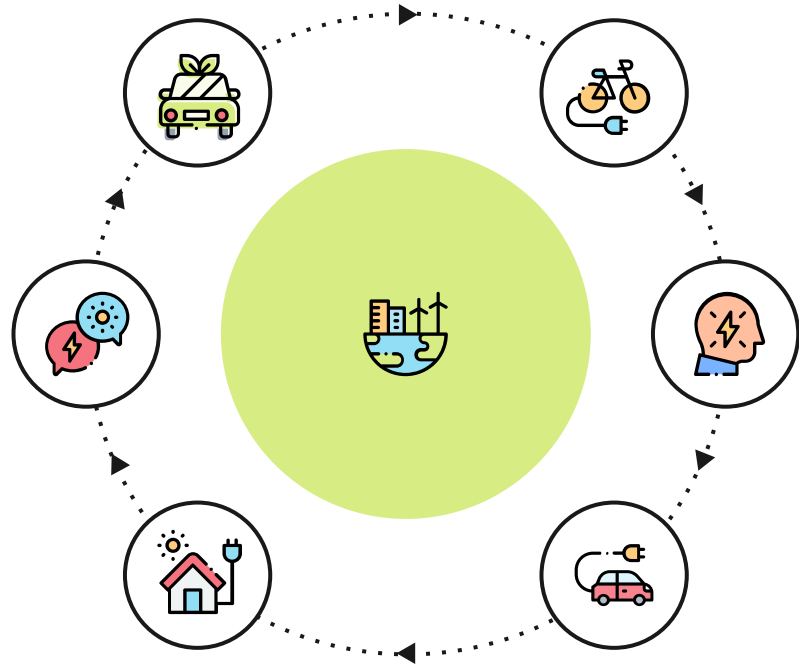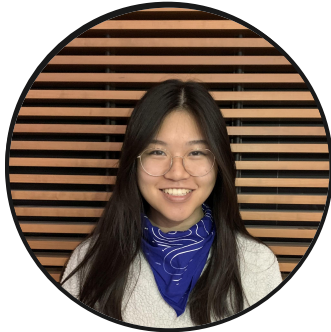# CityPal

Explore your city!

Samantha Tuapan
Sanjana Ajit Kumar
Aris Wells
Joanne Tsao

Meet the Team

Sanjana
Ajit Kumar

Joanne Tsao

Samantha
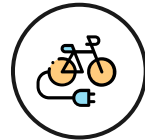Tuapen

Aris Wells

Table of Contents
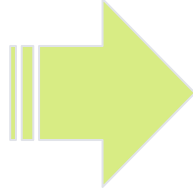
Problem Statement

Everyone has experienced the feeling of wanting to explore their city but not knowing who to explore it with or knowing where to start. Designing a recommendation system for people to find places to go to will allow users to be more involved with their surroundings.

CityPal is an application that recommends activities based on an algorithm and helps them find someone else who is also interested in that activity. Our goal was to provide recommendations in a way that was clearly explained to the user.
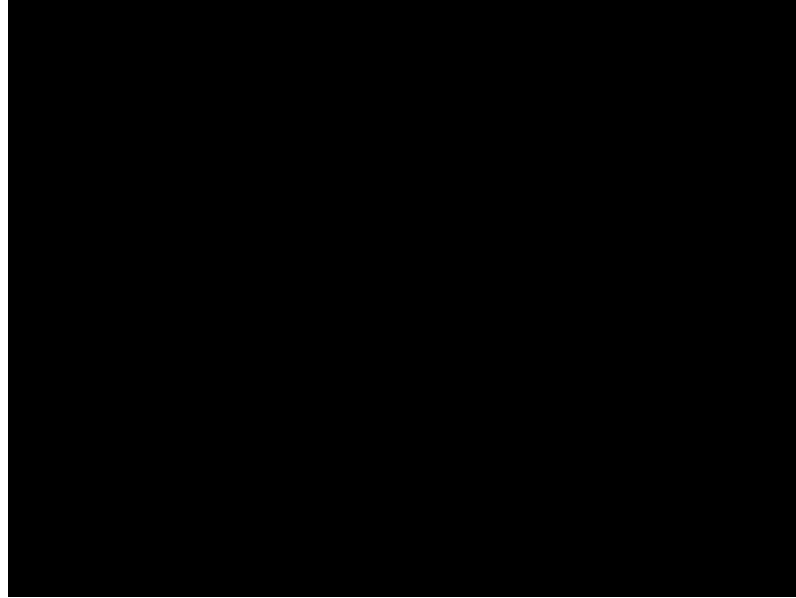
Research Questions

How do recommendation explanations impact user experience?

To what extent do users seek explanations for AI results?

Solution: CityPal

Take a look at CityPal here!

Our Research
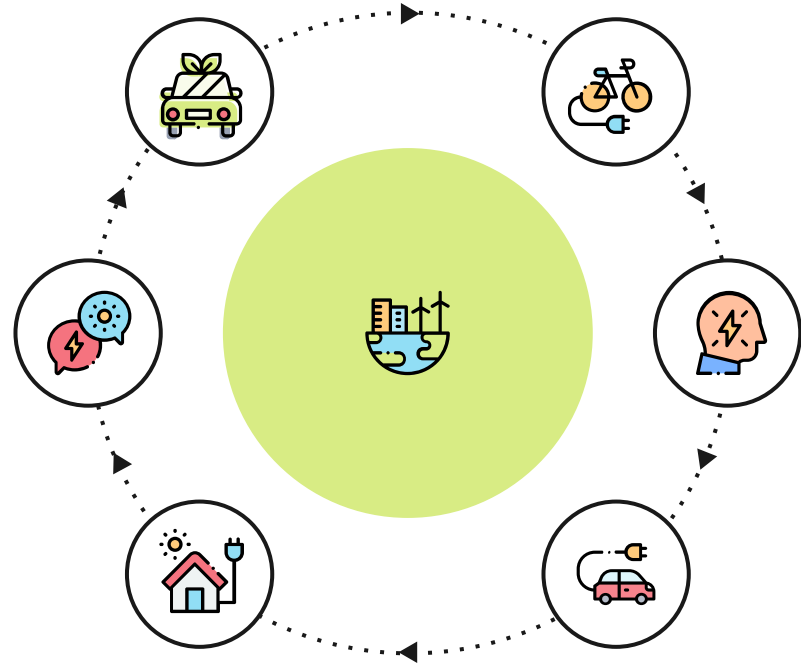
Overview of our research

User Interviews

Interviewed 8 people total Found that many people were concerned about **parking, pricing,** and **location**

Competitive Analysis

We compared 8 direct competitors and 4 indirect competitors to guide us in our **feature development**

User Personas

Developed 2 user personas to help us focus on **pain points** to address

User Journey Maps

We created 2 journey maps based off of our 2 personas to get an idea of how each touchpoint of our app would **impact users**

Personas

Ryan Gonzales
Age: 21
Occupation: Undergraduate student
Location: Austin, TX

Biography:
Ryan is a student at the University of Texas at Austin who has been a resident of the city for 6 months. He likes to paint, watch movies, and go to concerts in his free time. He wants to explore more of Austin and get to know the area around him better, as well as get to know the people around him better. As someone living on a student budget, it is sometimes hard for him to find things within his budget to do, as well things that are easy for him to get to, as he does not have a car, and public transport can be unreliable at times.

Behaviors:
- Uses social media often to find out about new events
- active in several student organizations

Goals:
- Make new friends
- Explore while staying within the constraints of his budget
- Participate in more niche activities around Austin

Pain Points:
- The buses are not always on time and can be unreliable
- Hard to find cheap or free events
- Traffic can be very annoying at times due to long waits

Tara Daniels
Age: 23
Occupation: Master's student
Location: Austin, TX

Biography:
Tara is a local Austin resident who has been living here for several years. She enjoys hiking, going to coffee shops, bouldering, gardening, and visiting art museums. She feels that she knows her way around the city and is pretty familiar with certain parts of the city. She tries to do something once every two weeks, and would like to continue to get to know the city better. She has her own car, which makes it easy to go to wherever she wants, but parking is often troublesome to figure out.

