

Software Requirements Specification (SRS)

AI Music Recommender System

Snapshot 1 - Core System

Project Group 5

December 7, 2025

Version Description

Version	Description	Date
1.0	Initial SRS for Snapshot 1 of the AI Music Recommender System. Core functionality: authentication, basic playback, interaction logging, and baseline recommendations.	December 7, 2025

1 Introduction

1.1 Purpose

This SRS defines the functional and non-functional requirements for Snapshot 1 of the AI Music Recommender System, which provides a minimal viable product for personalized music playback using basic user interaction data.

1.2 Scope

Snapshot 1 delivers a web or mobile application where users can register, authenticate, browse a catalog, play songs, provide like or skip feedback, and receive simple personalized recommendations based on their listening history.

1.3 Intended Audience

The intended audience includes the course instructor, teaching assistants, and project team members responsible for analysis, design, implementation, and testing of Snapshot 1.

1.4 Overview

This document describes external interfaces, functional requirements, non-functional requirements, and legal and ethical considerations limited to Snapshot 1 of the system.

2 Overall Description

2.1 User Needs

Users need:

- A simple way to create an account and sign in securely.
- A music player to browse and play songs from a catalog.
- Personalized recommendations aligned with previous listening behavior.
- A means to express preferences (likes and skips) that influence future recommendations.

2.2 Product Perspective

The system is a standalone application with a client, backend server, and database layer. For Snapshot 1, the catalog is predefined and stored in the project database.

3 External Interface Requirements

3.1 User Interface

Snapshot 1 shall provide:

- A login and registration screen for user authentication.
- A home screen that displays a list of recommended songs and basic playlists.
- A search screen to search by song title, artist, or genre.
- A now-playing screen with play, pause, next, and previous controls, plus like and skip buttons.

3.2 Software Interfaces

The client communicates with:

- A backend API for registration, login, recommendation retrieval, catalog browsing, and interaction logging.
- A database storing user accounts, songs, artists, and interaction logs.

3.3 Hardware Interfaces

The system targets standard desktop or mobile devices with network connectivity and does not require special hardware.

4 Functional Requirements

4.1 Authentication and User Management

- FR-1: The system shall allow a new user to create an account using email and password.
- FR-2: The system shall allow an existing user to log in with registered credentials.
- FR-3: The system shall validate credentials and reject invalid login attempts.

4.2 Music Catalog and Playback

- FR-4: The system shall display a list of available songs with title, artist, and basic metadata.
- FR-5: The system shall allow a user to start playback of a selected song.
- FR-6: The system shall provide playback controls for play, pause, next, and previous.

4.3 Recommendation and Interaction Logging

- FR-7: The system shall display a list of recommended songs on the home screen for the logged-in user.
- FR-8: The system shall allow users to like a currently playing song.
- FR-9: The system shall allow users to skip a song and automatically move to the next track.
- FR-10: The system shall log interactions, including plays, likes, and skips, associated with the user.
- FR-11: The system shall use the logged interactions to adjust future recommendations.

4.4 Search

- FR-12: The system shall allow users to search for songs by title, artist, or genre.
- FR-13: The system shall return a list of matching songs that can be played.

5 Non-Functional Requirements

5.1 Performance

- NFR-1: The system should load the home screen and recommended songs within a few seconds under normal network conditions.

5.2 Usability

- NFR-2: Navigation among login, home, search, and now-playing screens shall be intuitive and consistent.

5.3 Security

- NFR-3: Passwords shall be stored using secure hashing rather than plain text.
- NFR-4: Only authenticated users shall access personalized recommendations and interaction history.

6 Legal and Ethical Considerations

6.1 Data Storage and Privacy

The system stores user account information and listening history solely to provide and improve recommendations, limiting access to authorized components in the context of this educational project.

6.2 User Consent

Users are informed that their interaction data (likes, skips, and plays) is collected and used to personalize recommendations and is not shared with third parties.