MUSIC RECOMMENDATION SYSTEM USING MACHINE LEARNING

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

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ABSTRACT

- The main objective of the project is to recommend music to the users based on the preferences.
- This paper presents an music recommendation system based on the combination of K-Nearest Neighbors (KNN) algorithm and Gaussian Mixture Model (GMM) with a Min-Max scaler.
- The KNN algorithm is used for finding the music similarities between the users
- GMM provides a probabilistic model for clustering the music data.
- The Min-Max scaler is used to normalize the music features in order to improve the overall performance of the model.

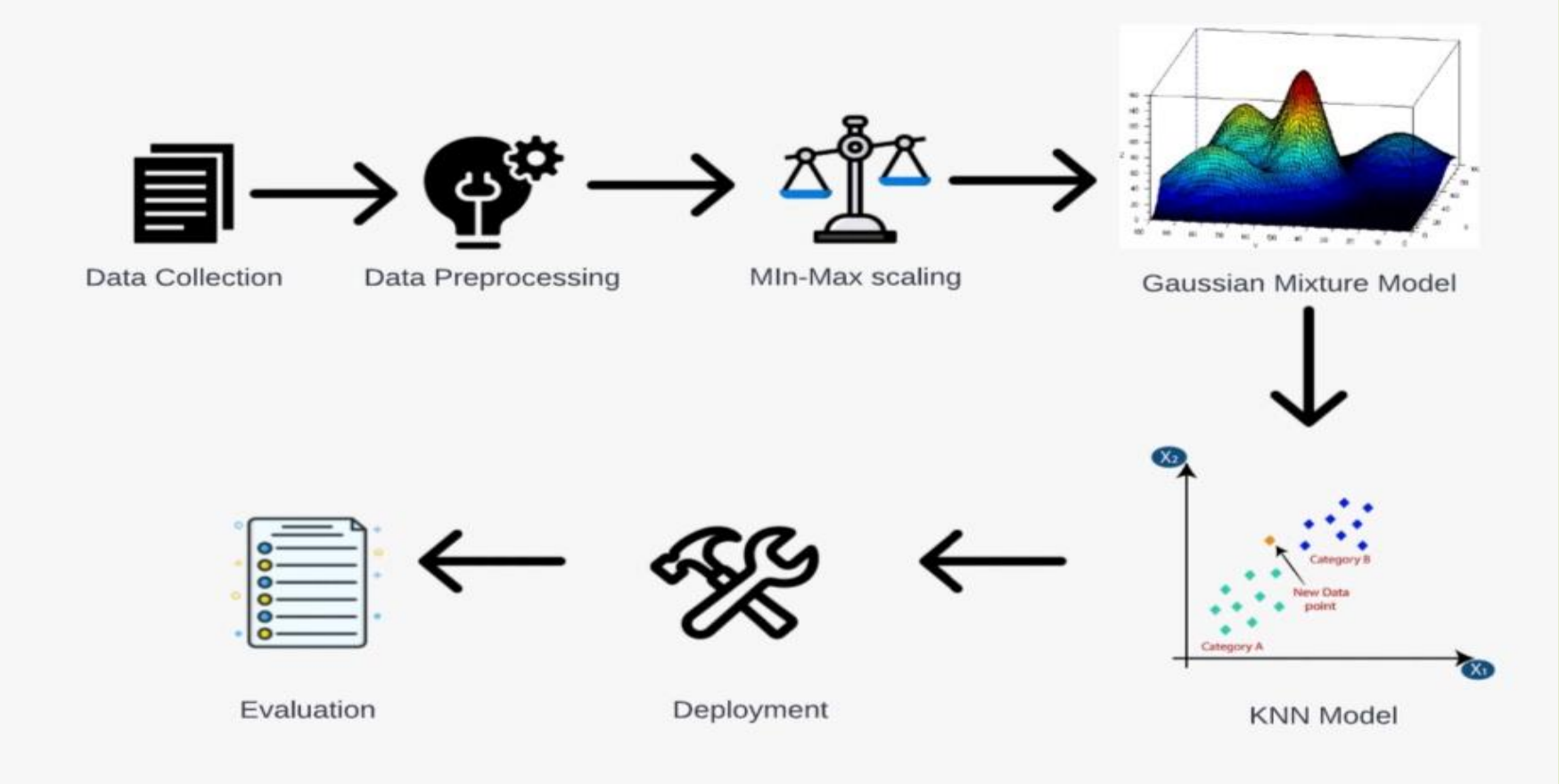
OBJECTIVES

- In this proposed system we have used Machine learning which is very use full in recommending music.
- We have used an various machine learning algorithm like KNN, Gaussian Mixture Model, Confusion Matrix and MIN-MAX algorithm.
- In this project we have an accuracy of 97% of recommending best music's according from our dataset .
- We came up from the best model using four machine learning algorithm and gave the highest percentage of accuracy other than existing model

SOFTWARE SPECIFICATIONS

- Gaussian Mixture Model
- Min-Max Scaler
- K-NN algorithm
- Confusion Matrix

WORKFLOW


Data Collection
Data Preprocessing
MIn-Max scaling
Gaussian Mixture Model
KNN Model
Category B
New Data point
Category A
Deployment
Evaluation

Library Used

- NumPy
- Scipy
- sklearn
- Pandas

Literature Survey

1. A Comprehensive Study of Music Recommendation Using Gaussian Mixture Model by Liang-Yen Chen, Chia-Chen Kuo, and Yung-Chun Chen (2017): This study presents a comprehensive review of music recommendation systems using Gaussian Mixture Model (GMM).
2. 2. Music Recommendation Using Gaussian Mixture Model Based Collaborative Filtering by Zhaoyang Zhang and Xing Xie (2013): This paper proposes a Gaussian Mixture Model based Collaborative Filtering (GMM-CF) method for music recommendation.
3. 3. Music Recommendation and Clustering Using Gaussian Mixture Model by Jia-Yuan Hwang and Tsung-Hsien Ho (2015): This paper proposes a Gaussian Mixture Model (GMM) based recommendation and clustering system for music

Problem Statement

- The problem of music recommendation is to recommend music to users that they will find interesting and enjoyable.
- This involves identifying the user's musical preferences and recommending music that fits their tastes. Music recommendation systems must be able to accurately predict the user's music preferences, while also providing a wide variety of music that is suitable for the user's particular tastes.
- This requires the system to have access to a large library of music, and to employ sophisticated algorithms that can analyze a user's listening habits and preferences in order to make accurate recommendations.

REFERENCE

- LEE, JONGSEOL, et al. ”MUSIC RECOMMENDATION SYSTEM BASED ON GENRE DISTANCE AND USER PREFERENCE CLASSIFICATION.” Journal of Theo-retical and Applied Information Technology 96.5 (2018).
- Millecamp, Martijn, et al. ”Controlling Spotify recommendations: effects of personal charac-teristics on music recommender user Interfaces.”
- Proceedings of the 26th Confer-ence on User Modeling, Adaptation and Personalization. ACM, 2018.
- O Bryant, Jacob. ”A survey of music recommendation and possible improvements.” (2017).
- Knees, Peter, and Markus Schedl. ”A survey of music similarity and recommendation from music context data.” ACM Transactions on Multimedia Computing, Communications AND Applications (TOMM) 10.1 (2013): 2. Ferretti, Stefano.
- ”Clustering of Musical Pieces through Complex Networks: an Assess-ment over Guitar Solos.” IEEE Multi Media (2018).

thank you