Behaviors:
- Uses maps and other local trackers to get information about event's location before going
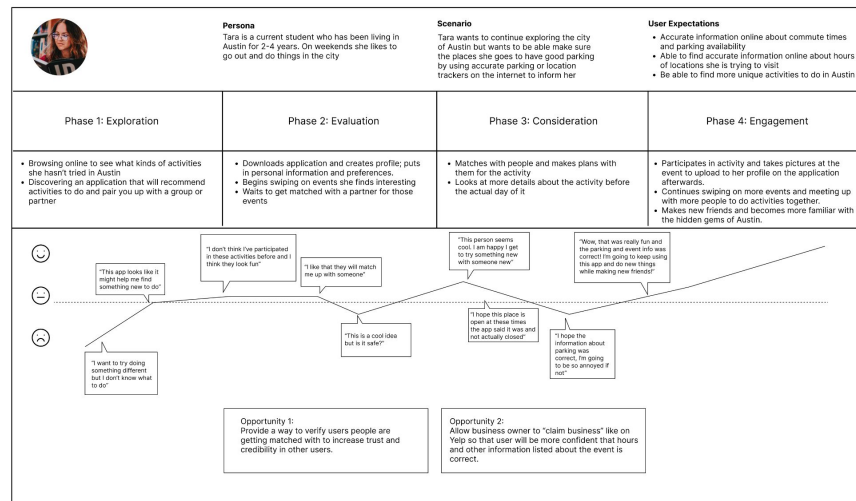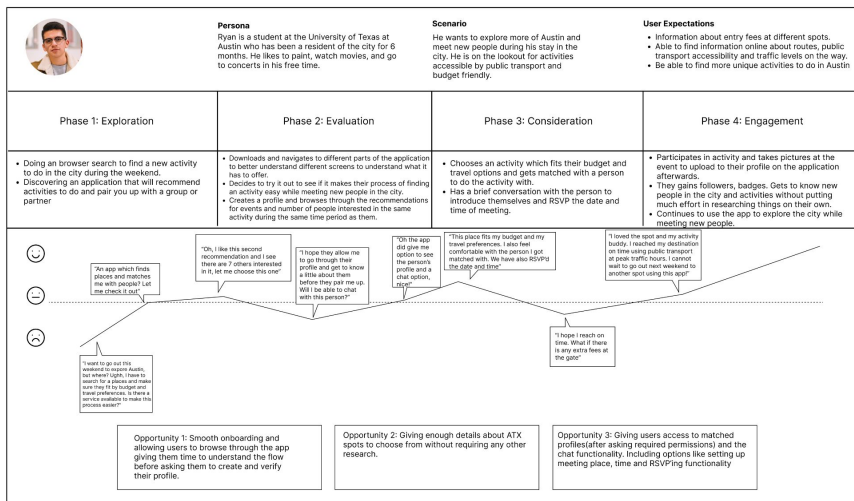- Mainly does things on the weekends

Goals:
- Continue to meet new people and participate in new activities that are located in areas with reasonable parking
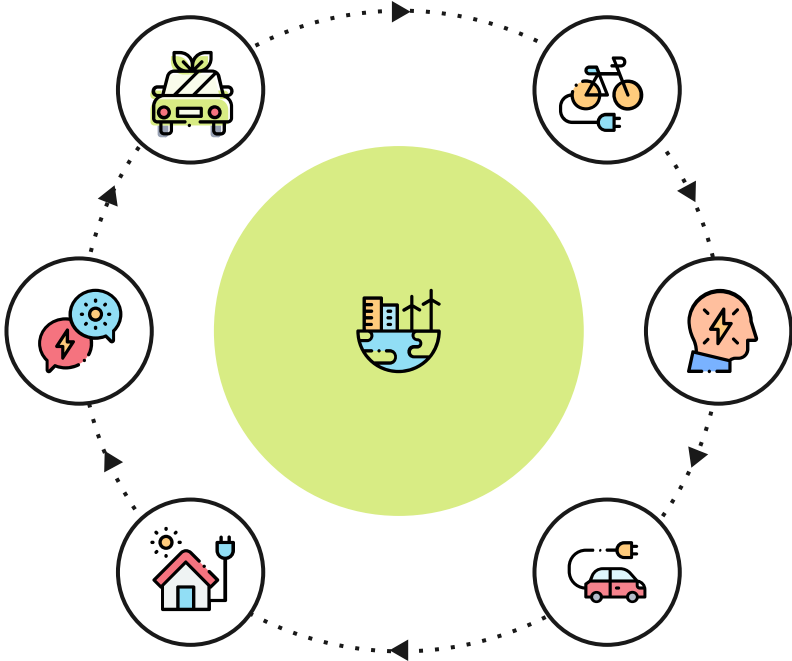- Take part in events that fit personal budget

Pain Points:
- Parking is a pain to figure out and can be a deterrent from trying a new activity
- Driving in Austin is not ideal due to badly constructed roads

User Journey Maps

Map 1 — Ryan

Persona
Ryan is a student at the University of Texas at Austin who has been a resident of the city for 6 months. He likes to paint, watch movies, and go to concerts in his free time.

Scenario
He wants to explore more of Austin and meet new people during his stay in the city. He is on the lookout for activities accessible by public transport and budget friendly.

User Expectations
- Information about entry fees at different spots.
- Able to find information online about routes, public transport accessibility and traffic levels on the way.
- Be able to find more unique activities to do in Austin

Phase 1: Exploration	Phase 2: Evaluation	Phase 3: Consideration	Phase 4: Engagement
• Doing an browser search to find a new activity to do in the city during the weekend. • Discovering an application that will recommend activities to do and pair you up with a group or partner	• Downloads and navigates to different parts of the application to better understand different screens to understand what it has to offer. • Decides to try it out to see if it makes their process of finding an activity easy while meeting new people in the city. • Creates a profile and browses through the recommendations for events and number of people interested in the same activity during the same time period as them.	• Chooses an activity which fits their budget and travel options and gets matched with a person to do the activity with. • Has a brief conversation with the person to introduce themselves and RSVP the date and time of meeting.	• Participates in activity and takes pictures at the event to upload to their profile on the application afterwards. • They gains followers, badges. Gets to know new people in the city and activities without putting much effort in researching things on their own. • Continues to use the app to explore the city while meeting new people.

"An app which finds places and matches me with people? Let me check it out"

"Oh, I like this second recommendation and I see there are 7 others interested in it, let me choose this one"

"I hope they allow me to go through their profile and get to know a little about them before they pair me up. Will I be able to chat with this person?"

"Oh the app did give me option to see the person's profile and a chat option, nice!"

"This place fits my budget and my travel preferences. I also feel comfortable with the person I got matched with. We have also RSVP'd the date and time"

"I loved the spot and my activity buddy. I reached my destination on time using public transport at peak traffic hours. I cannot wait to go out next weekend to another spot using this app!"

"I want to go out this weekend to explore Austin, but where? Ughh, I have to search for a place and make sure they fit by budget and travel preferences. Is there a service available to make this process easier?"

"I hope I reach on time. What if there is any extra fees at the gate"

Opportunity 1: Smooth onboarding and allowing users to browse through the app giving them time to understand the flow before asking them to create and verify their profile.

Opportunity 2: Giving enough details about ATX spots to choose from without requiring any other research.

Opportunity 3: Giving users access to matched profiles(after asking required permissions) and the chat functionality. Including options like setting up meeting place, time and RSVP'ing functionality

Map 2 — Tara

Persona
Tara is a current student who has been living in Austin for 2-4 years. On weekends she likes to go out and do things in the city

Scenario
Tara wants to continue exploring the city of Austin but wants to be able make sure the places she goes to have good parking by using accurate parking or location trackers on the internet to inform her

User Expectations
- Accurate information online about commute times and parking availability
- Able to find accurate information online about hours of locations she is trying to visit
- Be able to find more unique activities to do in Austin

Phase 1: Exploration	Phase 2: Evaluation	Phase 3: Consideration	Phase 4: Engagement
• Browsing online to see what kinds of activities she hasn't tried in Austin • Discovering an application that will recommend activities to do and pair you up with a group or partner	• Downloads application and creates profile; puts in personal information and preferences. • Begins swiping on events she finds interesting • Waits to get matched with a partner for those events	• Matches with people and makes plans with them for the activity • Looks at more details about the activity before the actual day of it	• Participates in activity and takes pictures at the event to upload to her profile on the application afterwards. • Continues swiping on more events and meeting up with more people to do activities together. • Makes new friends and becomes more familiar with the hidden gems of Austin.

"This app looks like it might help me find something new to do"

"I don't think I've participated in these activities before and I think they look fun"

"I like that they will match me up with someone"

"This person seems cool. I am happy I get to try something new with someone new"

"Wow, that was really fun and the parking and event info was correct! I'm going to keep using this app and do new things while making new friends!"

"I want to try doing something different but I don't know what to do"

"This is a cool idea but is it safe?"

"This place is open at these times the app said it was and not actually closed"

"I hope the information about parking was correct, I'm going to be so annoyed if not"

Opportunity 1:
Provide a way to verify users people are getting matched with to increase trust and credibility in other users.

