Spotify Music Discovery: Scenario-Based Interpretation and Consolidation

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HCIN 730—User-Centered Design Methods

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Introduction

This study examines the music streaming platform Spotify, focusing specifically on how users discover new music within the app and how the environmental context shapes their discovery habits. Spotify offers multiple discovery pathways, including algorithmic recommendations (Discover Weekly, New Releases), curated playlists, friend activity, and manual search. Our goal is to understand how users navigate these features in authentic contexts.

We recruited eight participants who regularly use Spotify on their mobile devices to observe them in their natural environments at home, work, during commuting, at the gym, and in social settings. We focused on page 41 of the textbook for these environments, specifically on the question of "who should you interview," and broke it down into the following categories. The participants were observed as they engaged in music discovery tasks.

Table 1: *Participants' Demographic Data*

Demographic	P1	P2	P3	P4	P5	P6	P7	P8
Gender	Male	Female	Male	Male	Male	Female	Male	Male
Age	Early 20s	Early 20s	23	22	25	50	16	Mid 40s
Spotify Usage Hrs	N/A	N/A	3-4	8-10	Daily	2hr/week	Everyday	4-5 hours
Main Listening Environment	Studying or doing deep work	Deep Studying/ Work	Commute	At work	Home/ Commute	Church	Home	Home office
Job/Major	College Student	College Student	Software Engineer	USPS Maintenance	Grads/ CS	Nurse	Student	Software Engineer

This focus enables us to capture authentic decision-making, exploration, and reactions to Spotify's recommendation systems, as well as how the physical, social, and situational environment influences their choices. We want to gain a mix of discovery styles (algorithm-heavy vs search/social). We did not encounter any challenges where participants refused to share their playlists, though some participants did not want their screens to be recorded. We considered ethical principles and user privacy in our studies by obtaining participants' consent to take notes and/or record audio/video or screenshots during this session. We also ensured comfort by allowing participants to skip any part that they did not

want to be documented. Moreover, each team member conducted one to two contextual inquiries. The results revealed the necessary improvements and helpful suggestions that Spotify should consider.

Interpretation Session Overview

Our team conducted three one-hour structured interpretation sessions on Zoom to analyze the interview data collaboratively. Each session followed the class interpretation guide (slide 13) to ensure consistency, focus, and equal participation across all members. Roles were randomly assigned at the start of each meeting, and every team member served in each role—interviewer, participant, modeler, recorder, and moderator at least once throughout the process. This technique helped ensure that everyone gained experience with different aspects of interpretation and diverse perspectives in our analysis.

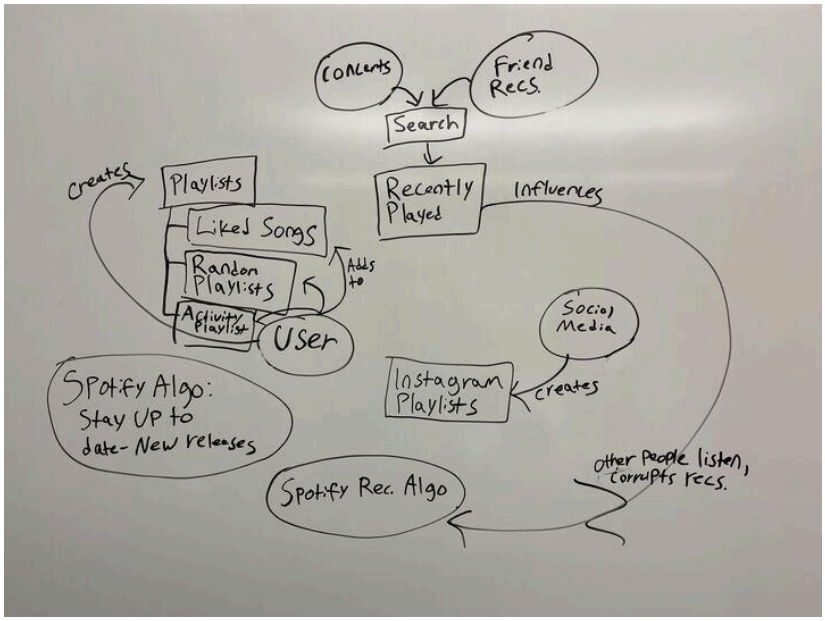
During our Zoom meetings, one person shared their interview at a time. The interviewer began by introducing the user profile and sharing an overview of the interview process, describing events exactly as they occurred rather than summarizing them. The interviewer also reviewed videos and photo artifacts, if they had received them, along with their spoken account. While the interviewer presented, the rest of the team actively listened, asked clarifying questions, and contributed to developing work models. Using the extra details from page 96, “capturing work models” of the textbook, modelers and artifact collectors visually captured the user’s workflow and artifacts as they were mentioned, without pausing the discussion for validation.

Throughout the sessions, participants engaged in “interviewing the interviewer” to surface additional details, share emerging insights, and propose interpretations and design ideas, which were recorded but not discussed in real time. The recorder documented all observations, insights, and demographic details in a shared document, ensuring transparency and accuracy. The moderator guided the overall flow of conversation, keeping the group focused on describing “what happened” rather than sharing opinions. Additionally, we ensured all voices were heard while preventing any single participant from dominating the discussion.

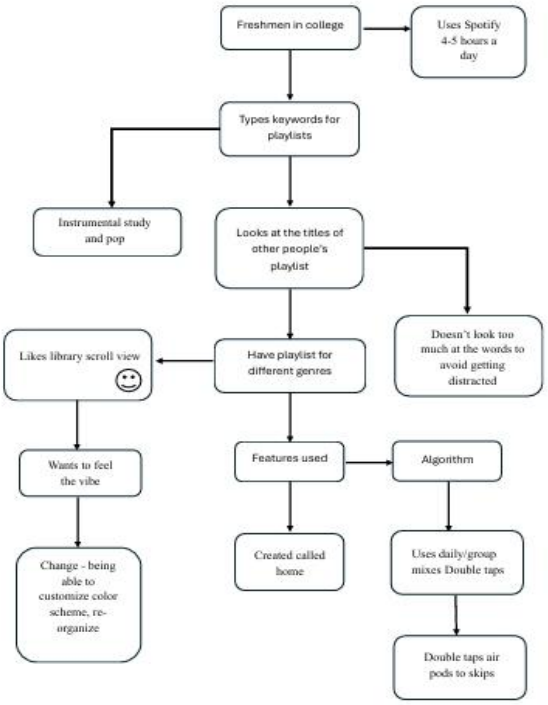
By the end of the three sessions, our team had collectively reviewed and modeled all interview data, resulting in a substantial set of work models, annotated artifacts, and recorded insights that will inform our subsequent design synthesis.

Flow models

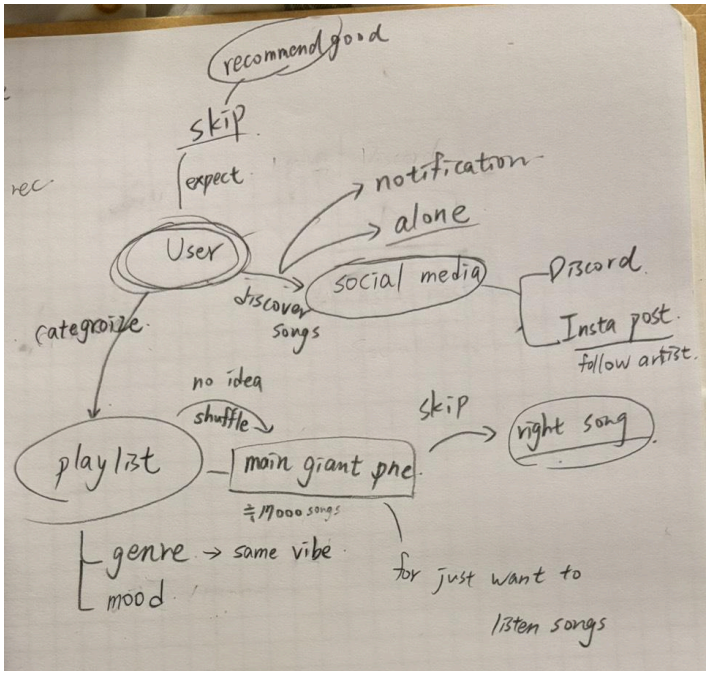
P1:



