

COMPONENTS

TECHNOLOGIES
USED

CONCLUSION

TEAM
INTRODUCTION

ARCHITECTURE

TESTING

DIY Karaoke: Karaoke Track Generation and Song Recommendation



TEAM INTRODUCTION

NOOPUR MEHTA

MS IN SOFTWARE
ENGINEERING

SHRIYA VANVARI

MS IN SOFTWARE
ENGINEERING

MANASA HARI

MS IN SOFTWARE
ENGINEERING

PARSHWA GANDHI

MS IN COMPUTER
ENGINEERING

Under the guidance of,
Prof. Gopinath Vinodh

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DEMO

Sign in and
Register

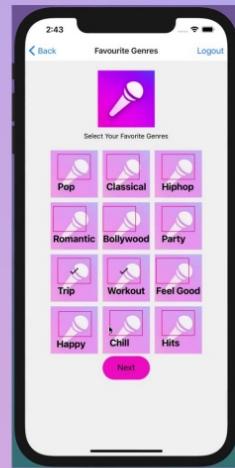
SONG
RECOMMENDATION

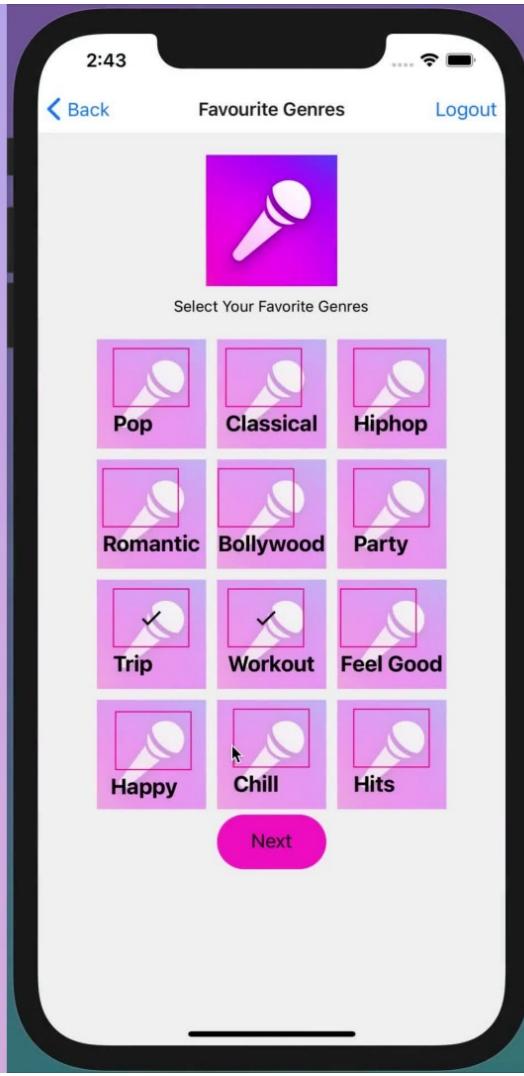
SONG
RECOGNITION

KARAOKE
GENERATION

LYRICS
SYNCHRONIZATION

Register and Sign In







DEMO

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Register

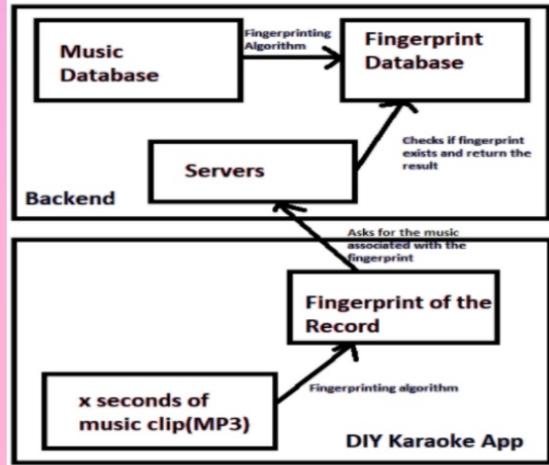
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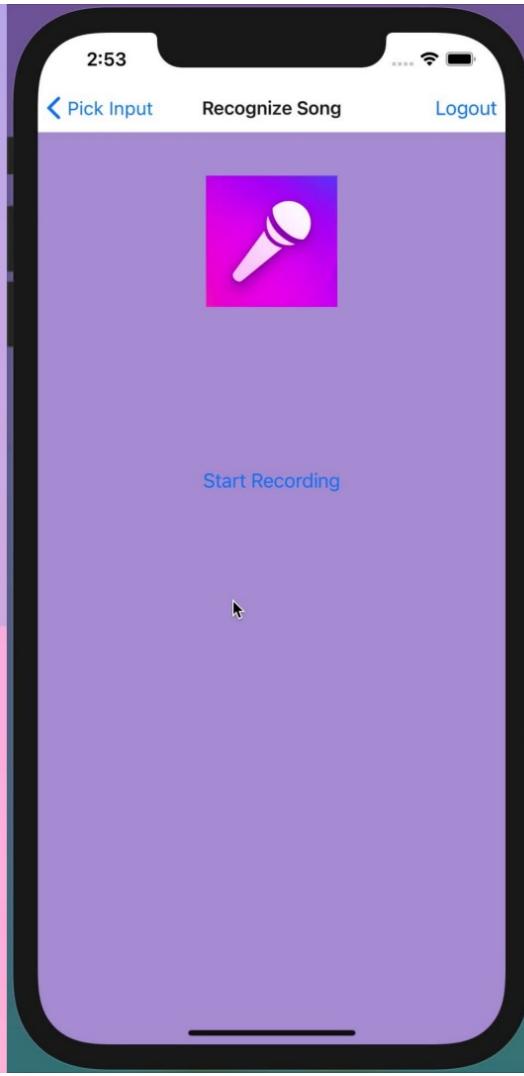
SONG RECOGNITION



