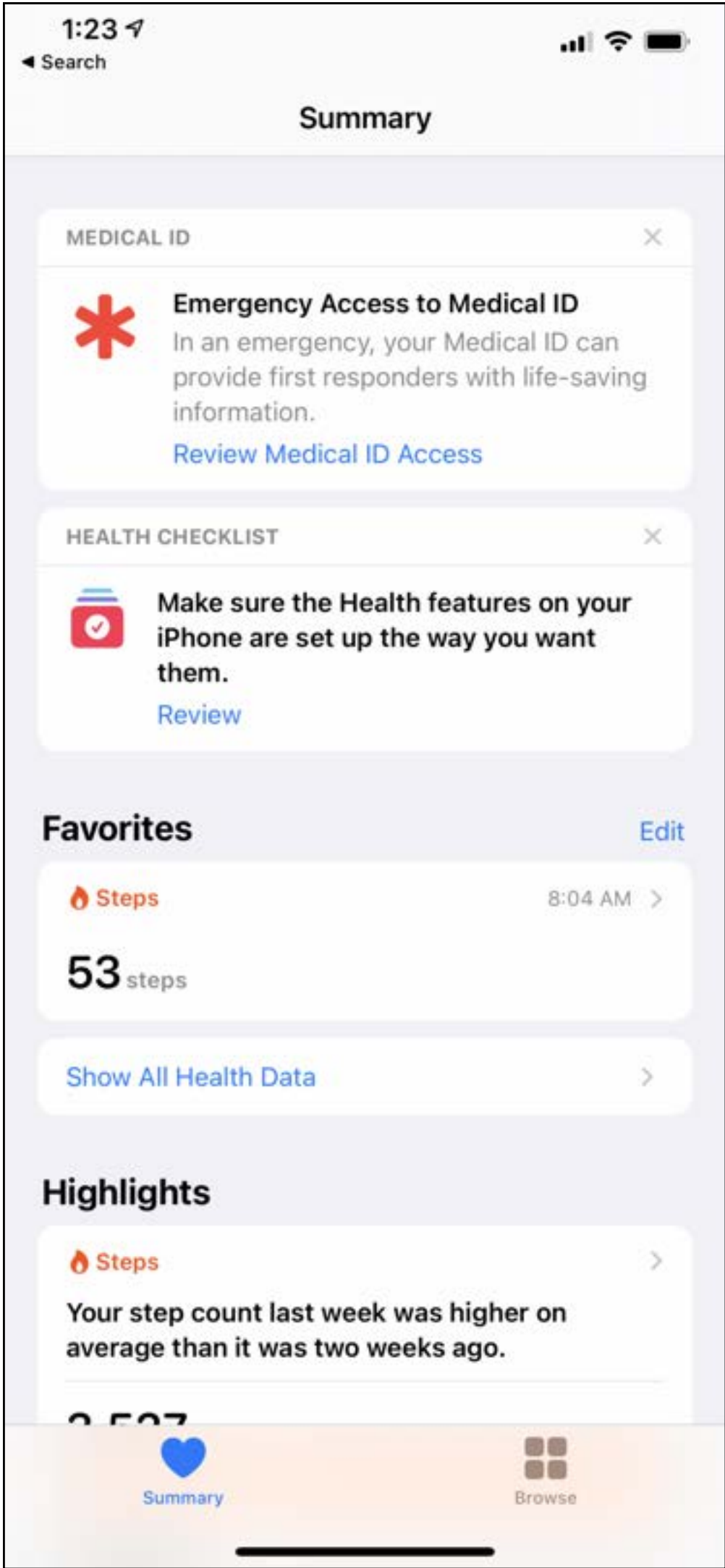
FACEBOOK
Conveying before action



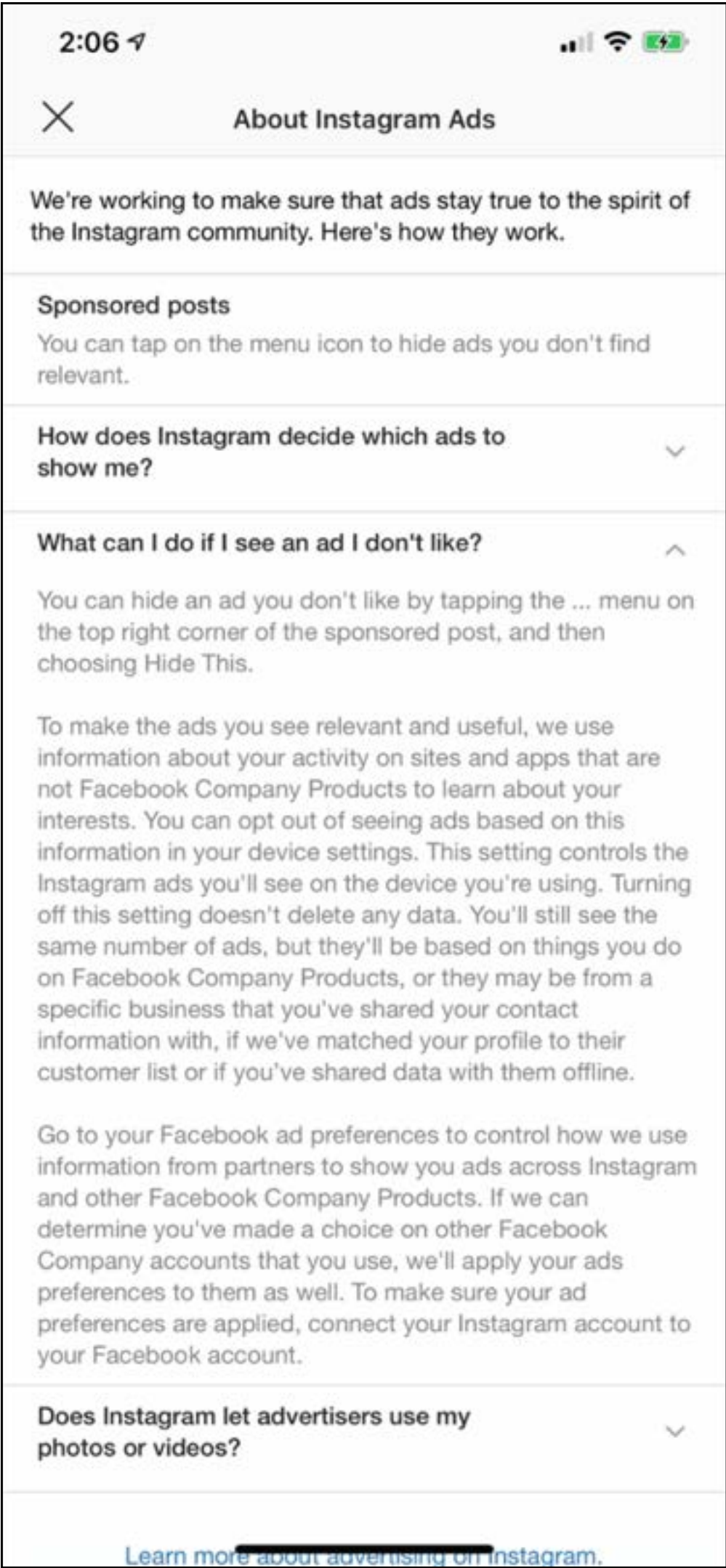
APPLE MUSIC
