**Music Mood Prediction and Recommendation System with ML Model**

This project focuses on developing a machine learning-based recommendation system for music classification and retrieval. The program takes user inputs of specific song attributes (independent variables, denoted as Xi’s​) and predicts the user's desired mood (dependent variable, Y): *happy*, *sad*, *energetic*, or *calm*. The system then retrieves songs from the dataset that align with the predicted mood, ensuring personalized recommendations.

**Technical Details:**

1. **Dataset:**
   * Size: 687 rows (songs)
   * Features (Xi’s​): length, danceability, acousticness, energy, instrumentalness, liveness, valence, loudness, speechiness, tempo, key, time signature
   * No. of features: 13
   * Target (Y): *happy*, *sad*, *energetic*, *calm*
2. **Classification Models Tested:**
   * K-Nearest Neighbours (KNN)
   * Support Vector Machines (SVM)
   * Logistic Regression
   * Naive Bayes
   * Decision Tree
3. **Model Selection:**
   * The algorithm with the highest accuracy, or lowest r-score on the test set is chosen for deployment.

By integrating user preferences, mood classification, and song recommendation, this project provides a personalized and data-driven music-listening experience.

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