Opportunity 2:
Allow business owner to "claim business" like on Yelp so that user will be more confident that hours and other information listed about the event is correct.
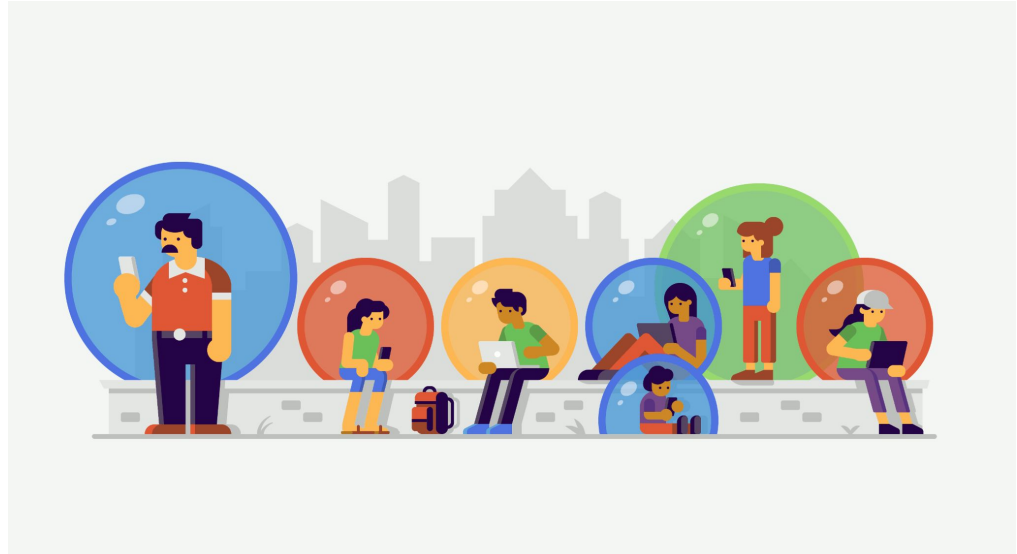
Related Work

Filter Bubble

What is it?

A situation in which an internet user encounters only information and opinions that conform to and reinforce their own beliefs, caused by algorithms that personalize an individual's online experience.
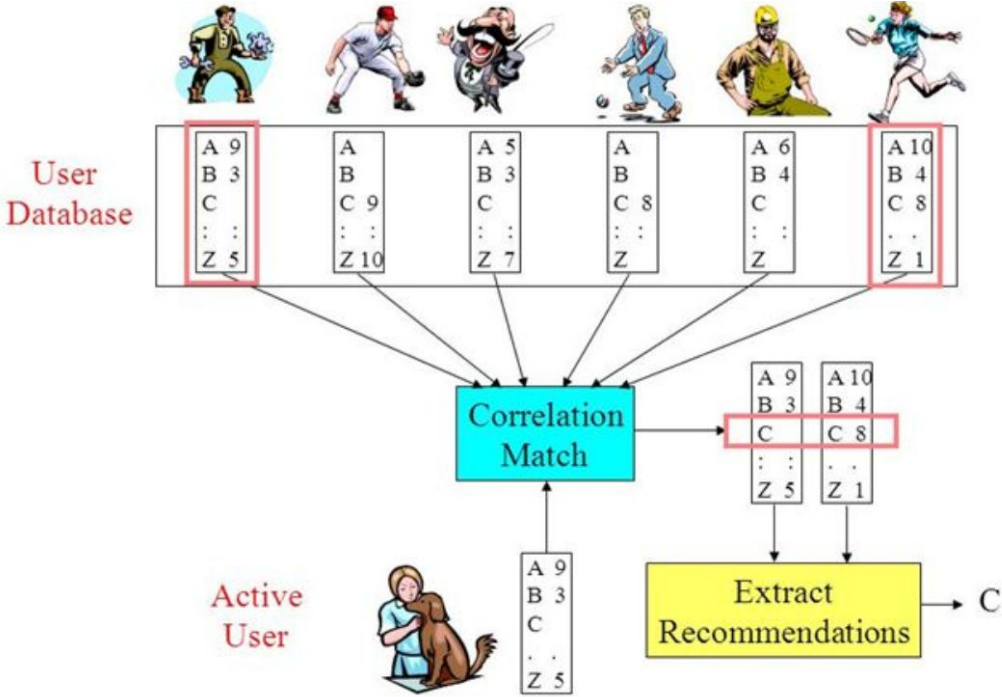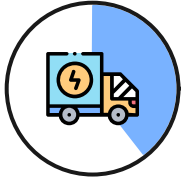
Filter Bubble

What is it?

A situation in which an internet user encounters only information and opinions that conform to and reinforce their own beliefs, caused by algorithms that personalize an individual's online experience.

Collaborative Filtering

Algorithmic Explainability

From integrate.ai's 'Responsible AI Framework'

Level 1   Explain the intention behind how the system impacts customers

Level 2   Explain the data sources you use and how you audit outcomes
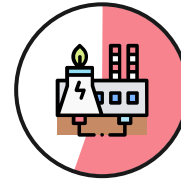
Level 3   Explain how inputs in a model lead to outputs in a model

Methods
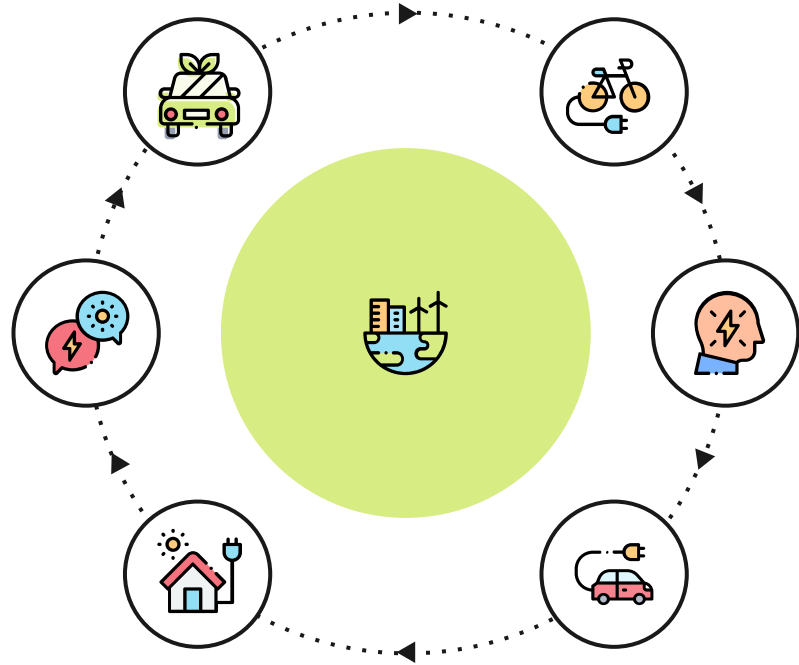
Types of Explanations explored

Statistical explanation (Percentage similarity based and confidence score)
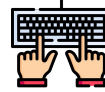
Input Influence based explanation

General system based explanations VS Output based explanation

Interaction based explanation

Explanation helping easy recall

Detailed versus partial explanation

SKIP>>

Scenario 1 - Task 1

Home Screen ➝ **Find an Activity** ➝ **Activity categories** ➝ **Explanations**
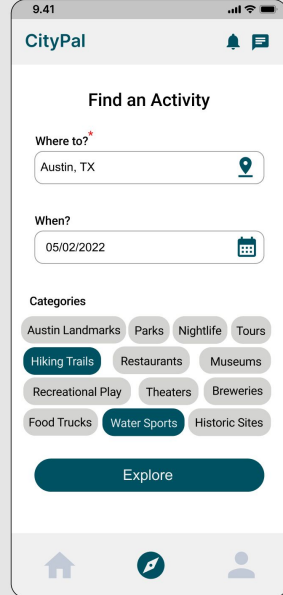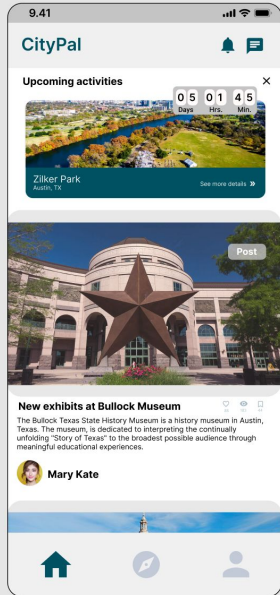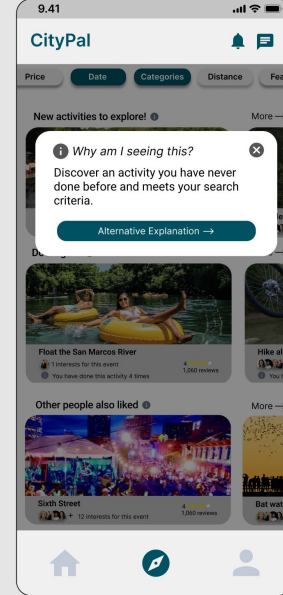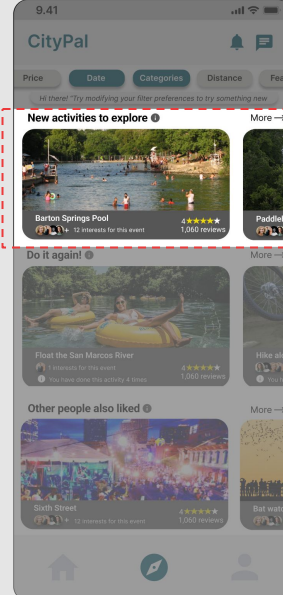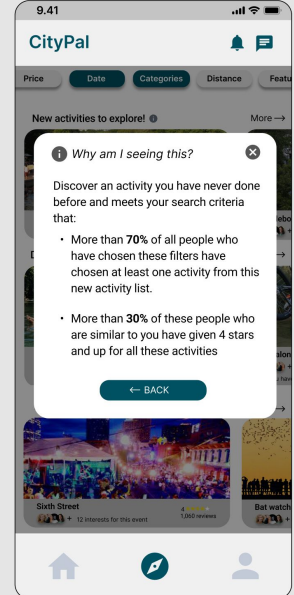
Explanation 1   Explanation 2

