

Spotify playlist recommendation system

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November 4th 2023

B565-Fall2023/project-kschatur-adiagark-vshirole

Abstract

The digital era has witnessed the rise of industry giants such as Amazon, Netflix, and Spotify, which have completely transformed the way we shop, watch movies, and listen to music. Among these platforms, Spotify stands out as a key player in revolutionizing our musical experiences. With the increasing globalization of our world today, online music streaming has reached unprecedented levels. Music recommendation services play a crucial role in shaping the listening habits of millions by employing sophisticated algorithms and user data analysis to create personalized playlists that make discovering new music effortless and enjoyable. Here we will be analyzing data which is freely available on Kaggle thereby, creating an effective music recommendation system. We will explore the complex process behind developing successful music recommendation systems by examining Machine Learning algorithms that classify similar songs using various classification algorithms such as Random forest, Logistic Regression, Support Vector Machine, K Nearest Neighbor (KNN), and even using Association rule, Apriori Algorithm, frequent itemset for user profiling. It highlights how accurate recommendations significantly enhance user satisfaction, enjoyment, and the overall success of music streaming platforms.

Keywords

Apriori Algorithm, Classification, Logistic Regression, K Nearest Neighbor (KNN), Association rule, Random forest, Support Vector Machine, data analysis, frequent itemset.

1 Introduction

The recommendation system has gained worldwide recognition, particularly given the current technical advancements and their impact on business decisions. In this project, our primary focus will be on the domain of music recommendation systems. An ideal music recommender should aim to enhance user satisfaction while minimizing the effort required by users to select their next music or playlist. There are two distinct methods of recommendation. The first, known as Collaborative Filtering, is the most commonly employed approach in recommendation systems. However, we will not delve deeply into this method due to its substantial requirement for a vast dataset to yield accurate predictions. Instead, we will place our primary emphasis on the second recommendation method, which is content-based recommendation. This approach operates independently of user evaluations or ratings, relying on machine learning to gather

information and employing various algorithms such as decision trees, neural networks, or vector-based techniques. It defines objects based on their characteristics and related attributes.

Previous work

[3] discusses the importance of music recommendation in today's global music industry, focusing on the need for user satisfaction and minimizing user effort. [4] discusses the development of music recommendation systems, highlighting the use of collaborative filtering and content-based models. It also emphasizes the need for user-centric approaches and suggests a motivation-based model, aiming to improve user experience and music selection based on motivations. [6] aims to identify weaknesses in music recommender systems, using Spotify as a case study due to its large user base which employs a case study approach, involving interviews and questionnaires to gather empirical data and focuses on the user experience and system design aspects rather than technical details.

2 Methods

1. Data Cleaning: We have 2 datasets. First one has the details regarding music and second one has details regarding playlist. We will be merging the 2 datasets and then performing EDA and Visualisation to gain insights and come up with an appropriate strategy.
2. Classification: We will be using the below algorithms and selecting the best among it.
 - Decision tree
 - Random Forest
 - Support Vector Machine
 - Ensemble learning
 - K Nearest Neighbor
3. Clustering
 - K mean
4. Association rule mining
 - Apriori algorithm

3 References

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