Song Recognition module takes audio input from device microphone, converts it into mp3 and recognizes the song by comparing the fingerprint of audio file to database of existing song fingerprint hashes.

If a match is found, it returns the song details







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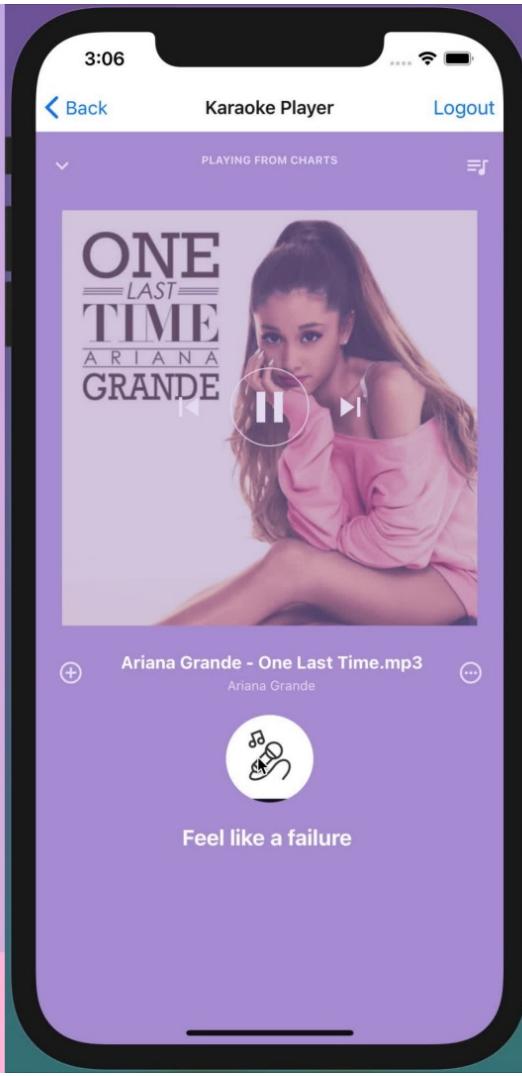
LYRICS
SYNCHRONIZATION

KARAOKE GENERATION

In this module, once the title is received from song recognition or user's search query, we will first check if karaoke for the said song is already existing in our database.

If not, we will compute the karaoke track and send it back to the user's device and also store the newly generated karaoke track in our database.







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LYRICS SYNCHRONIZATION

Know who you're with

Automatically generated timestamps(using ML) are synchronized to the karaoke audio.

ow who you're w



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SONG RECOMMENDATION

Recommendation System

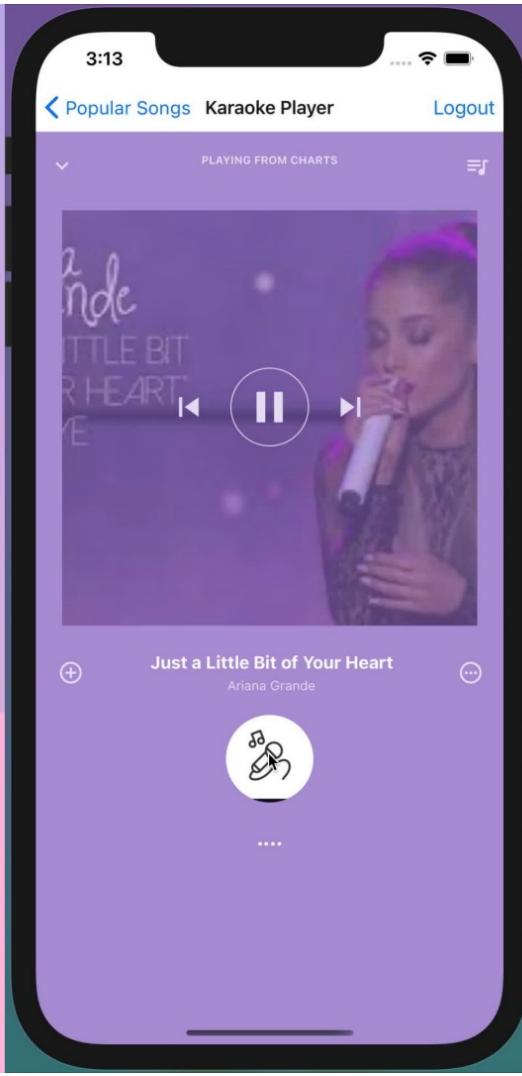
Goal: We want to recommend songs to the user. We used the below two recommendation systems in our application.