Scenario 1 - Task 1
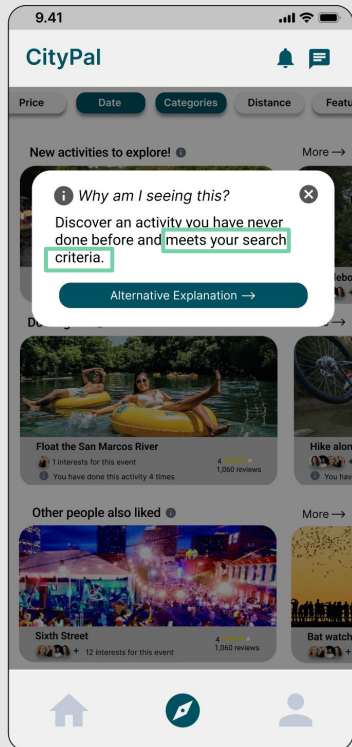
Explanation 1
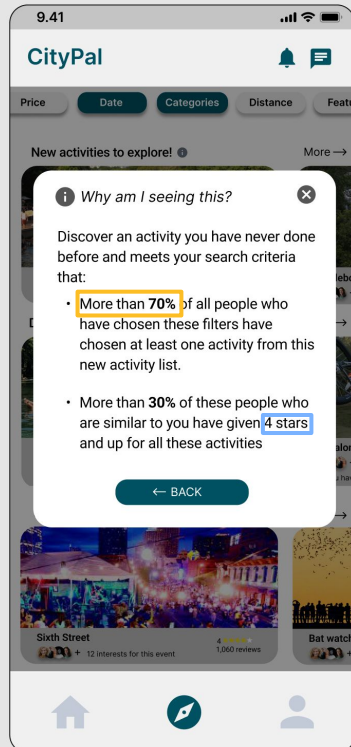
Explanation 2

Positive

Most participants like the short and effective explanation

(Explanation 1)

Mixed

Participants who were more data-driven to keep the statistical data optional.
"Link" or "Learn More"

Suggestions

Liked the star rating, would have been better to have a **link to actual reviews**

"More precise stars and a link to look at reviews myself instead of believing the explanation which mentions 4 stars"
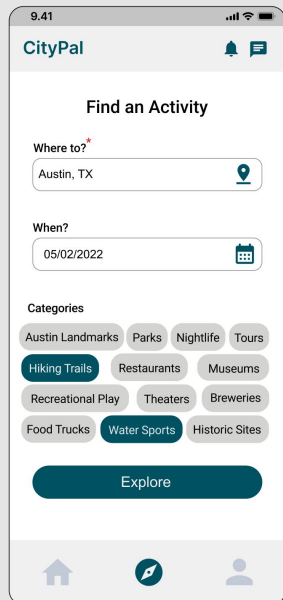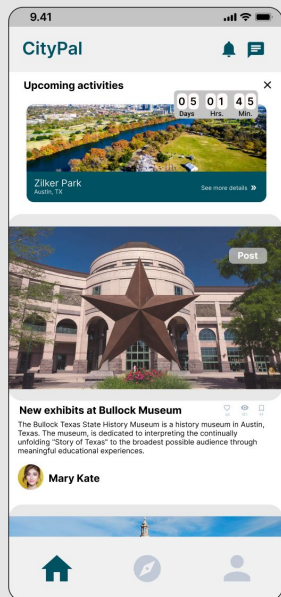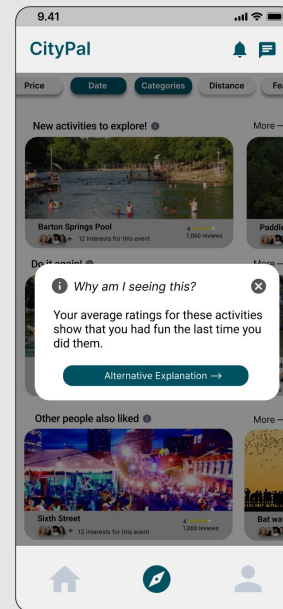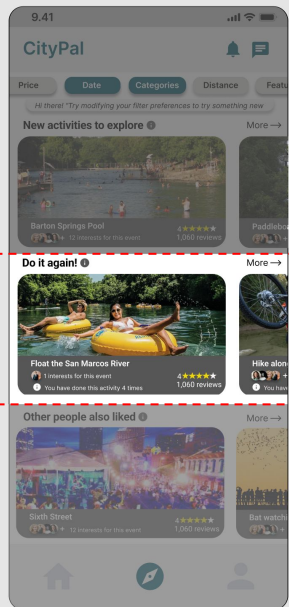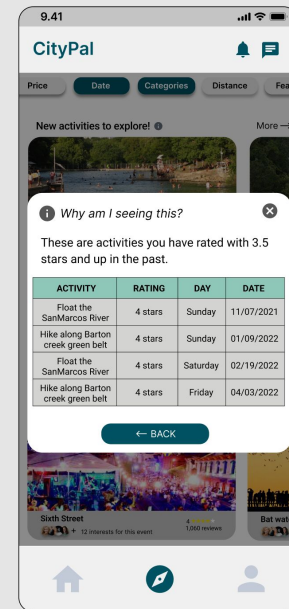
Scenario 1 - Task 2
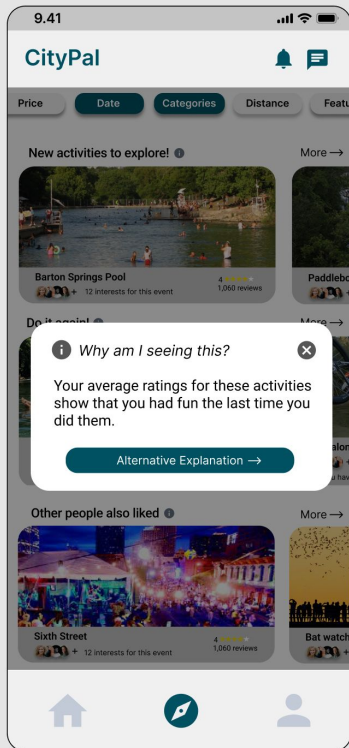
Explanation 1
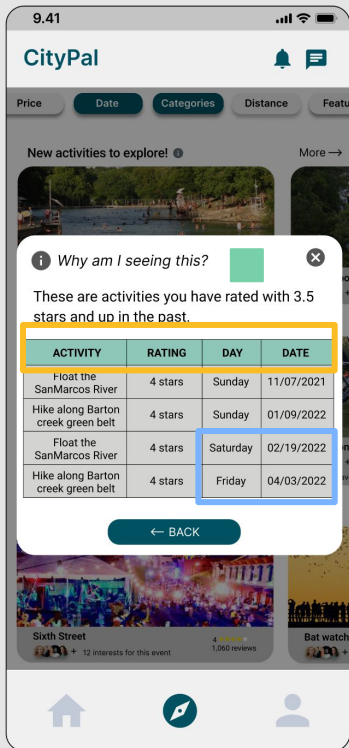
Explanation 2

Positive

In general, participants felt **explanation 2** was more **clear and detailed**.

Mixed

Majority of participants chose **explanation 2** with modification. They wanted the freedom to **choose the columns that mattered to them**

"...the date and the day of the week I went is useful. I'll remember my experience with date and day."

"I don't see the utility for day of the week and date, personally"

Suggestions

Help easy recall
One participant asked to have a link to upload a couple of pictures of their previous experiences

