

Software Requirements Specification (SRS)

Project Title: Lyrics + Audio Fusion Classifier

Version: 1.0

Date: [Insert Date]

Prepared by: [Your Name / Team]

1. Introduction

Purpose: To build a music genre classification system that uses both audio features and lyrics analysis with LLMs. Scope: Users upload a song, system extracts lyrics and audio features, processes them, fuses embeddings, classifies genre, and displays result.

2. Overall Description

Product Perspective: Standalone system with external LLM APIs and audio feature extraction libraries. Functions: Upload song, process lyrics, extract audio, fuse features, classify genre, display results. Constraints: Requires GPU, internet for LLM API, supports .mp3/.wav/.flac.

3. Specific Requirements

Functional: Upload Song, Lyrics Processing, Audio Feature Extraction, Feature Fusion, Genre Classification, Output Results. Non-Functional: Performance (<5 sec per track), Scalability (1000 req/day), Usability, Reliability (>95% uptime), Accuracy (>=80% F1-score).

4. System Models

Includes Use Case Diagram and Gantt Chart created earlier.

5. Appendices

Datasets: Million Song Dataset, GTZAN, MusiCNN. Tools: Python, Librosa, HuggingFace, TensorFlow/PyTorch, FastAPI, React/Tailwind.