

Assignment M1:CS6750

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Abstract— Through the assignment M1 I will be looking into the search functionality for Apple Music. Apple Music is the second most popular music streaming App globally after Spotify and contains the largest music library of all music streaming applications. Apple Music is well integrated into the Apple ecosystem however the search functionality for Apple Music leaves a lot to be desired.

PROBLEM SPACE

Apple Music is one of the most popular music streaming services and it provides great value for its users. For an annual subscription of 10 USD users can access about 60 Million songs. For users within the Apple ecosystem the application is natively integrated into the operating system for seamless performance and for non Apple devices like Android phones, there is a downloadable application from the PlayStore. I primarily use Apple Music native on my MacBook and iPad and use the Android application on my smartphone.

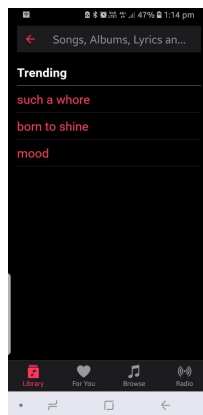


Figure 1—Search functionality in Apple Music

However the search functionality is really basic. It does not support a voice search on Android in iOS this feature is integrated with Siri. There are no advanced filters to filter genres and the single search bar searches for artists, songs, albums, playlists and lyrics. So I would like to focus on the search

functionality of Apple Music, how to better improve it for the end user and recognise contexts.

USER TYPES

The users targeted for my redesign are users who use Apple Music both within and outside of the Apple ecosystem. My users include both men and women, users within the age range of 18 - 28. The users listen to audio in multiple contexts like while exercising, driving, relaxing, doing chores and working. The users also utilise voice assistants in their daily smartphone interactions.

NEEDFINDING PLAN 1

The first needfinding plan will be to conduct *naturalistic observation*.

1.1 What will be observed

I will observe the users interaction with the application within changing contexts. Like for example when someone is listening to music while working out, for the more intensive sessions they would require higher bpm music than during stretches and light cardio. How they interact with the device while in between workouts will be observed. I will also observe how the search functionality is used with the interface while driving, when parked and temporarily stopped like at a redlight. I will also try to observe users as they listen to audio as they go about their day, how they interact with the search functionality when things are slow and how they interact when they are in the zone while programming.

1.2 Where

This can be done by going to parks, gyms where people exercise while listening to music, taking Uber rides, bus rides or rides with friends where the various drivers stream music while driving. Also offices where people listen to music while working like for software engineers who listen to a particular playlist to be in the zone, calming music while at lunch and some light music otherwise.

1.3 When

For the gyms and parks I would go there during the peak times of occupancy that is 5am - 5:30 am in the morning and 6:00 pm to 7:00 pm in the evening. For Uber rides and travel use cases they can be monitored any time I travel and I can ask them to perform "think out loud" exercises while experiencing the search

interface to understand their thought process when they are interacting with the search. For the work use case, I think I would gather notes 3 - 5 pm for the participants when they are usually working on technical tasks and from 9:00 to 9:30 when users are usually just checking emails and are just settling in for the day.

1.4 What data will be gathered

I will measure the following as quantitative data. Firstly I will gather the time taken for a successful search, a successful search will be measured from the time the search is initiated to the time the user exits the search bar. Secondly I would measure the rate of error while inputting into the search bar in different contexts, it could be trying to type while wearing gym gloves or the errors captured by the voice assistants. The errors will be measured per 10 searches and multiple errors in the same search will be counted as '2' and a single error will be given the value '1' no error as '0'.

The qualitative data that I will gather will be based on the following. Firstly I will gather *how often* they interact with the search functionality. Secondly I will gather *how* they interact with the search functionality, if they use buttons, voice assistants, gestures.

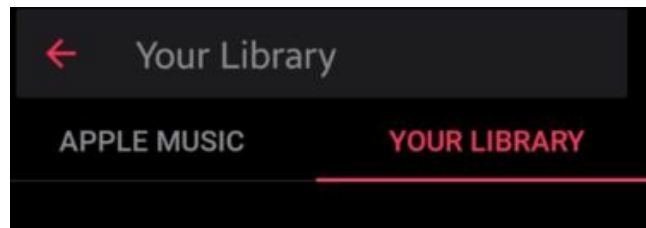


Figure 2— Search between the user library or application library in Apple Music

Thirdly I will gather *where* they interact with the search functionality, are they searching their downloaded library the most, fixed playlists or is it a general library search. Four, I'm interested in what they search for, i.e. do they search the song name, artist, album, lyrics and the frequency of each.