Scenario 1 - Task 3

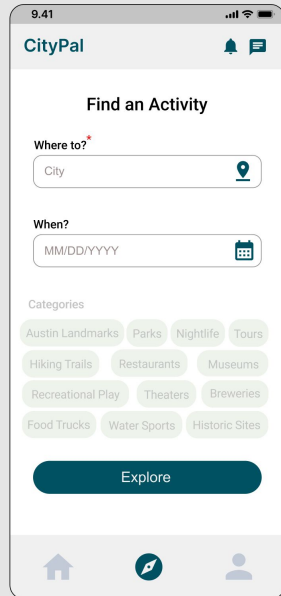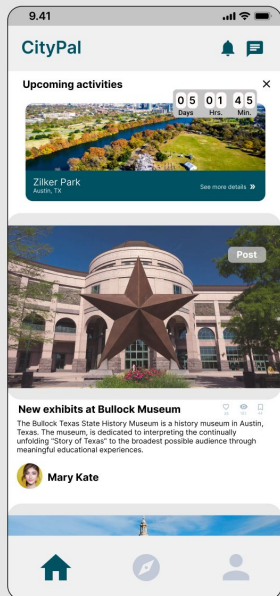Home Screen ⟶ Find an Activity ⟶ Activity categories ⟶ Explanations
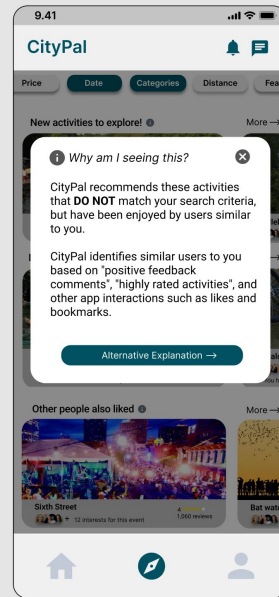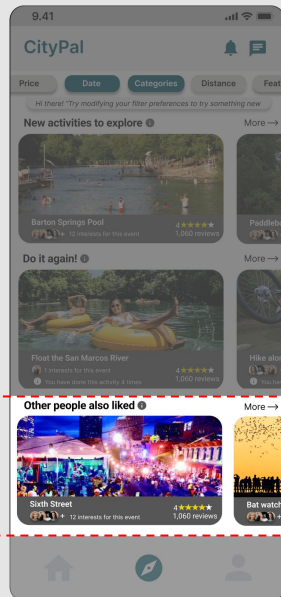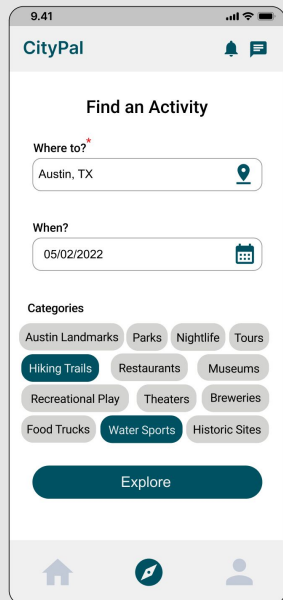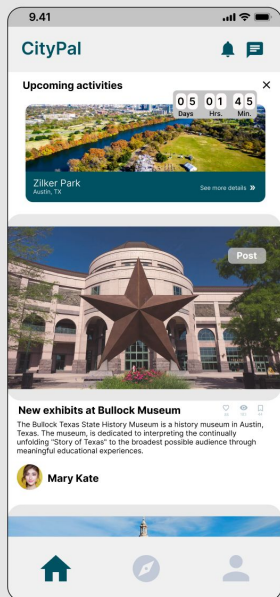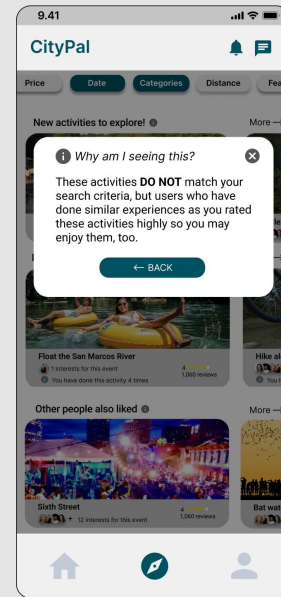
Explanation 1

Explanation 2

Scenario 1 - Task 3
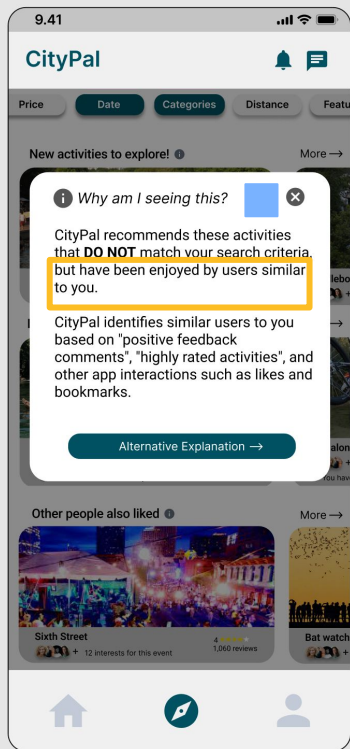
Explanation 1

General system based explanation
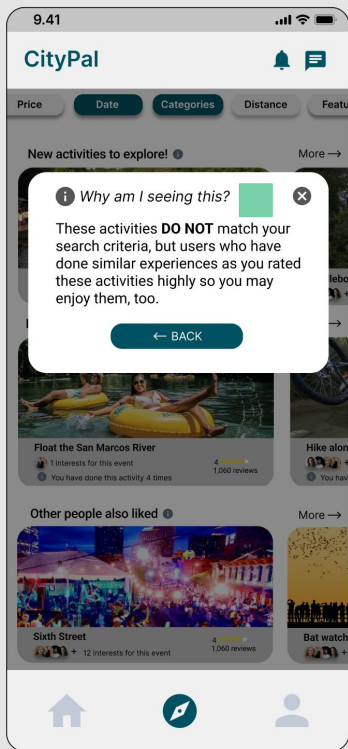
Explanation 2

Output based explanation

Positive

Majority of the participants preferred the **Output based recommendation**

Explanation 2

Mixed

Few participants said that the trust the AI identifying **similar users** and giving them results.

Suggestions

Make the **General system based recommendation** details optional

"Learn More"

POV1:
"This gives more clarity about what is meant by someone similar to me."

POV2:
"I am an AI person, it is easily understandable how the app has related [different factors]...so I don't really need more information to understand that"

Scenario 2

Activity preferences ····▶ **Choosing an activity** ············▶ **Activity description**
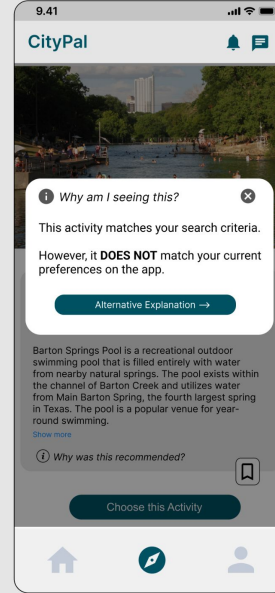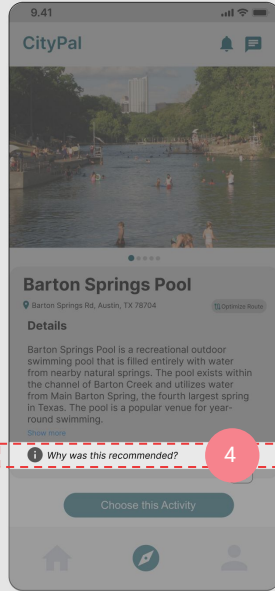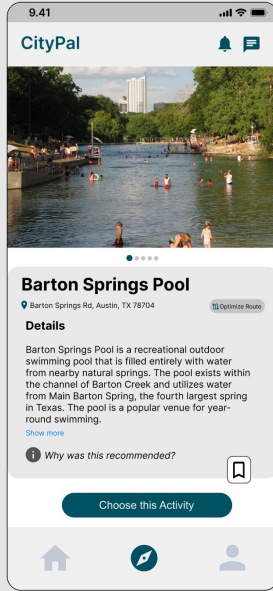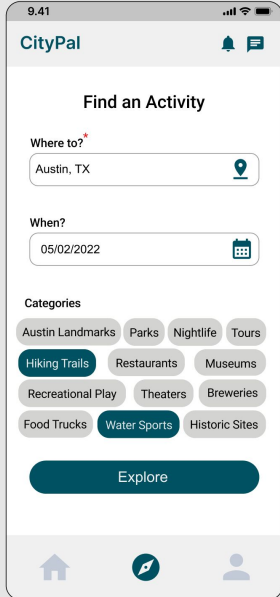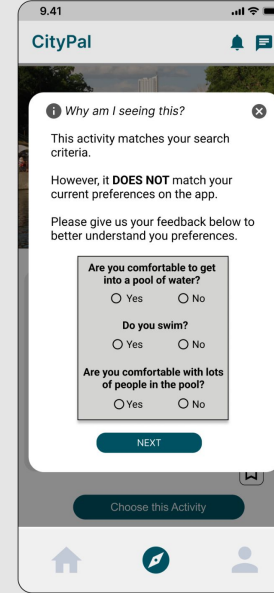
Explanation 1   Explanation 2
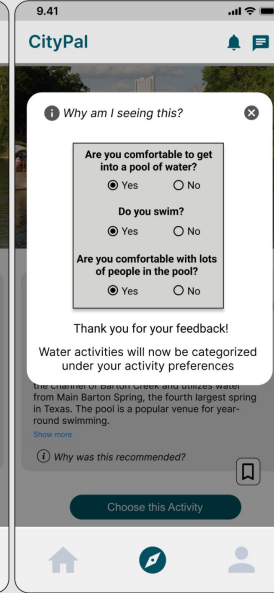
Scenario 2
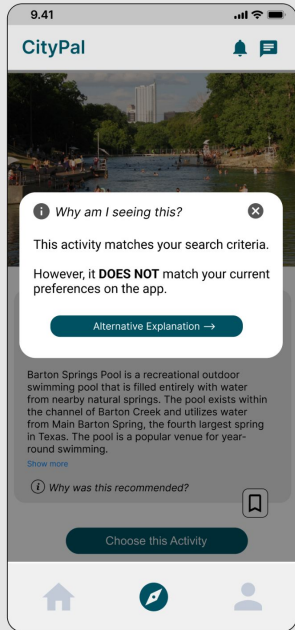
Explanation 1
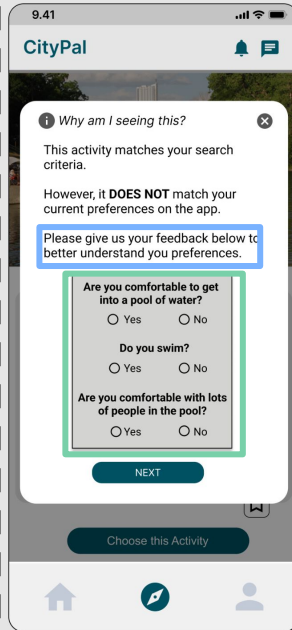
Explanation 2
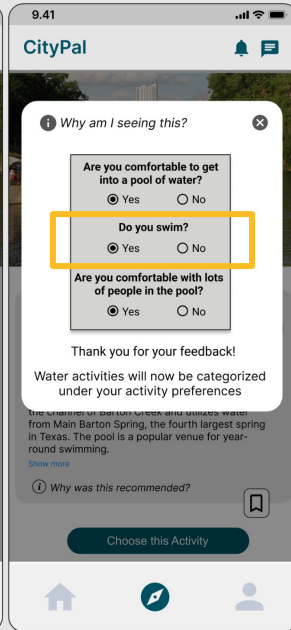
Positive