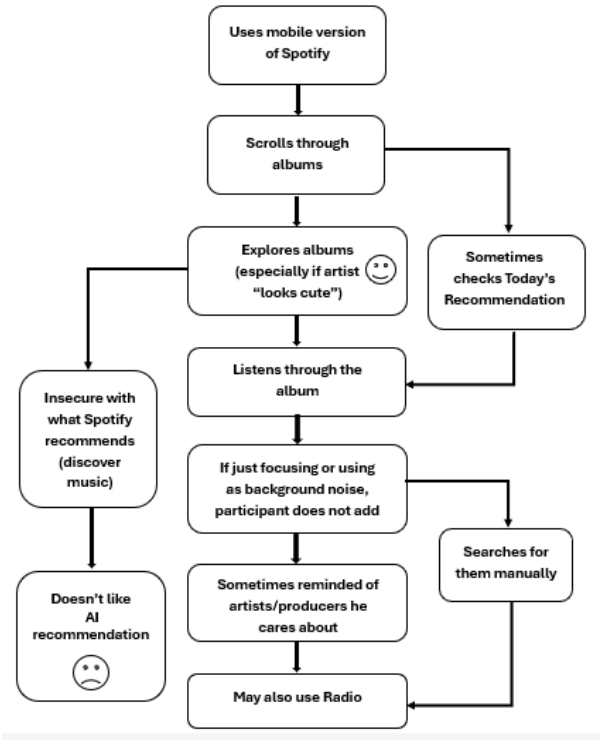
P2:



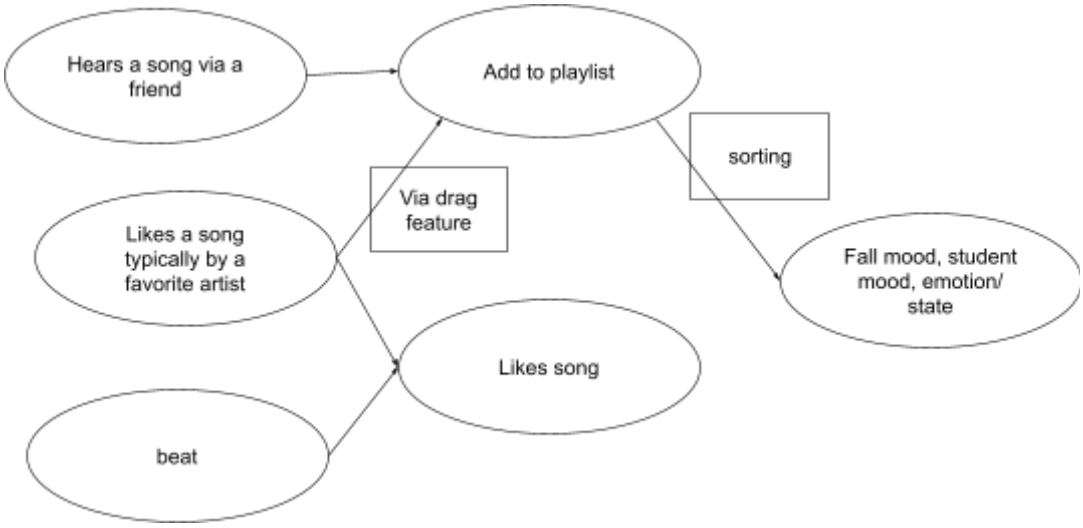
P4:


recommend good
skip
expect
notification
alone
User
social media
Discord
Insta post
follow artist
discover songs
categorize
no idea
shuffle
skip
right song
playlist
main giant one
≒17000 songs
genre → same vibe
mood
for just want to
listen songs

P5:

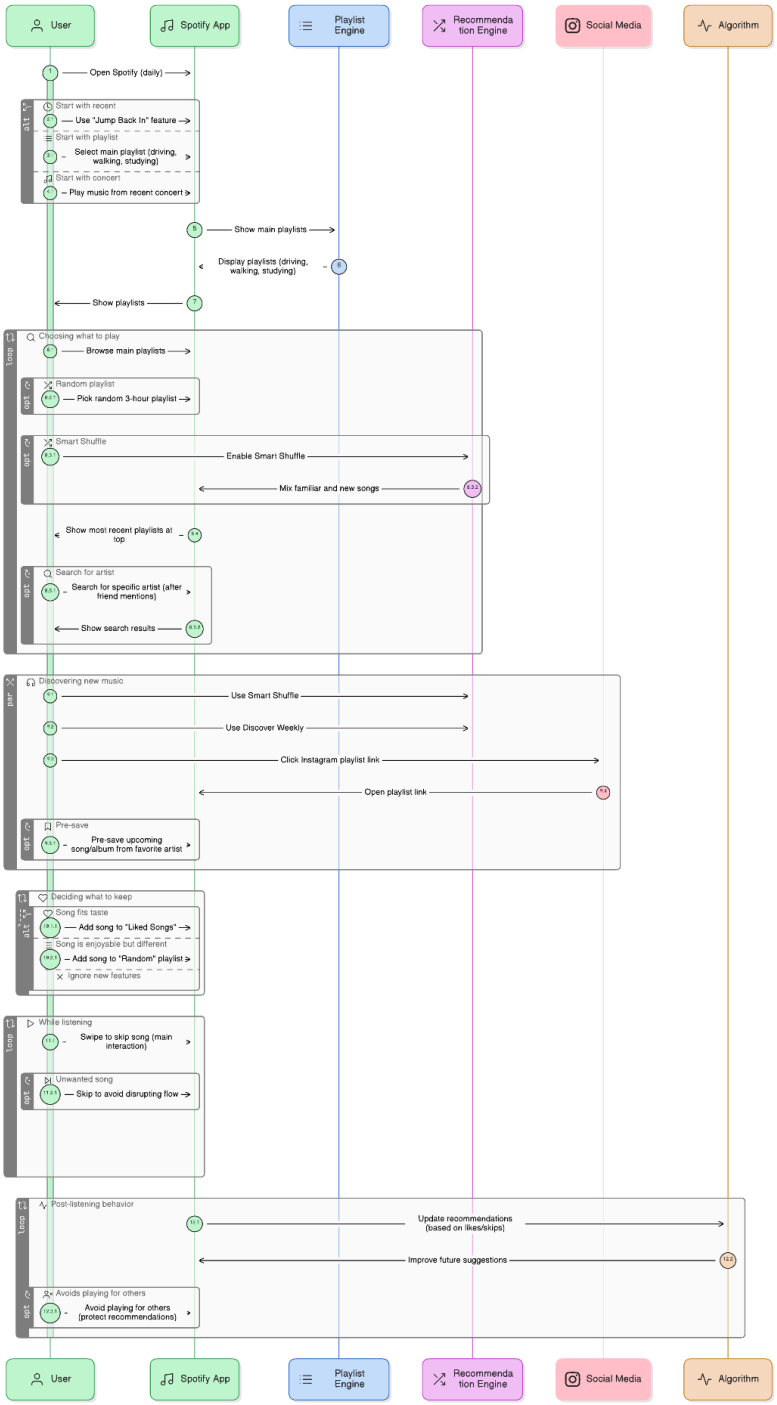

Uses mobile version of Spotify
Scrolls through albums
Explores albums (especially if artist "looks cute")
Sometimes checks Today's Recommendation
Listens through the album
Insecure with what Spotify recommends (discover music)
If just focusing or using as background noise, participant does not add
Searches for them manually
Doesn't like AI recommendation
Sometimes reminded of artists/producers he cares about
May also use Radio

P6:

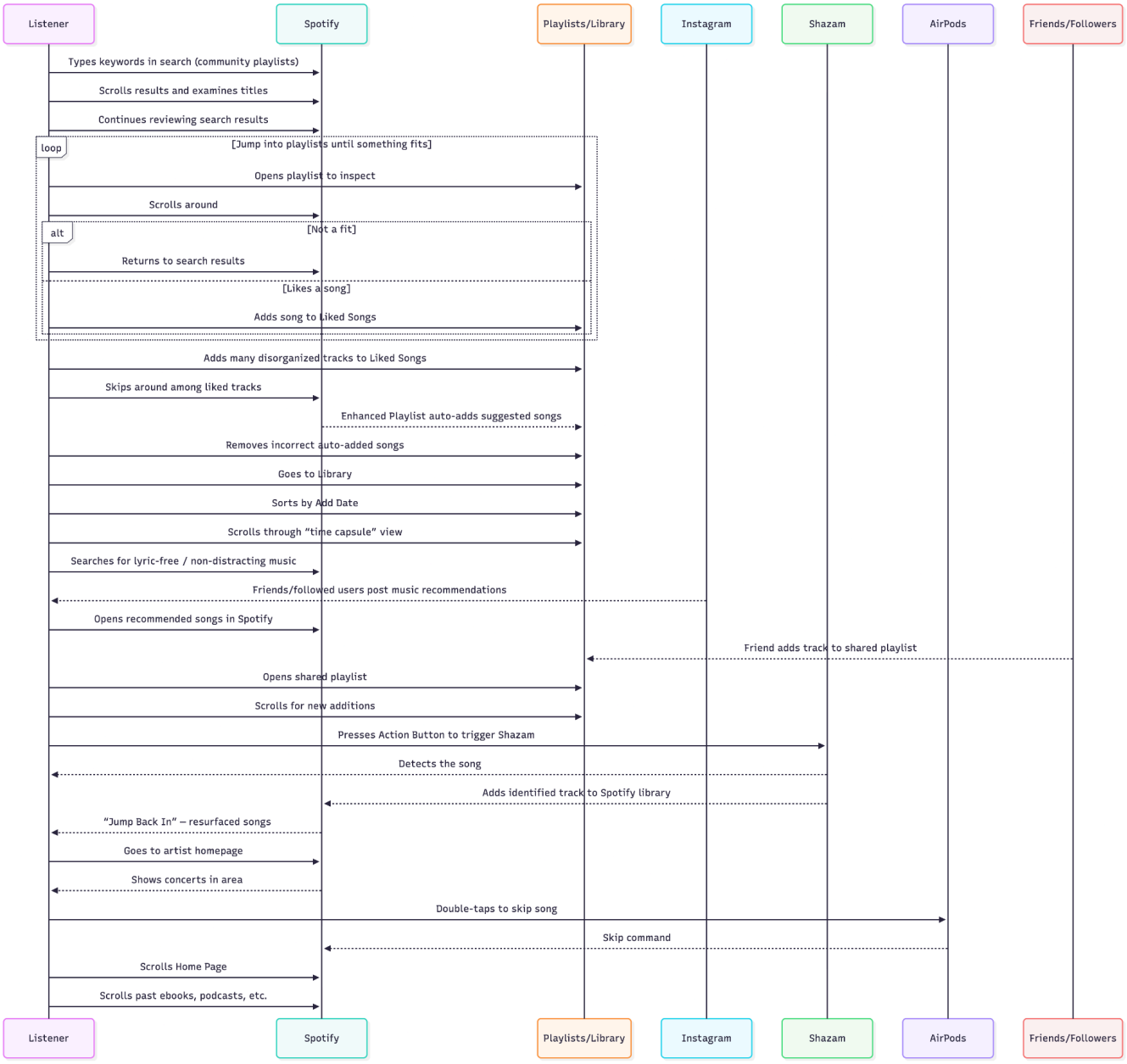

Hears a song via a friend
Add to playlist
sorting
Via drag feature
Likes a song typically by a favorite artist
Fall mood, student mood, emotion/ state
Likes song
beat

Sequence Models

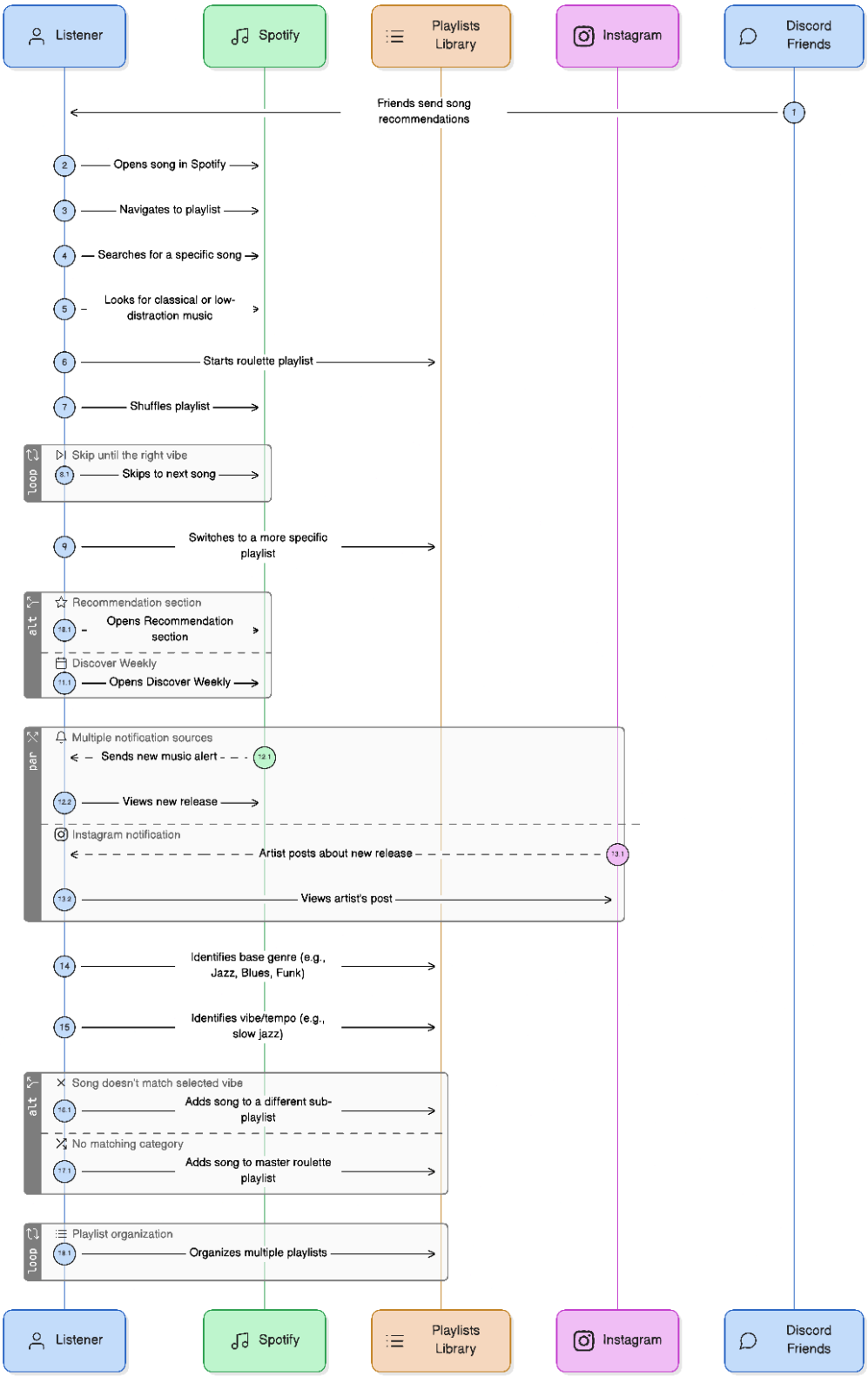
Sequence Model P1:



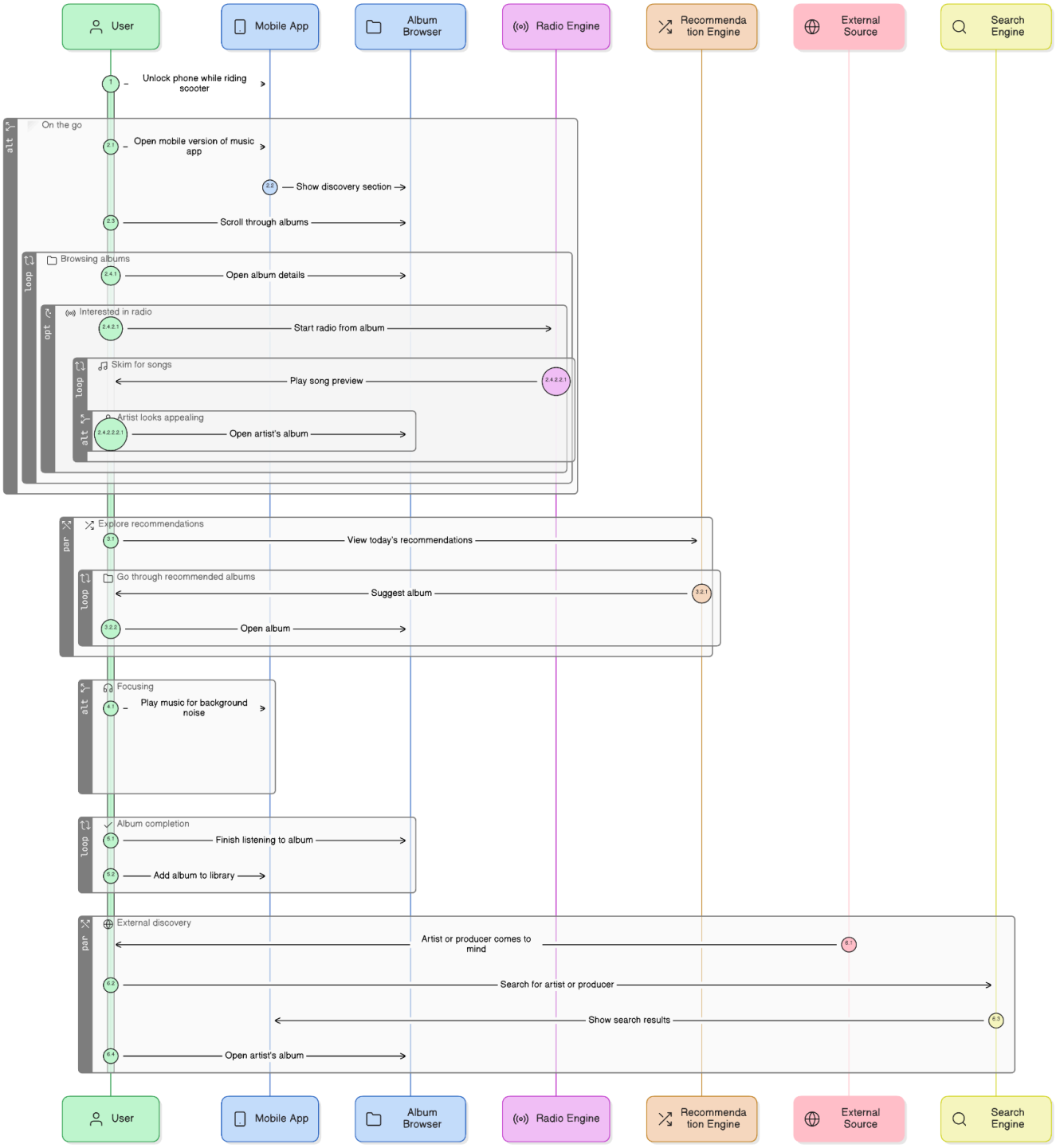
Sequence Model P2:



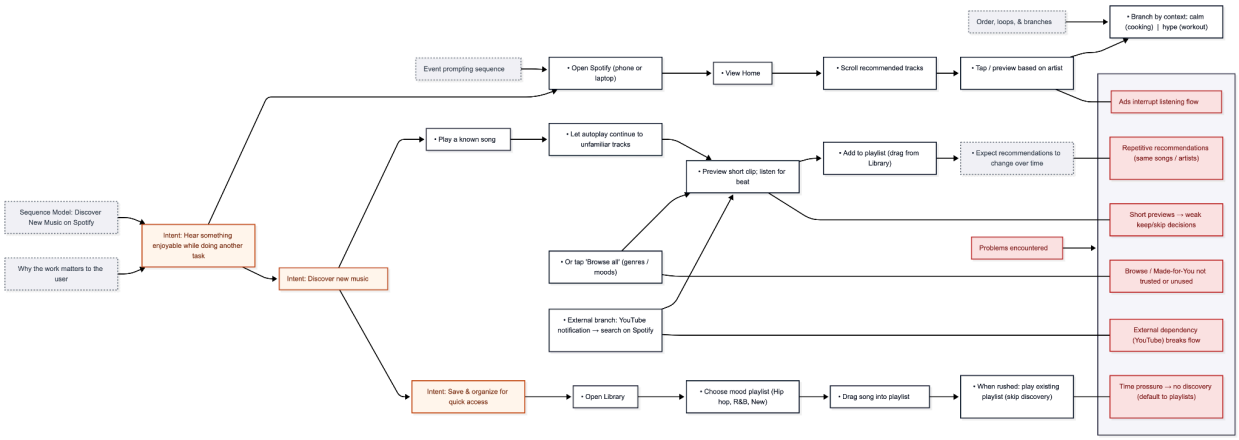
Sequence Model P3:



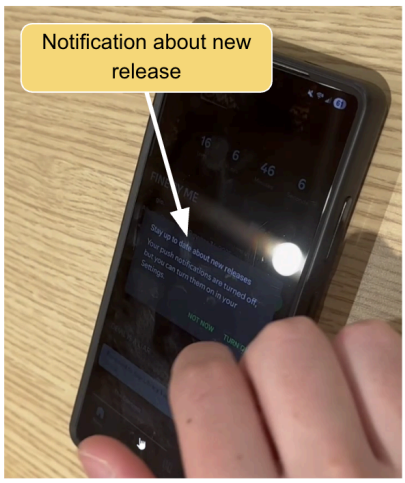
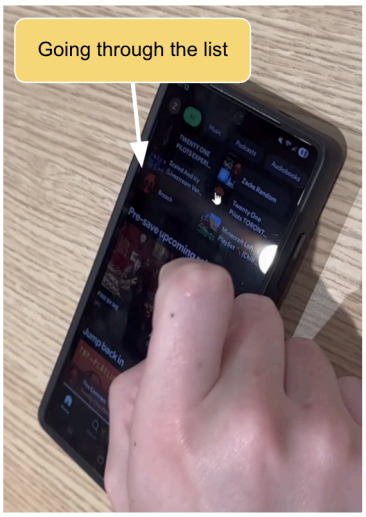
Sequence Model P5:



Sequence Model P6



Artifact models

P1			

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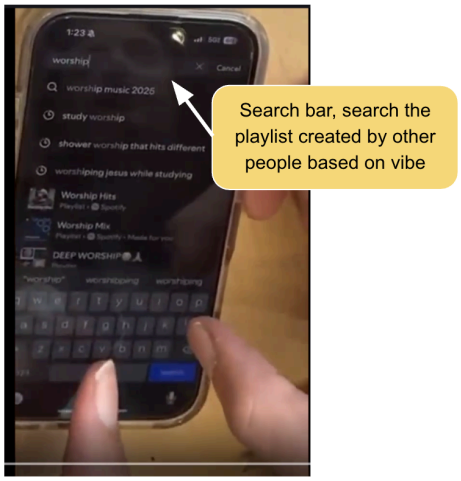
<td> 
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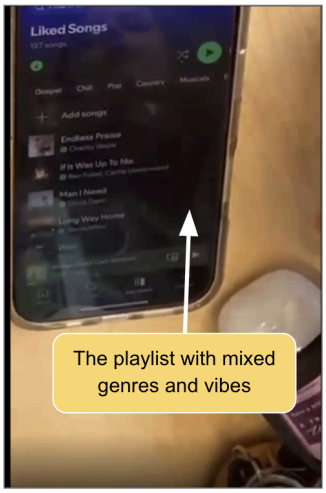
<td> 
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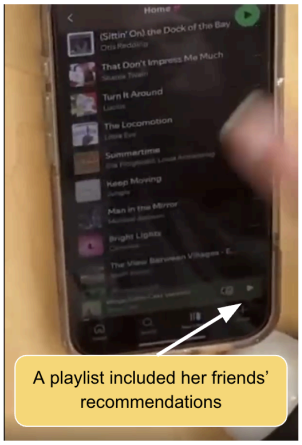
<td> 
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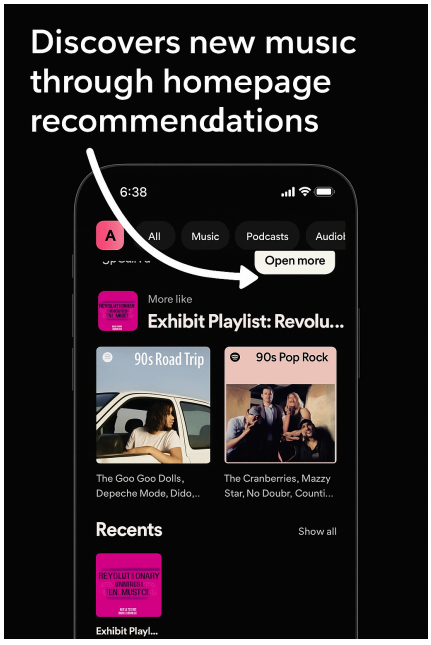
<td> 
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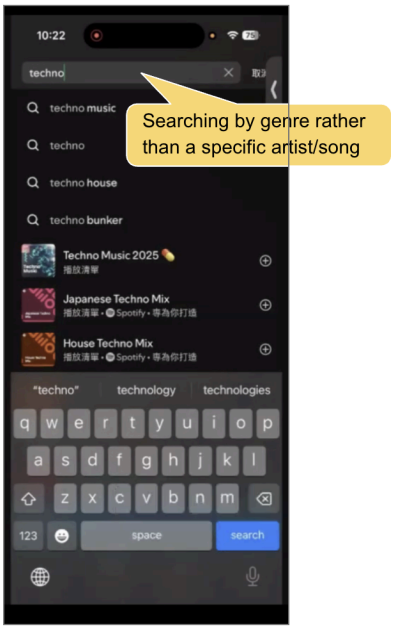
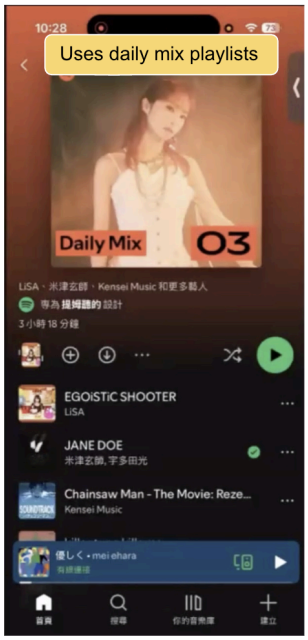
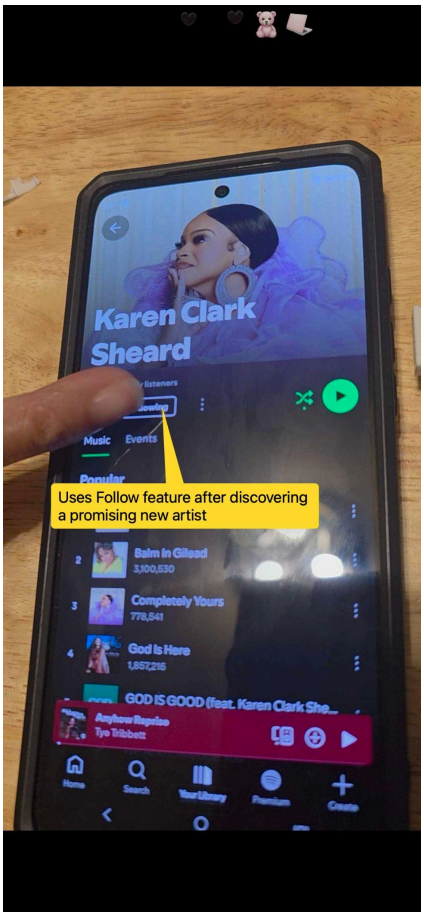
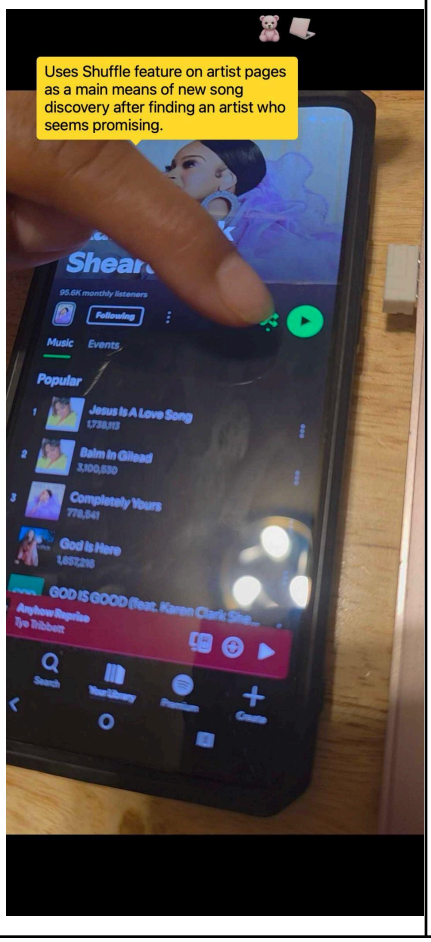
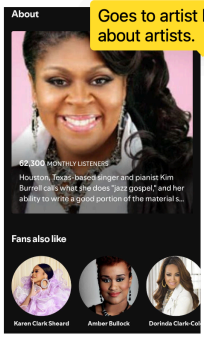
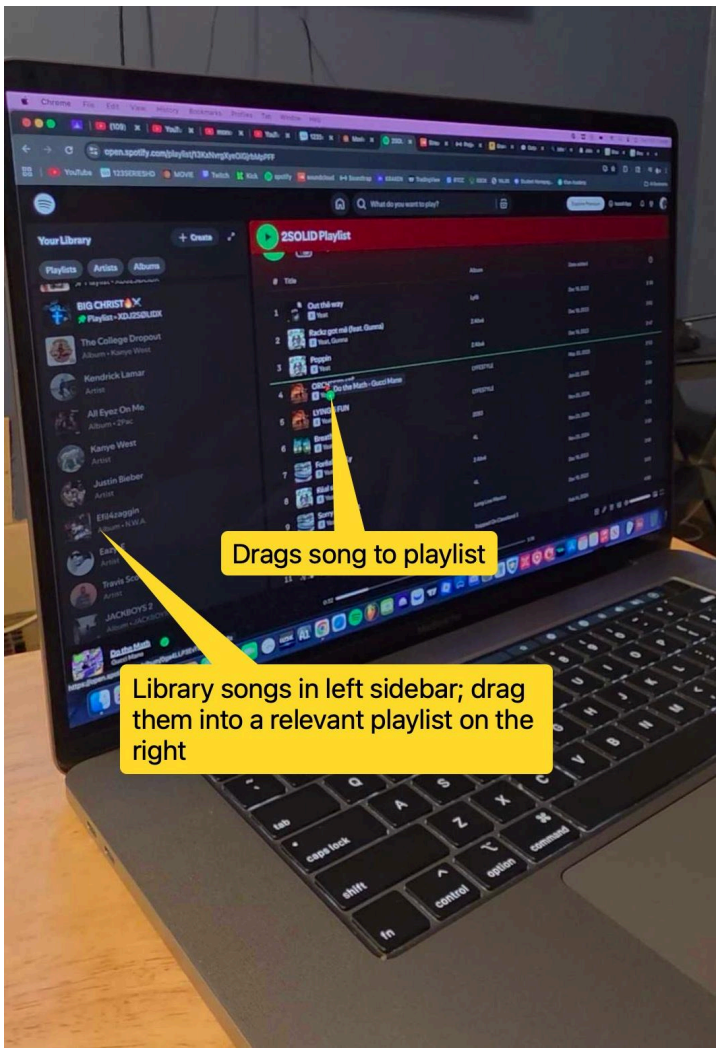
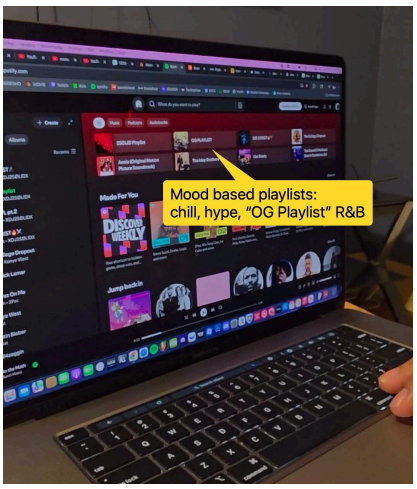
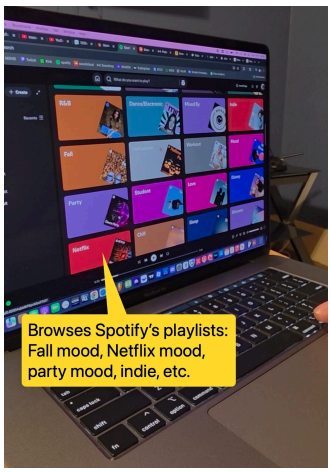
P5	 Ampersands P5 choose an album, listen to every song before decide if he wants to save this album	 techno techno music techno techno house techno bunker Techno Music 2025 Japanese Techno Mix House Techno Mix Searching by genre rather than a specific artist/song	 Uses daily mix playlists Daily Mix 03 EGOISTIC SHOOTER JANE DOE Chainsaw Man - The Movie: Reze...
P6	 Karen Clark Sheard Uses Follow feature after discovering a promising new artist	 Uses Shuffle feature on artist pages as a main means of new song discovery after finding an artist who seems promising.	 About Goes to artist bio pages to lea about artists. Fans also like