NEEDFINDING PLAN 2

The second needfinding plan will be based on *surveys*.

2.1 What will be asked in the survey

The below questions will be asked in the survey, these questions are designed to check if the users are facing an issue with the search in the first place to prevent confirmation bias. There are no leading questions and care has been taken to limit unconscious bias.

On a scale of 1 - 3 how satisfied are you with the search functionality of Apple Music when searching for a song name?

1. Highly Dissatisfied
2. Dissatisfied
3. Neutral
4. Satisfied
5. Highly Satisfied

When do you generally use Apple Music ?

1. Working
2. Chores
3. Driving
4. Dedicated Music Time
5. Other(Please Specify)

From which devices do you access Apple Music ?

1. Mac
2. iPad
3. iPhone
4. Apple Watch
5. Android Device
6. Smart Speaker
6. Other please specify

How often do you use the search functionality when using Apple Music in a single session?

1. 0-1 times
2. 2- 4 times
3. 5-8 times
4. More than 9 times

Please rank the below on the frequency of use of the search functionality?

1. Personal Playlists
2. Public Playlists
3. Apple Library
4. Albums

How likely are you to use a functionality to filter music in your playlist or library based on a user defined filters like bpm?

1. Extremely Unlikely
2. Unlikely
3. Occasionally
4. Likely
5. Extremely Likely

What is your primary method of using a search within the Apple Music application (check all that apply)?

1. Digital Assistants
2. Gesture
3. Voice commands
4. Search Bar and Keyboard

When utilising the search functionality on Apple Music what do you usually search for?

1. Song Name
2. Song Lyrics
3. Albums
4. Artists
5. Genre

Please rank the below options on how often you search/ filter using the below criteria

1. Song Name
2. Song Lyrics
3. Albums
4. Artists
5. Genre

Is there anything about the search functionality in Apple Music that you do not find useful?(Text Answers)

2.2 Who will you send the survey to?

The surveys will be sent out to daily users of Apple Music as their primary method of consuming music and use it across multiple devices (Computer, smartspeaker, phone) and in multiple contexts. I have a dozen friends that use apple music as a family so I would primarily survey them along with the people I can find in this class.

NEEDFINDING PLAN 3

The third needfinding plan will be based on *Participant observation*

3.1 What will I do

I am a regular user of Apple Music and have access to multiple streaming platforms these tasks will hopefully be straightforward. I plan on using as many streaming services as possible in the next couple of days and importing my playlist to each and everyone of them and recording my observation.

3.2 What steps will I follow

Then over the next couple of days I will use multiple streaming platforms as my primary streaming platform and utilise the search functionality in as many different contexts such as while coding, exercising, driving, doing chores and drafting emails.

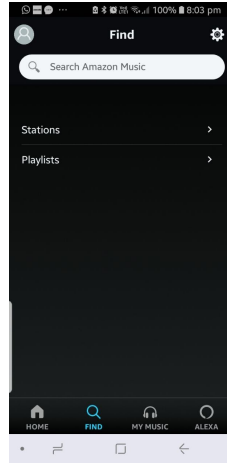


Figure 3— Search menu of Amazon Music filters are stations and Playlists

As I can taking notes on the different interfaces available to the user. The different features and filters available to the users, the accuracy of those results and the shortfalls that I've experienced while using these interfaces. I will search for lyrics, filters, artists, covers, labels and albums and compare the accuracy of the search functionality and the time taken to do so.

3.3 What data will I gather

I will gather the shift in the search results based on the different contexts that I am in. The accuracy of the results provided, if the song played was by the artist or a cover by a lesser known artist.

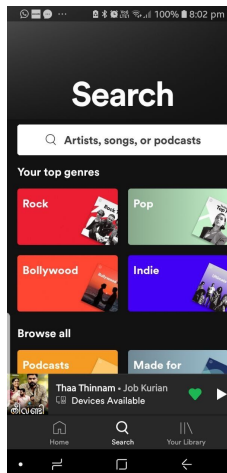


Figure 3— Search menu of Spotify with genres and playlist search shortcuts

I will gather how well the voice assistant was able to fulfill my request in terms of the time taken to fulfill my request and the accuracy in doing so. Additionally I will look into the gestures like that of airpods and see how well they help with the search functionality and if relatively unknown artists can be found without digging through the search results.

CONCLUSION

The goal of these needfinding experiments is to understand what participants look for in the search functionality of Apple Music. Due to its low cost and the immensely popular ecosystem a large user base is available with a healthy level of experience levels. Hopefully these experiments provide plausible solutions which can be implemented and executed.