- 1) Item-based recommendation - collaborative filtering
- 2) Recommend the songs on the trend



**Item based
recommendation**

**Popular
Songs**



Item based Recommendation

Idea: If a user likes one song, he/she might as well like other songs of a similar kind.

Implementation: Compute pair-wise similarity between songs. Inspired by

Below are the high-level details of this algorithm

Step 1: Calculate song-song similarities

Step 2: Neighborhood formation

Step 3: Prediction

Step 4: Recommendation

SONG RECOMMENDATION

Recommendation System

Goal: We want to recommend songs to the user. We used the below two recommendation systems in our application.

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**Item based
recommendation**

**Popular
Songs**

Popular Songs

Idea: Users might like to hear the most popular and hit songs.

Implementation: We calculate the hits on each song and then recommend these hit songs in the order of popularity, i.e., the most popular song first.

SONG RECOMMENDATION

Recommendation System

Goal: We want to recommend songs to the user. We used the below two recommendation systems in our application.

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**Item based
recommendation**

**Popular
Songs**



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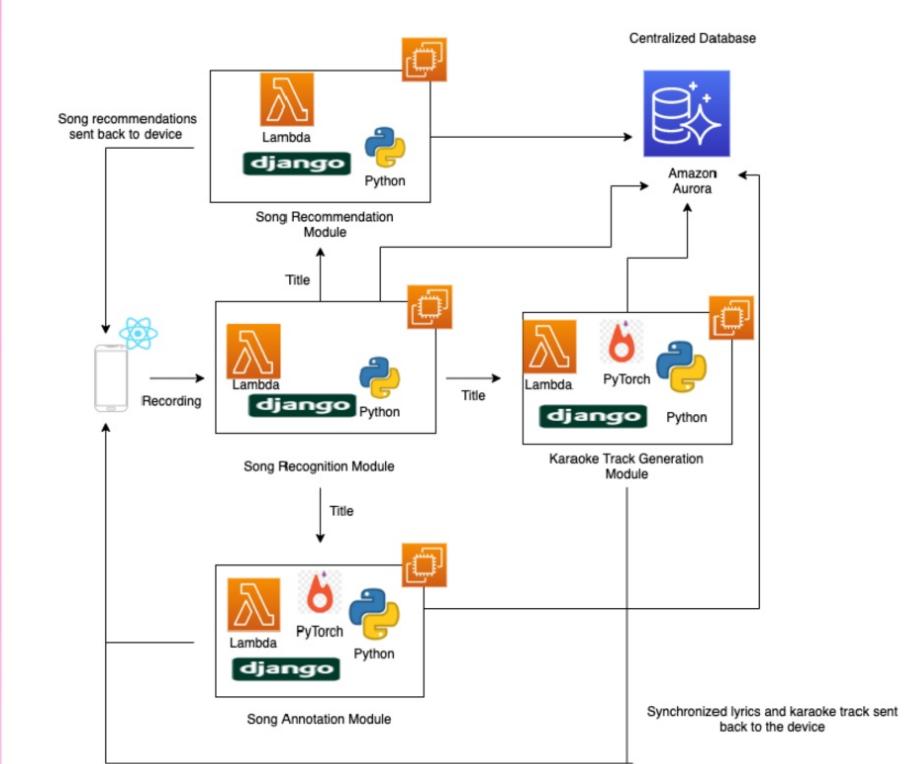
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SYSTEM ARCHITECTURE



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TECHNOLOGY DESCRIPTION



Client Technology



Middle Tier Technology



Database Tier Technology



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TESTING AND VERIFICATION

Testing Strategies:

We are going to perform both functional and non-functional testing of our application in order to completely test our application against stated requirements.

Functional Testing

- Unit Testing
- Integration Testing
- System Testing
- Acceptance Testing

Non-Functional Testing

- Speed
- Noise Resistance

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CONCLUSION

To conclude. In this project, we were able to solve some common problems of karaoke enthusiasts such as using multiple applications for different functions. We have developed a user-friendly DIY karaoke that includes song recognition, karaoke track generation, song recommendation system, and lyrics annotation all with in a single application. The application that provides a holistic experience to music lovers and karaoke singers.

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