Participants liked that they were given an opportunity to **input their preference information**

Suggestions

To improve the app experience, add an option for the user to **choose to input these questions at the time** of looking for an activity to do.

Mixed

A few participants pointed out that the questions need to be **user specific questions**

"I would just sit on the side and enjoy the spring water flowing. I would still want to go back but not swim there. It's not a swimming pool, it is a natural spring right?"
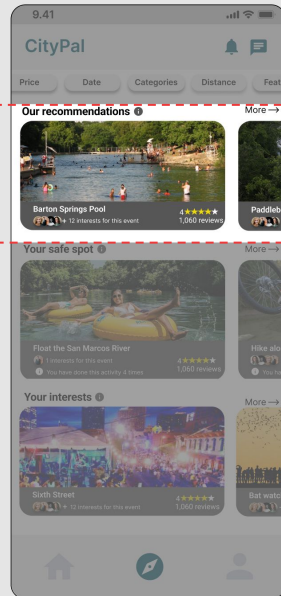
Scenario 3 - Task 1

Home Screen → **Find an Activity** → **Activity categories** → **Explanations**

Explanation 1   **Explanation 2**

Explanation 1

Explanation 2

Positive

Most participants **preferred explanation 1** for its simplicity.

Mixed

One participant felt confident about app activity recommendations after they saw the table comparison in **explanation 2**

Suggestions

Few participants **understood that the comparison of the preferences** of users similar to them is for better understanding of what "Similar users mean".

They **suggested** that a **"Learn More"** section would be better for people who want to get go deep into app recommendations


9.41

CityPal

| Price | Date | Categories | Distance | Featu |

Our recommendations ⓘ   More →

ⓘ *Why am I seeing this?*   ✕

Discover an activity you have never done before that users similar to you have rated highly.

Users similar to you enjoy:
- Hiking
- Water Sports

Alternative Explanation →

Float the San Marcos River   Hike alon

★ 1 Interests for this event   ★
✦ You have done this activity 4 times   ✦ You hav

Your interests ⓘ   More →

Sixth Street   Bat watch

★ + 12 interests for this event   ★

9.41

CityPal

| Price | Date | Categories | Distance | Featu |

ⓘ *Why am I seeing this?*   ✕

Discover an activity you have never done before that users similar to you have rated highly.

YOU	SIMILAR USERS
Have chosen **preference filters** hiking/water sports more than 4 times	8 profiles who often choose hiking/water sports as their **preference filters**
Have chosen **hiking activities over water sports** 3 out of 5 times	Have chosen **hiking activities over water sports** 4 out of 5 times
Have NOT visited Mount Bonnell, Barton Springs Pool or Paddleboarding at Ladybird Lake	**Has visited** one of these places and had a positive experience.

← BACK

Sixth Street   Bat watch

★ + 12 interests for this event   ★

Scenario 3 - Task 2

Home Screen ····▶ **Find an Activity** ····▶ **Activity categories** ·······▶ **Explanations**
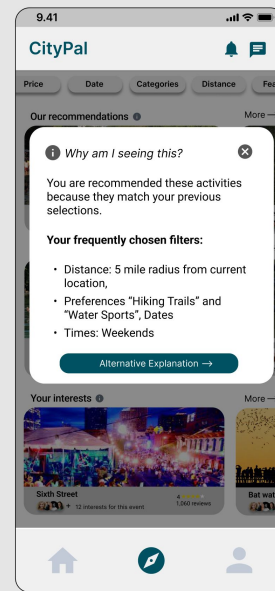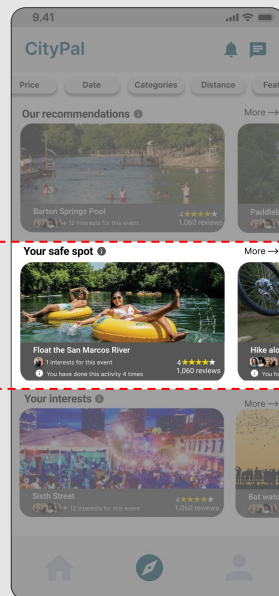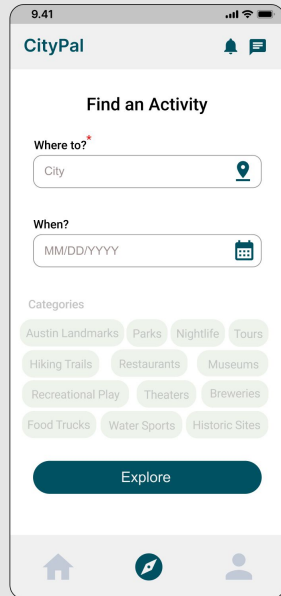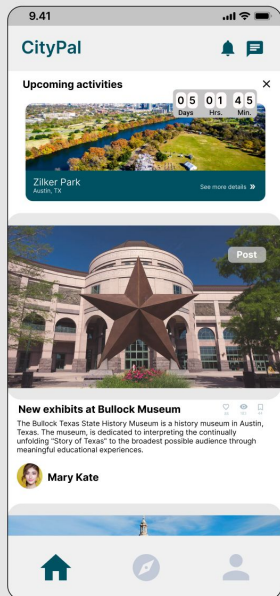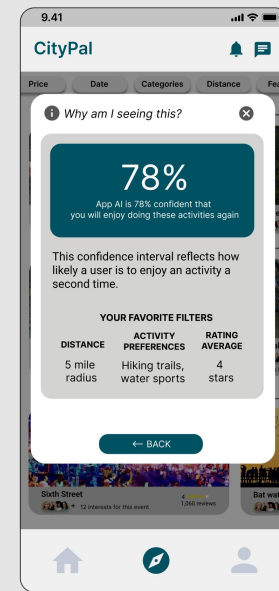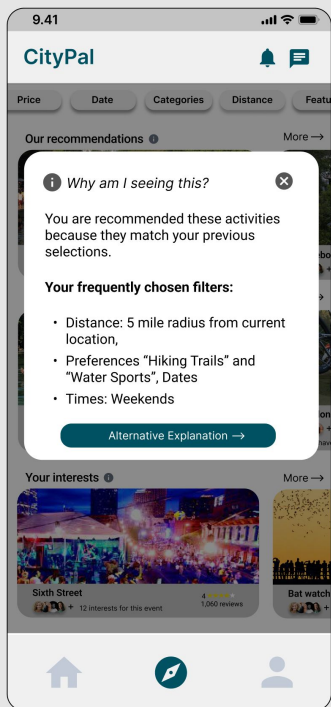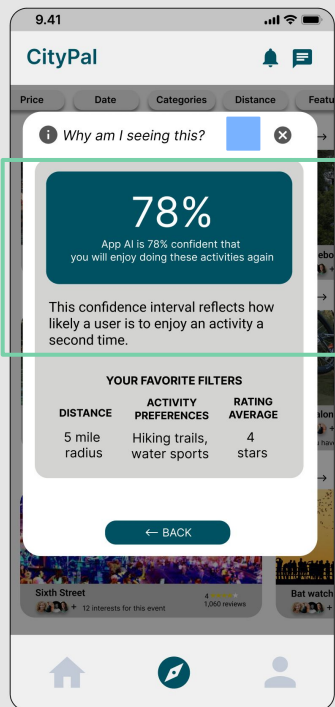

Explanation 1

Explanation 2

Scenario 3 - Task 2

Explanation 1

Explanation 2

Positive

Majority of participants chose **explanation 2**. They **liked** both the **visual presentation** and the **AI confidence score**

"...everything is concise and more detailed than just text; Your eyes quickly scan and you know what is there"

"If I have enjoyed my previous experience and I have gone [there] more than once, [that] is enough to sell it to me"

Suggestions

The AI confidence score and it's what it signifies is enough for the explanation.