P7	 Drags song to playlist Library songs in left sidebar; drag them into a relevant playlist on the right	 Mood based playlists: chill, hype, "OG Playlist" R&B	 Browses Spotify's playlists: Fall mood, Netflix mood, party mood, indie, etc.

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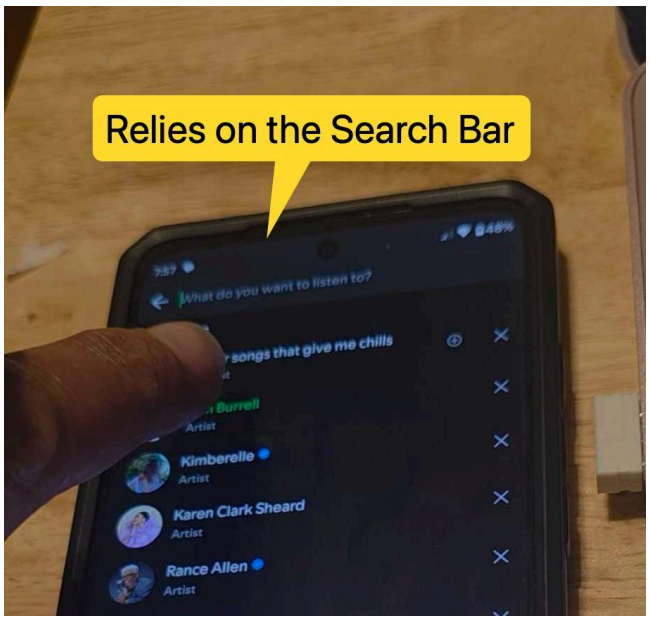
<td> 
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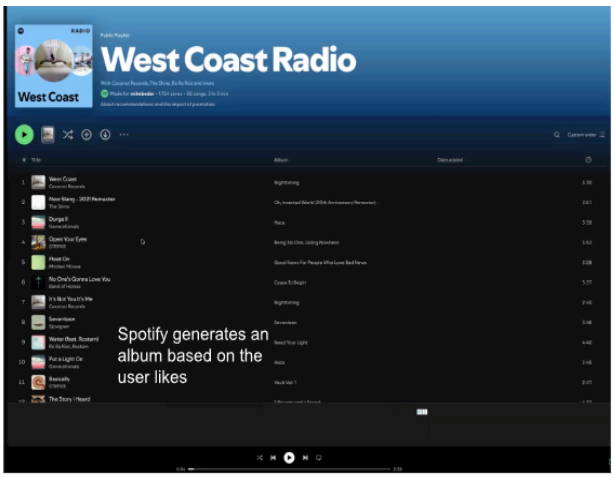
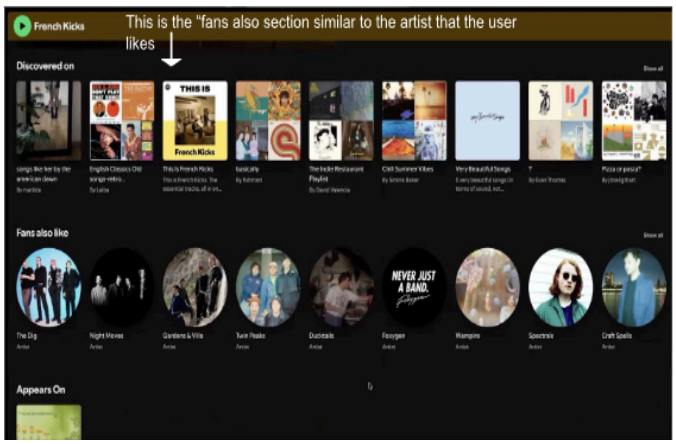
<td> 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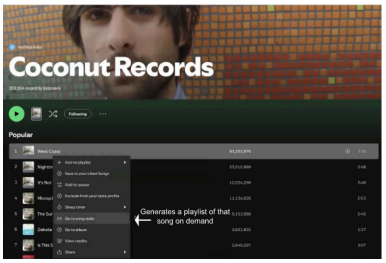
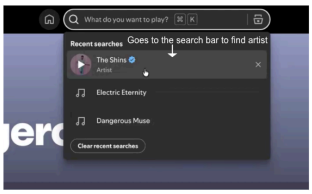
<td> 


Figure 1: Home page, criticized for being "completely irrelevant", "useless" and cluttered.</td>
<td> 
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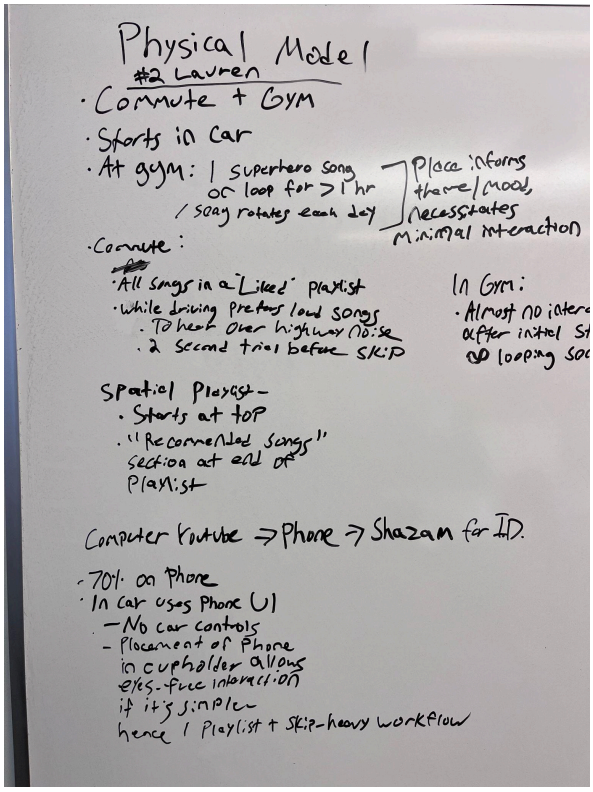
Physical models



Physical Model

U1: SWE WRH

Drive- Tesla app, listening to music more while having a road trip, make a rush playlist(only condition for discovering new music), predownload, if it's somewhere with a low internet connection

Work- (not commute often)

Home office (won't be disturbed, culture doesn't matter)

Prefer not to be intubated or distracted (hope less cluttered)

Not enjoy the tasks while using the app

Like loud music

Sometimes people send him a link to the songs

Meeting Notes

1. Music Consumption & Routine

- Background Listening is Common: Several users listen to Spotify for many hours a day (4-10 hours) as background music while working, studying, or driving. This often means they want minimal interruption and decision-making.
- Contextual Listening: Music choice heavily depends on the context/mood/activity (e.g., driving, studying/instrumental, working out, cooking, church).
- The "Big Playlist": Users frequently rely on large, established playlists, often referred to as "liked songs" or a "roulette" playlist, where they simply add new music without much organization.
- Skipping vs. Liking: Skipping is a primary form of feedback for some users, but many feel their skips or likes do not significantly impact the recommendation algorithm.