Conveying after action



APPLE HEALTH
Reconfirming with user



INSTAGRAM
Conveying in help

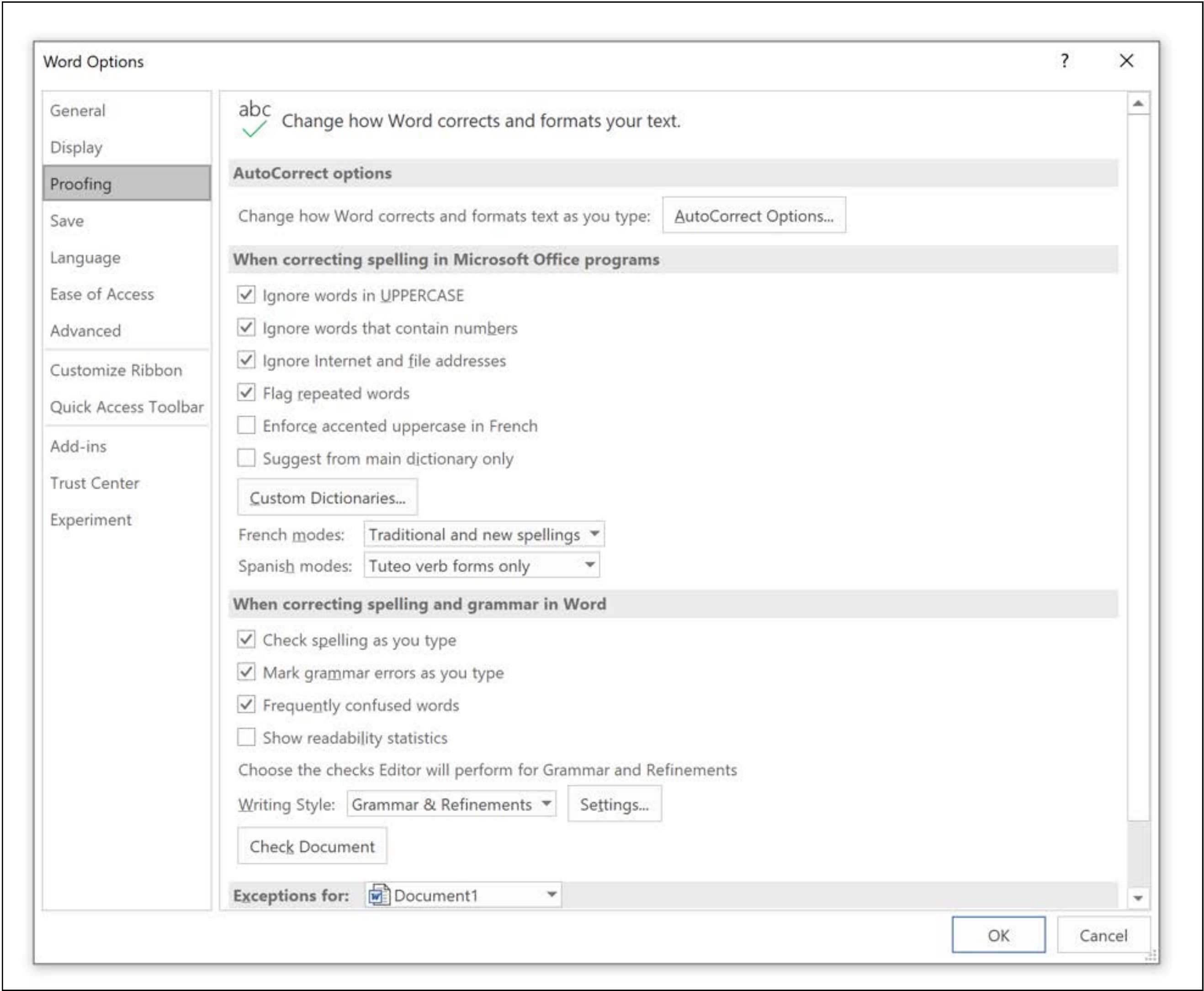


Provide global controls

Allow the user to globally customize what the AI system monitors and how it behaves.