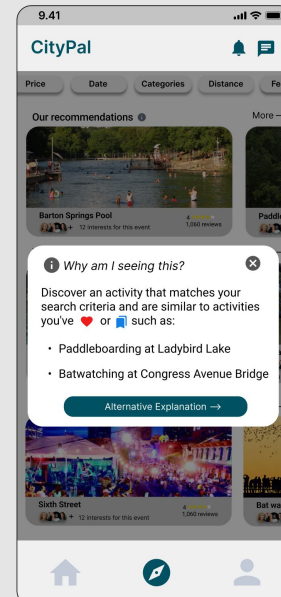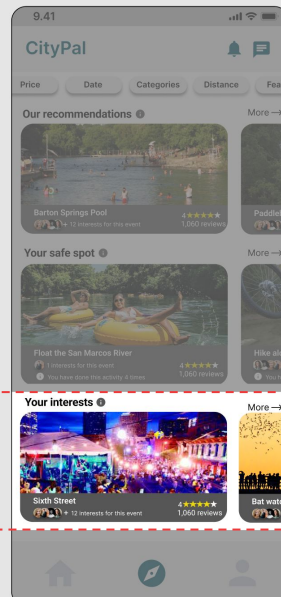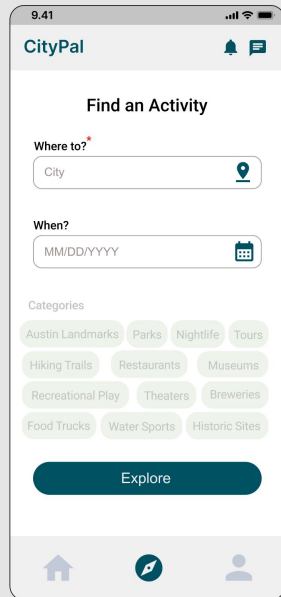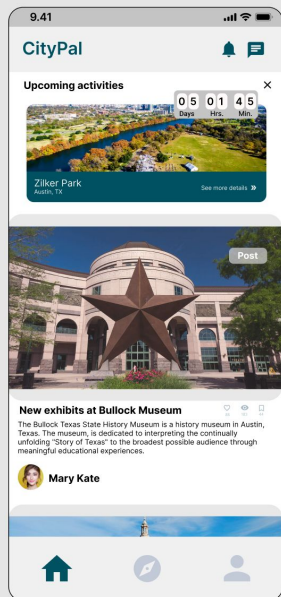Previous filter preferences not important **(Avoid over explanation)**

Scenario 4

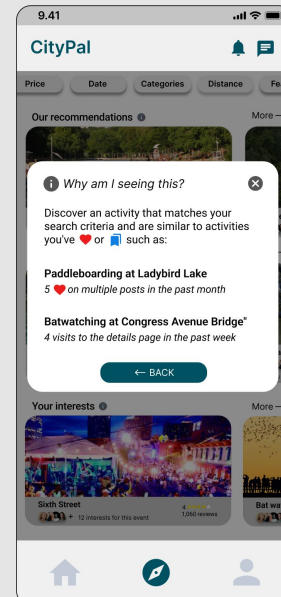Home Screen ▸▸ Find an Activity ▸▸ Activity categories ▸▸ Explanations
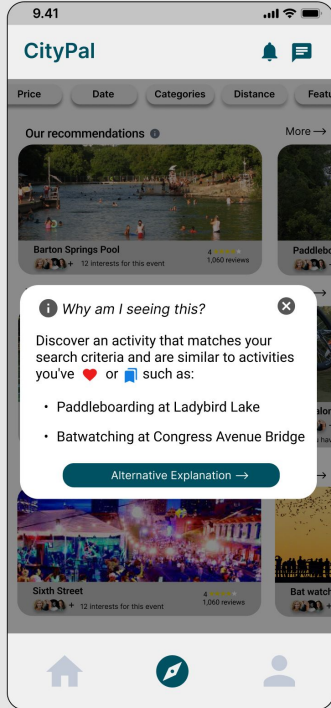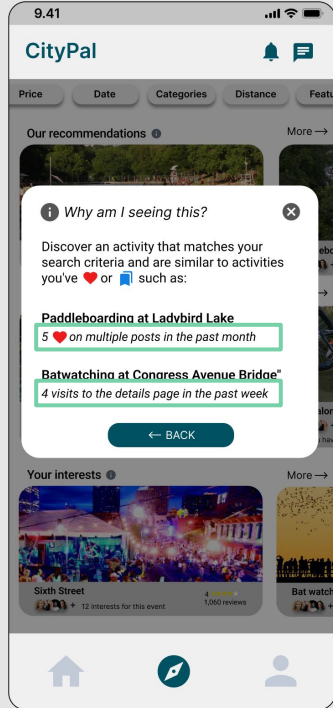
Explanation 1   Explanation 2

Scenario 4

Explanation 1

Explanation 2

Positive

Majority of the participants chose **explanation 2.** Participants were happy with this feature.

"...It is interesting to see just how much I have liked these activities, because someone like me who forgets stuff, it is nice to be reminded that I am actually really interested in these activities for a very long time"

Suggestions

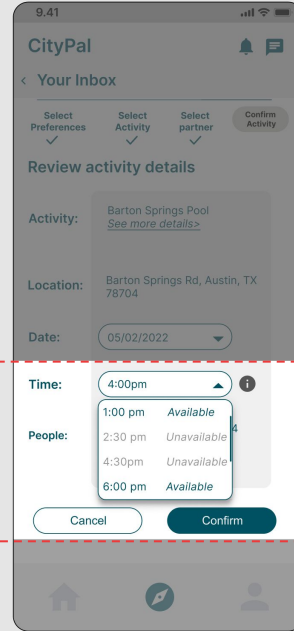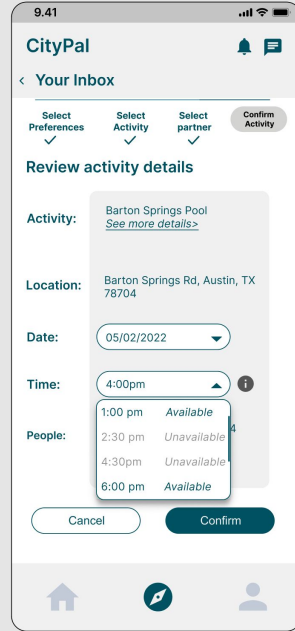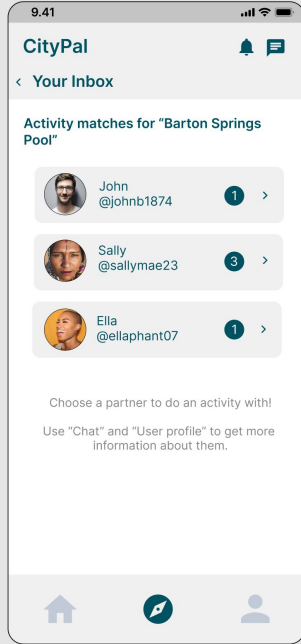Try to make the explanation more **shorter** and **easily scannable.**

Avoid paragraphs

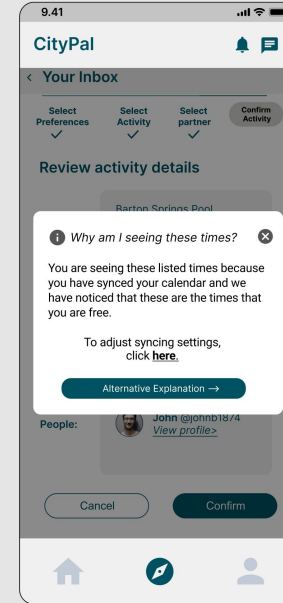## Phone mockup text

CityPal

Price | Date | Categories | Distance | Featu

Our recommendations ⓘ   More →

Barton Springs Pool
+ 12 interests for this event   1,060 reviews

Why am I seeing this? ✕
Discover an activity that matches your search criteria and are similar to activities you've ❤ or 📖 such as:

• Paddleboarding at Ladybird Lake

• Batwatching at Congress Avenue Bridge

Alternative Explanation →

Sixth Street
+ 12 interests for this event   1,060 reviews

CityPal

Price | Date | Categories | Distance | Featu

Our recommendations ⓘ   More →

ⓘ **Why am I seeing this?** ✕
Discover an activity that matches your search criteria and are similar to activities you've ❤ or 📖 such as:

Paddleboarding at Ladybird Lake
5 ❤ on multiple posts in the past month

Batwatching at Congress Avenue Bridge"
4 visits to the details page in the past week

← BACK

Your interests ⓘ   More →

Sixth Street   1,060 reviews

Bat watch

Scenario 5

Partner Matching → **Meeting preferences** → **Explanations**
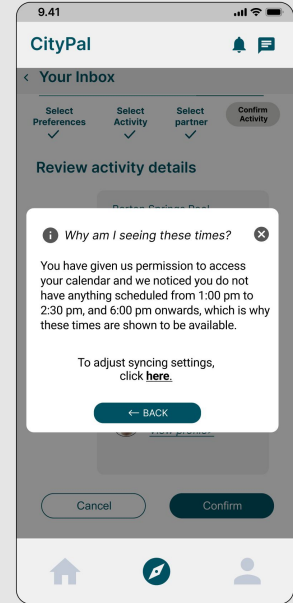
Explanation 1   Explanation 2

Scenario 5

Explanation 1

9.41

CityPal

‹ Your Inbox

Select Preferences ✓ | Select Activity ✓ | Select partner ✓ | Confirm Activity

Review activity ❶ ails

Barton Springs Pool

ⓘ *Why am I seeing these times?* ✕

You are seeing these listed times because you have synced your calendar and we have noticed that these are the times that you are free.

