(1) Development track
(2) Names and Email
- Lin, Sheng-Min: smlin3@illinois.edu
- Su, Bo-Yu: boyusu2@illinois.edu
- Lee, Bo-Lin: bolinll2@illinois.edu
- Huang, Shang-Jui: sjh9@illinois.edu

(3) Coordinator: Huang, Shang-Jui

(4)
- **Functions and Users**

  Define clearly what software tool you're planning on implementing.

  We're implementing a website that gives user recommendations on Spotify music. The website can give personalized recommendations according to the input of the user.

  Clarify whether you plan to develop a standalone software tool, a new Web-based application, a new mobile app, an extension of an existing toolkit, or an extension of an existing application system.

  We are developing a web application.

  What are the major functions of the envisioned tool?

  Users will be able to provide the link of a playlist from Spotify to the website. After analyzing the playlist, we will return some music options from Spotify that we think users will enjoy listening to.

  Who are the users of your software tool/system?

  Users can be anyone that is interested in listening to music or someone that wants to listen to certain genres of music and need recommendations.

- **Significance**

  Why do we need the tool/system that you propose to develop? Does your tool/system address any existing "pain point"? How would our world be different because of your new tool/system? Does it address a societal need? Why is it important to address this need?

  Music enthusiasts today are faced with an overwhelming array of choices, with millions of songs at their fingertips. This abundance makes it increasingly challenging to discover new music that truly resonates with their individual tastes. While streaming apps offer recommendation playlists, these often fall short of providing a truly personalized experience. Users are left with a passive role, merely

receiving suggestions without the opportunity to actively shape their musical journey.

Furthermore, the music industry is highly competitive, with emerging artists struggling to reach their potential audience amid the dominance of established stars and their substantial advertising budgets.

WhatNext is the next–generation platform that addresses these pain points. It empowers users to take control of their musical discovery process. Our platform goes beyond the standard recommendation algorithm; it allows users to actively influence the generation of personalized playlists. This interactive approach ensures that users' specific preferences are not just considered but central to their listening experience.

By providing a platform where user input is valued and emerging artists are given a spotlight, WhatNext aims to revolutionize the music streaming landscape. We are committed to creating a unique and satisfying experience that enriches the lives of music enthusiasts, supports emerging talent, and contributes positively to society as a whole.

- **Approach**

   How do you plan to build it? If this is a contribution to an existing piece of software, you should try to know the procedure for contributing to that software. If this is a standalone tool, identify what technologies you plan on leveraging to implement your software. This may be programming languages, supporting libraries, etc. What existing resources can you leverage? What risk or potential barrier do you anticipate and how you plan to mitigate the risk?

   Dataset: [Spotify Million Playlist Dataset Challenge](#)
   In our music recommendation system, we consider songs in the same playlists to be related. To capture the features of the playlists, we employ the following approach:

   - **Encoding Song Features:** We use one-hot encoding to represent the features of each song.
   - **Calculating Playlist Features:** We aggregate the features of all songs in a playlist using methods such as TF-IDF (Term Frequency-Inverse Document Frequency) or neural networks to capture the overall characteristics of the playlist.
   - **Finding Relations Between Playlists:** We explore the relationships between different playlists to understand the underlying patterns and preferences.

   User Interaction:

   - Users can input a song or a playlist.
   - The system recommends a song and a playlist based on the input.

- The system provides the likelihood of the user liking the recommended song.

Our goal is to create a personalized music recommendation experience by understanding the intricacies of musical preferences reflected in playlists.

- **Evaluation**

  How will you demonstrate the usefulness of your tool/system and correctness of your implementation?

  Gather feedback data from 100 randomly selected users regarding their satisfaction with our recommendations. Determine if our suggestions align with their typical listening preferences, and to what extent. Assess users' perceptions of the ease of use of our system.

- **Timeline**

  Provide a rough timeline to show when you expect to finish what. List a couple of milestones if possible (they can be tentative).

  Project Timeline:

  April 10th to April 17th: Gain proficiency in API controls and create retrieval models.

  April 17th to April 24th: Incorporate Spotify APIs, train models, and advance platform development.

  April 24th to May 1st: Integrate trained models into our platform.

  May 1st to May 7th: Conduct testing, gather feedback data, draft reports, prepare slides, and record presentation videos.

- [Task division] Use one sentence to describe what each team member is expected to work on (can be tentative).

  Work Distribution:

  - **Sheng-Ming:** Lead basic platform development.
  - **Bo-Yu:** Develop and train retrieval model.
  - **Bo-Lin:** Integrate models into the system.
  - **Shang-Jui:** Lead API integration efforts.