Project overview and requirements
MoodyFi
(Emotion-Based Web Media Player)

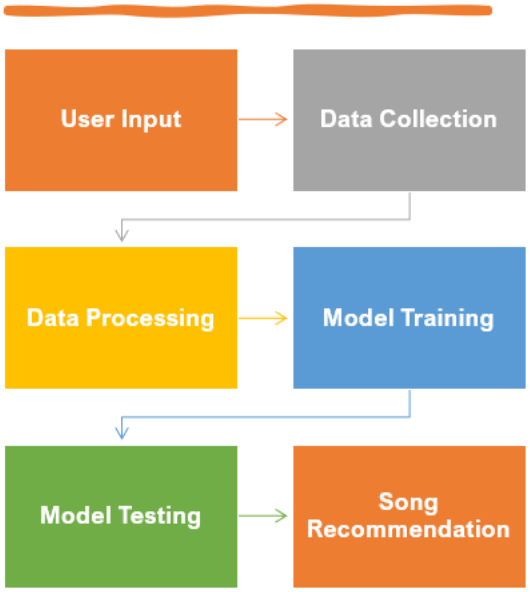
1 Functional Requirements

1. User Registration and Profile Management:
    - Allow users to create accounts and manage their profiles.
    - Enable users to provide and update personal information.
    - Store and retrieve user preferences and historical listening data.
2. Real-Time Emotion Detection:
    - Capture live video input from the user's webcam or camera.
    - Apply an emotion detection model to analyze facial expressions in real-time.
    - Classify the detected emotions into relevant categories (e.g., happy, sad, angry, etc.).
    - Provide accurate and timely emotion detection results.
3. Personalized Song Recommendation:
    - Utilize collaborative filtering or content-based filtering techniques to generate personalized song recommendations.
    - Incorporate user preferences and detected emotions as inputs for the recommendation algorithms.
    - Present recommended songs based on the user's detected emotions and preferences.
4. User Interface:
    - Design an intuitive and visually appealing user interface for the music recommendation system.
    - Display the user's detected emotions in real-time.
    - Present recommended songs with relevant information such as song titles, artists, and album covers.
    - Allow users to interact with the system, such as liking or disliking songs, to further personalize the recommendations.
5. Song Metadata Integration:
    - Integrate a database or API to retrieve and display relevant song metadata, including titles, artists, genres, and album covers.
    - Retrieve and present additional information about recommended songs, such as song duration and release date.
6. User Feedback Mechanism:
    - Implement mechanisms for users to provide feedback on recommended songs.
    - Allow users to rate songs or provide explicit feedback (like/dislike) to improve future recommendations.
    - Utilize user feedback to refine the recommendation algorithms and enhance the accuracy and relevance of recommendations.
7. Performance Optimization:
    - Optimize the system's performance to ensure real-time responsiveness in emotion detection and song recommendation processes.
    - Minimize latency in emotion detection and recommendation generation.
    - Handle concurrent user requests efficiently and effectively.
8. Privacy and Data Security:
    - Ensure the privacy and security of user data.
    - Implement measures to protect user information and comply with relevant privacy regulations.
    - Securely store and handle user data, including encryption and access control mechanisms.
9. Compatibility and Platform Support:
    - Ensure compatibility with different devices and operating systems, such as web browsers, mobile devices, and desktop applications.

- Support popular platforms and APIs for seamless integration and user accessibility.

10. Documentation and Help:
    - Provide comprehensive documentation, including installation instructions, user guides, and system architecture.
    - Offer contextual help within the user interface to guide users in interacting with the system.
    - Include troubleshooting resources and FAQs to assist users in resolving any issues or queries.

2 Workflow Diagram:



3 Product Backlog:

1. Media playback:
    - Play audio and video files from local or online sources.
    - Provide controls for play, pause, stop, and seek.
2. Emotion Detection:
    - Analyze the emotional content of the media being played.
    - Detect and recognize emotions such as happiness, sadness, anger, or excitement.
3. Emotion-based Playlist Creation:
    - Enable users to create playlists based on specific emotions or emotional themes.
    - Automatically generate playlists based on detected emotions in the user's media library.
4. User Authentication and Personalization:
    - Implement user authentication and user profiles to personalize the media player experience.
    - Store user preferences, history, and playlists for individual users.
5. Responsive Design:

- Create a responsive user interface that adapts to different screen sizes and orientations.
- Ensure usability and functionality across devices.

6. Customizable Emotion Detection Settings:
    - Allow users to adjust the sensitivity of emotion detection algorithms.
    - Provide options to enable/disable specific emotions for analysis.