

# **Recommendation Project: Song Recommendation System**

## **Project Title: Song Recommendation System**

**Project Description:** This project implements a music recommendation system using TF-IDF and cosine similarity. It analyzes song metadata to find similarities between songs and recommends music based on the user's selected song. The system provides personalized recommendations without using user ratings.

## **What is this project about?**

This project is about building a simple music recommendation system that suggests similar songs based on their content. It uses TF-IDF to convert song information into numerical features and cosine similarity to find and recommend songs that are most similar to the user's selected song. This beginner-friendly project helps understand the basics of content-based recommendation systems.

## **What You Have to Do (Step-by-Step):**

### **1. Set Up the Environment and install necessary packages**

- Install necessary Python packages (FastAPI, Uvicorn, scikit-learn, pandas, etc.).
- Load the music dataset containing song details (title, artist, genre, etc.).

### **2. Data Preprocessing**

- Clean and combine relevant song features into a single text format.
- Apply TF-IDF Vectorizer to convert text data into feature vectors.

### **3. Implement Recommendation Logic**

- Use cosine similarity to calculate similarity between songs.
- When a user selects a song, find and return the most similar songs.

### **4. Build the Recommendation Function**

- Create a function that takes a song name as input.
- Output a list of recommended songs based on similarity scores.

### **5. Test, Document, and Finalize**

- Test the system with different song inputs.
- Document the working of TF-IDF, cosine similarity, and recommendation results.

## **What to Submit:**

Define what students must submit and in what format.

- A PDF report containing:
  - Project folder structure screenshot
  - Github Repo containing all the coding files.
  - Hosted API Link
  - Sample API test screenshots (live link if possible)

## **Tips for Students:**

- Clearly preprocess and combine song features before applying TF-IDF.
- Test the system with different song inputs to verify recommendation accuracy.
- Focus on understanding the workflow – data preprocessing → TF-IDF vectorization → cosine similarity → recommendations.

## **Deadline:**

Submit your project by 17 November 2025, 11:59 PM in PDF form in the submission link – that will be shared by the admins.