To adjust syncing settings, click **here.**

Alternative Explanation →

People:

John @johnb1874
View profile>

Cancel | Confirm

Explanation 2

9.41

CityPal

‹ Your Inbox

Select Preferences ✓ | Select Activity ✓ | Select partner ✓ | Confirm Activity

Review activit ❷ ils

Barton Springs Pool

ⓘ *Why am I seeing these times?* ✕

You have given us permission to access your calendar and we noticed you do not have anything scheduled from 1:00 pm to 2:30 pm, and 6:00 pm onwards, which is why these times are shown to be available.

To adjust syncing settings, click **here.**

← BACK

View profile>

Cancel | Confirm

Mixed - 1

Participants who chose **explanation 1** were comfortable the AI accessing their calendar with their permission. **They trusted the AI** and didn't feel the need to know about **travel app permissions.**

"It looks like I have already given permission. If I have given permission, I don't see it as a concern."

Mixed - 2

Participants who chose **explanation 2** were happy that the explanation was transparent about app permissions.

"...the app is having permissions to my personal data and that is a much bigger reveal than anything else...Because of its [the application's] honesty it improves my trust "

AI Explanation Takeaways

Explain aspects that might **impact trust** and **decision making**

User control

Provide the ability to give **feedback** or input user **preferences**. Setting the expectation that the system is learning from their input builds trust

Statistical information like confidence score or percentages **can be tricky**.

It is best to t**est different types of statistical explanations** early while developing a product.

Use **partial explanation** when parts of the system get **complex to explain**.

The system must explain the **most important aspect** of the explanation.

Emphasize how the app will **benefit the user** instead of the underlying technology
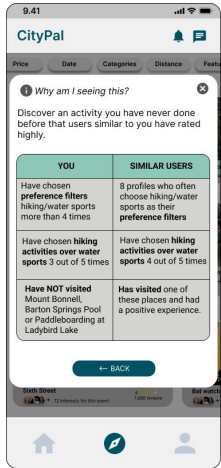
Communicating **settings** and **permissions**

Keep **reminding users** about current application settings and the ability to modify them according to present needs
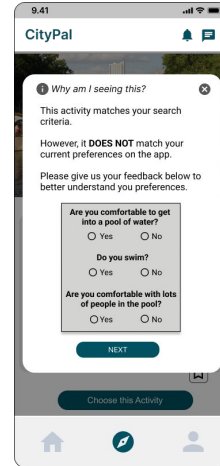
Findings
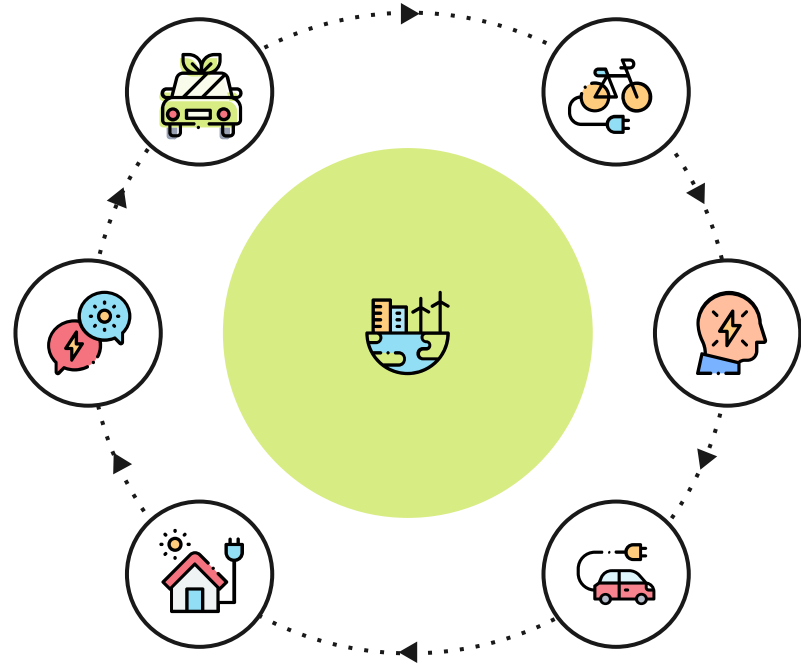
How do recommendation explanations impact user experience?

Clearly **stating the source** of data adds to the **credibility** of the recommendations

...This gives me more clarity about what it means when you say similar, it gives me more confidence that I might actually like the activity that was recommended
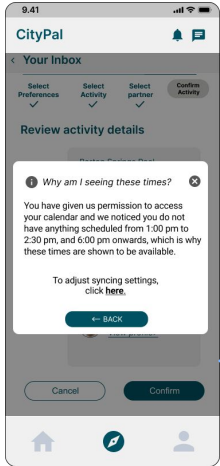
Creating avenues for users to **input their preferences** gives them a sense of being in **control**

"I like this because it allows me to give feedback to the AI and the AI is personalizing all of this for me."
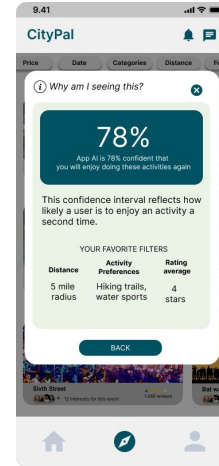
How do recommendation explanations impact user experience?

Communicating clearly about app permissions and settings and giving users affordances to modify them brings a sense of **security**

"...the app is having permissions to my personal data and that is a much bigger reveal than anything else...Because of the application's honesty it improves my trust "

Explanations that are **simple** and **visually appealing** will help with **smooth** app **experience**
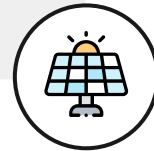
"...everything is concise and more detailed than just text; Your eyes can quickly scan and you know what is there"

When should we expect explanations for AI?

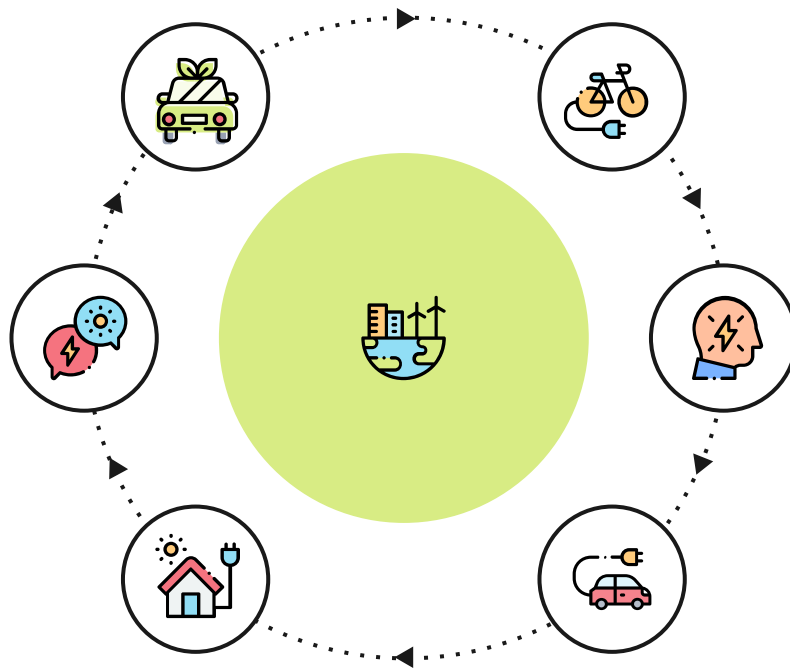When the algorithm utilizes personal or sensitive information

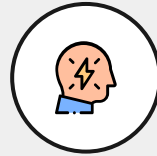When making important, life-altering decisions

When recommending a specific activity on CityPal

Conclusion
+ Next Steps

How does including AI explanations help the user?

User Control

User understands how to control the information shared and how to allow or disallow it according to their privacy preferences

Transparency

By being clear about how information is collected, users have a greater understanding of how the app works

Understanding

By using simple terms and every day vocab, we allow users to be informed about what we are doing.

Next Steps

We want to continue to improve our interface and explanations to support user understanding and experience

Feature Refinement

To be able to improve, we must always seek feedback from the target users themselves

Continued Iteration

Further develop functions and potentially add new ones

Continued Testing

Thank you!

Questions?