2. Music Discovery Methods

- Search and Artist Pages: The Search Bar and Artist Pages are crucial. Users often search for a known artist, song, or genre, and then explore from there. They look at the artist's discography, new releases, or the "Fans also liked" section.
- External Sources: Social media (Instagram), friends sharing songs, and external review sites (such as Rate Your Music) are significant sources of new music, with users often navigating to Spotify after discovering music elsewhere.
- Algorithm-Generated Discovery:
    - Daily Mixes / Discovery Weekly: Some users enjoy and rely on features like "Discovery Weekly" and "Daily Mixes", while others find the homepage/general recommendations useless and wish for more direct control over their recommendation profile.
    - Playlist Recommendations: The recommended songs at the bottom of playlists are a key discovery feature for some, although one user noted that these recommendations haven't been updated in years.
- Deep Dives: Some users will click on an album to listen to the entire thing or a song for an extended period (up to 1:30) before deciding to save it.

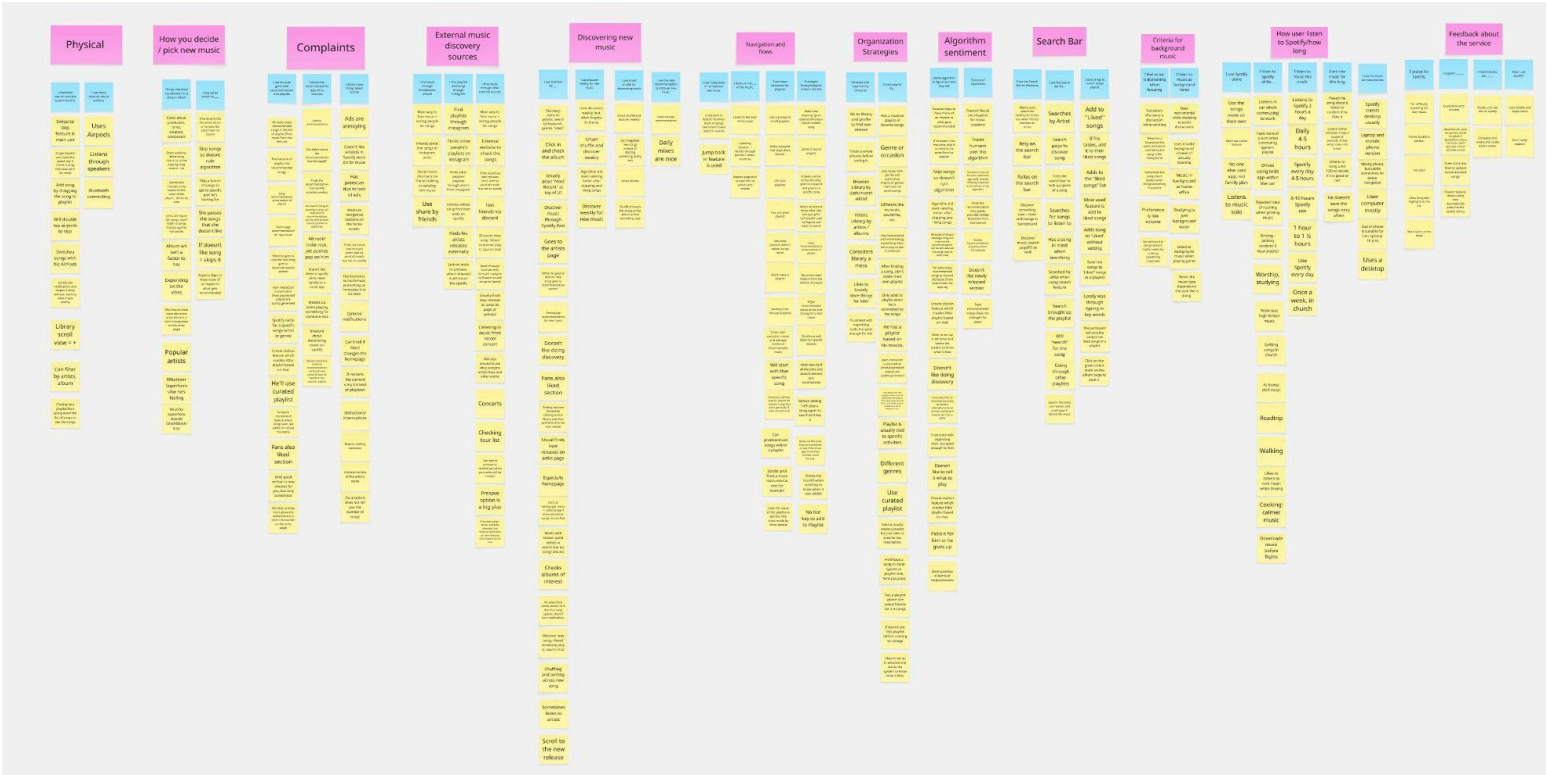
3. Dislikes & Complaints

- Algorithm Frustration: The most common complaint is the lack of control or perceived ineffectiveness of the algorithm; users often feel it pushes irrelevant content (e.g., pop to an alt rock listener) or popular artists instead of niche interests.
- Homepage Clutter: Some users dislike non-music content, such as ebooks and podcasts, on the homepage, viewing Spotify strictly as a music app.
- Minor UI/UX Issues:
    - Restarting the current song instead of going to the previous song when hitting 'back'.
    - Autocorrection issues in the search bar.
    - The inability to customize the color scheme or reorganize sections on the home screen.
    - The overwhelming nature of organizing an extensive library/playlist.

Consolidation

Affinity Diagram

See also:
Link to Miro board: Affinity Diagram
Higher resolution PDF included with deliverable, and here: affinitydiagram.pdf



Consolidated Sequence Model

See also:
Link to Miro board: Consolidated Sequence Diagram
Higher resolution PDF included with deliverable, and here: sequencemodel.pdf

Key Learnings and Process Reflection

Process Reflection

As a group, we took a while to process what should be considered as a breakdown (i.e., the information on the homepage being unhelpful. Some felt that the cluttered homepage didn't hinder the usage, while others thought it did. There was also a similar comment on the idea of being rushed in the morning, a breakdown of actively choosing to discover new music, or using a pre-made playlist.

Another downfall is that we should have chosen one type of method, such as using the recommended section and observing how users approached it, or based the sequence diagrams on the user's primary music discovery method, to avoid having multiple sections for each user. We should have narrowed down what we wanted to focus on more before meeting with users. For example, once we analyzed the data and shared our contextual inquiries, there was a lot of information due to our lack of direction. Having a more direct and narrow idea of what we were looking for would have minimized the overwhelming feeling we experienced from the amount of data, given the various paths and directions from just one user.

There was also some disagreement on whether navigating a playlist and scrolling through a playlist should be two sequential steps or separate actions with distinct sets of steps. It was ultimately decided that "Navigate to playlist detail, view songs" was a part of "searching for a playlist," and "Scroll around playlist" was a part of the action of "Vetting songs from a playlist."

During the discussion, we noticed that users have different expectations within the same app. Interestingly, many notes from the interpretation show opposite opinions about specific features, such as recommendations and homepage design. While categorizing the affinity notes, we encountered some problems due to unclear notes, which increased the difficulty of organizing them. Therefore, it is essential to write concise and clear notes to expedite the process.

The gathering of artifacts was hectic because we had to record people using their phones. Reflecting this, the artifact is a picture of a recording of the phone that was then annotated. Direct screenshots of the user would have been ideal, but they are also not necessarily easy to obtain during a contextual inquiry. This process of annotating is too slow because once we document key details within the recording, we then retrieve the photo and save it to annotate. By this time, when we approach the writing process, it becomes increasingly challenging to identify the thought process. In an ideal world, the note taker and artifact annotator could directly write on the shared recording to ensure consistency within the notes, audio recordings, and annotations.

