Music Recommendation System

31.03.2025

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Organization: Open Technologies Alliance - GFOSS
GSOC - 2025

Introduction:

I am Mustafa, a passionate Machine Learning Developer with a strong foundation in Full Stack Development. Currently, I am pursuing my Bachelor's in Technology in the field of Artificial Intelligence and Data Science. This year marks my first participation in Google Summer of Code, and I am extremely excited about the opportunity. I look forward to collaborating with the community and creating something great together!

Project Overview

This project recommends songs to users based on their previous listening history. It also includes additional features to enhance the experience. The UI is designed to be intuitive—when you search for a song, the entire crew that contributed to the song appears in a **mind map**. Clicking on any artist within the mind map displays songs by that particular artist. Additionally, the search history is saved, allowing users to revisit their previous searches effortlessly.

Goals

1. To improve the users experience while listening music
2. The music would also gets recommend on the basis of user's mood

Technologies Used

Programming Languages:

- JavaScript
- Python

Frameworks

- React.js (Frontend)
- Python (Backend)

API's

- **Spotify API** (for fetching songs and metadata

Setup Instructions

To set up the project Follow the given instructions:

Backend Setup:

- Navigate to the **backend** directory.
-
- Install dependencies:

  ```
  pip install -r requirements.txt
  ```

- Follow the instructions in the `README.md` file to complete the **backend setup**.

Frontend Setup:

- Navigate to the **frontend** directory.
- Install dependencies:

  ```
  npm install
  ```

- Follow the instructions in the `README.md` file to complete the **frontend setup**.

Product Features:

User Functions:

- Search for song metadata.
- Generate **song recommendations** based on artist's ego-networks and similarity components.

Data Integration and Analysis:

- Collect and analyze data using **Spotify APIs**.

- Visualize artist's ego networks and their similarities.

Database:

- Store and retrieve data related to ego-networks and user search histories.

Backend:

- Django-based backend for **data aggregation, analysis, and API integration**.

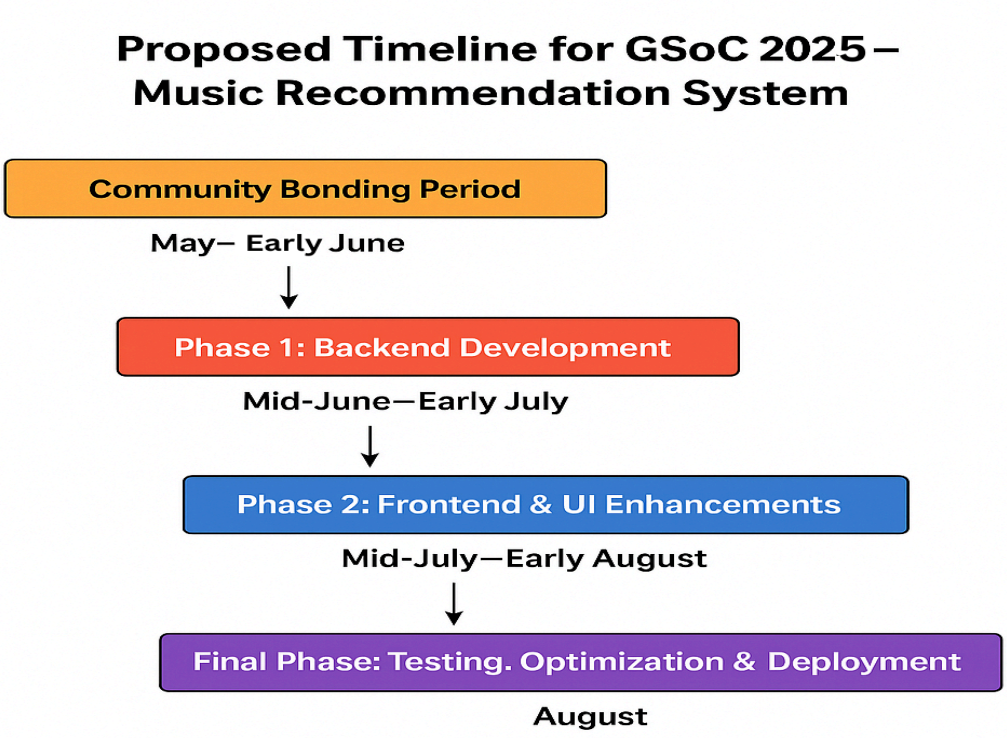
Frontend:

- React-based frontend for a **user-friendly** interface.

Deployment:

- Hosted on **Vercel**

Timeline in Diagram:



Detailed Timeline Explanation:

- **Community Bonding Period (May - Early June)**
  - Research Spotify API, Deezer API, and ego-network methodologies.
  - Engage with mentors and refine the project plan.
  - Set up the development environment.

Phase 1: Backend Development (Mid-June - Early July)

- Implement Django backend with API integration.
- Develop data collection and storage mechanisms.
- Design recommendation algorithms using ego-networks and similarity components.

Phase 2: Frontend & UI Enhancements (Mid-July - Early August)

- Build the React-based frontend.
- Implement search functionality and song metadata retrieval.
- Create the **mind map visualization** for artist collaborations.

Final Phase: Testing, Optimization & Deployment (August)

- Optimize recommendation logic and fix UI bugs.
- Conduct extensive testing and gather feedback.
- Deploy on **Vercel** and document project for future contributions.