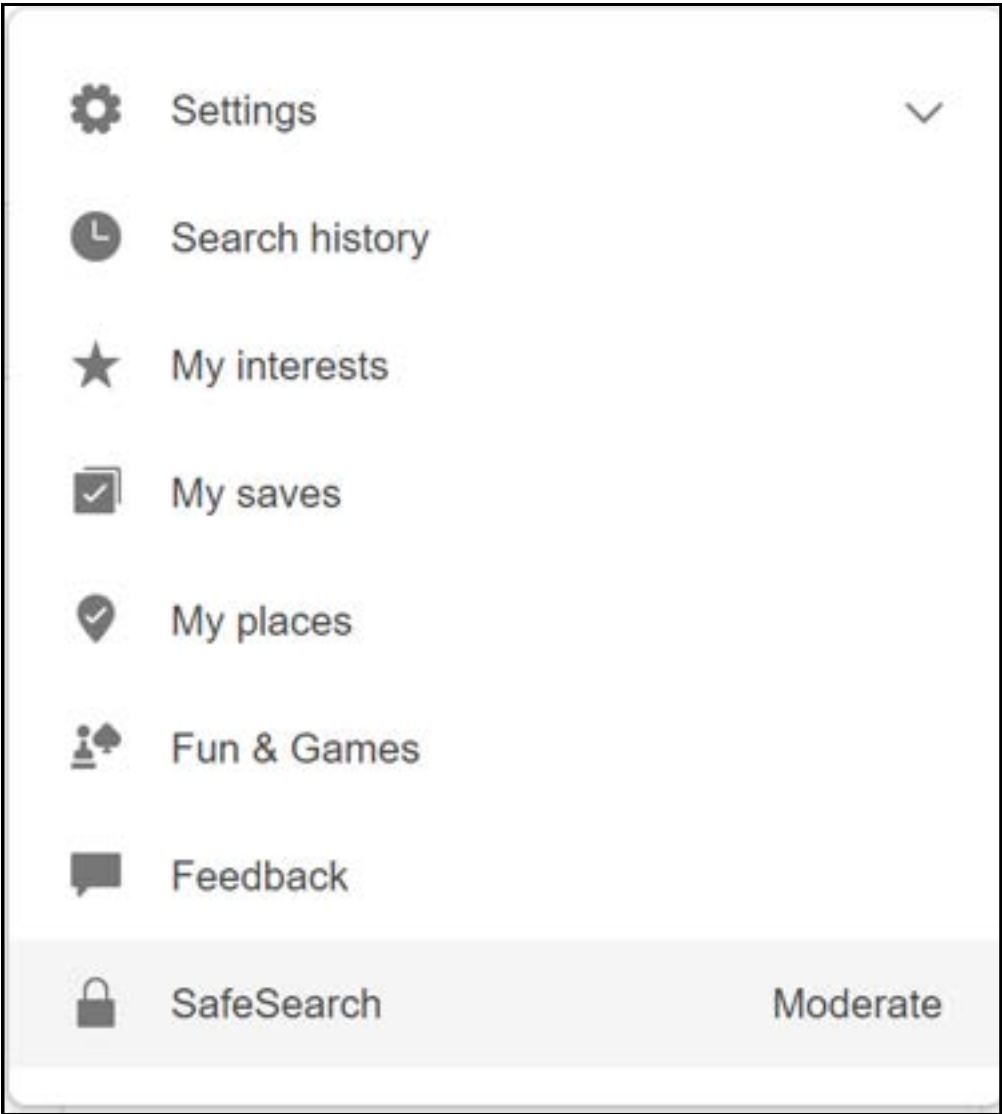
MICROSOFT WORD

Customizing control



BING SEARCH

Selecting settings



Notify users about changes

Inform the user when the AI system adds or updates its capabilities.

OUTLOOK WEB
Showing updates

Help

Tell me what you want to do

What's new

Suggestion Box

Share your ideas with us

Mentions

Alert people when they're mentioned

OneDrive

Share cloud files with email

Mobile

Outlook for iOS, Android, & Windows Phone

See more

Need help?

Microsoft Global Helpdesk

Help

Feedback

Community

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