Key Learnings

Our contextual inquiry into Spotify users' listening and discovery patterns revealed a complex and highly individualized set of behaviors pertaining to music interaction and discovery. Despite using the same platform, participants' approaches to locating, arranging, and engaging with music differed significantly and were influenced by their mood, context, and personal preferences. Through affinity diagramming and flow and sequence analysis, it became clear that there is no singular "Spotify experience."

The exception to these highly individualized usage patterns was the "Liked Songs" playlist, which appeared almost universally across every participant's Spotify experience. While users had diverse ways of discovering and organizing music, nearly everyone relied on Liked Songs as a primary frictionless method of saving tracks. Due to the application's architecture, users can quickly record music they are enjoying without interrupting their workflow by simply touching the green symbol. Instead of being a meticulously chosen playlist, it functioned as a catch-all storehouse for many, encompassing all of their musical connections. Its simplicity makes it the most dependable and user-friendly interface, regardless of users' listening preferences or degree of app experience. The ability of low-effort design to shape long-term engagement is demonstrated by the fact that users who refrained from creating or maintaining playlists continued to use Liked Songs daily.

There were numerous paths that users took, and the ways they searched for music. Music discovery often depended on their goals, moods, or specific contexts. This led to flow and sequence diagrams being broken down into multiple branches, as almost no user discovered new music in only one way. The search bar emerged as a vital component across nearly all user workflows as a direct and reliable way for participants to access the music they wanted. Many users turned to it instinctively when they had a specific song, artist, or album in mind, as it provided the fastest path to user control and precision for selecting music within the app.

Playlists represented one of the most flexible and personalized aspects of users' Spotify behavior. To arrange music by genre, mood, occasion, or general "vibe," many participants created multiple playlists, illustrating how music serves as a situational and personal tool. Some users created "mega playlists," which are extensive, comprehensive collections that they navigated using shuffle-oriented workflows or skimmed instead of making careful selections. These enormous playlists, which were constantly updated over time without rigorous organizing, frequently functioned as dynamic soundtracks.

Other users took a more curated approach, crafting smaller, context-specific playlists tied to specific emotional states or activities, such as studying, driving, or exercising. In contrast, a significant

portion of participants did not make their own playlists at all. Instead, they relied on pre-made or socially shared playlists created by friends, other users, or Spotify's algorithmic and editorial teams.

Participants described a wide range of methods for browsing and navigating their libraries. Some preferred to filter by artist or album. Others preferred flexibility and mood-based choosing over organized browsing, concentrating on playlists or specific songs. One participant described their library as a sort of personal time capsule, and scrolling by the "added" date was one particularly intriguing activity. They were able to retrace particular events in their lives by scrolling through recently added songs or albums.

User sentiment about the Spotify recommendation algorithm is split into a bimodal distribution, with some users having very positive impressions of the recommendation and algorithm quality, while others have a very negative impression. Users who had favorable impressions of the algorithm and the quality of recommendations appreciated how it freed them from decision-making, promoted discovery, and helped them stay up-to-date with new releases. These users utilized a variety of algorithmic features, including Daily Mixes, recommendations on the home page, the Discover Weekly feature, and others. Users who had negative impressions expressed frustration that the algorithm "doesn't get them," often recommending popular or repetitive tracks rather than those that align with their niche or evolving preferences.

Four key Spotify features were recurring fixtures in the discovery and playback habits of multiple participants: Daily Mixes, Discover Weekly, Create Station, and Jump Back In. Many users complimented Daily Mixes as their favorite option for easy listening, praising the way these playlists skillfully combined popular songs with a few new ones. However, several noted that the mixes may eventually get boring, often showcasing the same artists or genres.

Discover Weekly evoked mixed feelings, as some users eagerly anticipated it each week as a way to discover new music. Others, however, expressed dissatisfaction with its inconsistency, saying that the recommendations sometimes felt random or unconnected to their interests.

Create Station appealed to users who wanted a semi-structured way to explore beyond a single song, artist, or genre, offering a sense of guided discovery without requiring heavy input. Meanwhile, Jump Back In was valued for its convenience, allowing listeners to quickly resume previously played playlists or albums, especially during commutes or workouts.

Many participants voiced that Spotify's recommendation system felt opaque and outdated. Their criticisms were primarily:

- They feel that the algorithm cannot understand why they enjoy the songs that they do.
- They want their likes, dislikes, and skips to be factored into the algorithm that determines how songs are recommended to them.

- The recommendations are not refreshed frequently enough and tend to prioritize popular content over content that users actually listen to.
- There are also AI-generated songs being forwarded by the algorithms, upsetting some users, and often viewed as disrespectful to music creators.
- Users want more transparency and control over how the algorithm works, so they can receive recommendations for songs they would actually enjoy, and have the ability to fine-tune the algorithm when it gets things wrong.

Due to the lack of Spotify's updated recommendations, many participants turn to external sources, such as friends, family, YouTube, and Instagram, to discover new music. They often feel these sources know them and their music tastes better. They also tend to find enjoyable songs on Instagram and YouTube. If Spotify's recommendations were more effective, users might not need to use other apps to find music. Some participants use Spotify as a way to collaborate on playlists or share tunes with friends and family. These findings suggest that Spotify can enhance personalization by leveraging social and contextual clues more effectively through the introduction of advanced cross-platform or friend-based discovery capabilities.

Participants frequently curated their music based on context and environment, such as high-energy playlists for driving or working out, and calm or reflective genres for relaxation or studying. In these contexts, users often preferred instrumental or low-lyric music, such as lo-fi, jazz, or ambient playlists, because lyrics were described as distracting or mentally intrusive during cognitively demanding tasks.

Conversely, when users were in a tranquil or comfortable mode, lyrical music became more prominent. Vocal songs were associated with nostalgia, narrative events, and emotional expressiveness, all of which participants actively wanted to engage with. This implies that Spotify's suggestions and user interface design might incorporate contextual awareness, such as time, activity, or mood, more thoroughly.

On another note, another participant mentioned that their interests are often based on the details of the artist, which are located at the bottom of the artist’s page under “About”. This Spotify feature includes information on the artist in a few paragraphs. Some of these details include the artist's origin, accomplishments made throughout their music career, and the awards received during this time. Additionally, this feature highlights the artist’s current progress in music, including details about their recent single and/or album releases.

Across participants, skipping behavior emerged as a key indicator of user satisfaction and engagement. Many users described frequently skipping songs within playlists or recommended mixes until they found something that matched their current mood or level of energy. Skipping was often a

habitual, almost unconscious action, used as a way to quickly “fine-tune” the listening experience rather than a sign of dissatisfaction with the app itself. However, a number of users have complained that Spotify's algorithm doesn't appear to take these skips into account when forming future recommendations properly. They wanted their skipping patterns to carry more weight in determining what the app suggests, interpreting skips as strong feedback about what doesn’t fit their taste in the moment. This behavior presents a crucial opportunity for Spotify to enhance the visibility and responsiveness of real-time adaptation by recognizing skipping as valuable contextual information about user intent and emotional state, rather than simply rejecting it.

Our contextual inquiries revealed an interesting trend: a large number of users participated in what could be dubbed "meta-skipping," skipping songs not because they disliked them, but rather to influence how Spotify's algorithm interpreted their listening preferences. Some users said they deliberately avoid music they are ambivalent about to prevent the computer from categorizing their taste too narrowly or overwhelming subsequent recommendations with comparable songs. In these situations, skipping turned into a calculated move, a method of "gaming the system" to keep the algorithm under control. This conduct reveals a higher degree of consumer awareness and mistrust of Spotify's suggestion system. This insight highlights the tension between personalization and autonomy, suggesting that users want to be understood by the algorithm without feeling constrained by it.

The main takeaway from this process is that users discovered music in various ways within the same application. Although we had used Spotify ourselves, nearly all the participants had their own approach to finding new music, often in ways we hadn't considered or explored. This emphasizes the importance of conducting user testing and observation: being familiar with a product does not necessarily mean that you understand how other people actually use it. These insights underscore the need for a more adaptive and human-centered approach to music recommendation and interaction design.