Music Recommender System

I-Introduction:

The project consists of create a system that will recommend music based on the user’s song playing history. The genre of the songs will be the key that will highlight the preference of the user. Using the genre, the recommender system will be able to choose songs that belong to the preferred genre.

The targets are regular users of music platforms (i.e. Spotify, Apple Music,..)

The aim of the project is a predictive analysis.

II-System overview:

The music recommender system’s purpose is to suggest personalized music based on the user’s preference.

It consists of the main components:

* Recommendation engine: it is the core component of the project and will be responsible of the resulting recommendations. In fact it consists of algorithms that will analyze the user’s data as well as data related to music and genres in order to come up with recommendations.
* Database: In the database will reside the datasets related to the users as well as the music data.

III-Workflow of the project:

1st Login : the user will login the music account

2nd Data collection: the system will collect the user’s interactions (likes, dislikes, most played songs) and music metadata (genre, artist, album,…)

3rd Recommendation generation: a personalized recommendation is generated based on the data collected.

4th Recommendation Delivery: Users receive personalized music recommendations through an API or other integration method. This could be through a command-line interface, a chatbot, or integration with another application.

IV-Technologies used:

The code will mainly be written in python and test in a jupyter notebook (.ipynb file).

A relational database also will be used like PostgreSQL.

Of course machine learning techniques will be integrated because we are doing a predictive model.

As we dive into the heart of our Music Recommender System—making music suggestions—we're deciding between two main approaches:

* neural networks and linear models.
* Neural networks can offer highly personalized recommendations by capturing complex user-music patterns, while linear models are simpler and more efficient.
* We're currently exploring both options, carefully considering factors like model complexity and our available resources. Our goal is to choose the model that best suits our mission of improving music discovery for our users

Datasets will be cleaned and a part of the data will be provided or the model for training and another for testing.

Mainly the datasets were found on Kaggle and are related to Spotify.

we have two big datasets:

* One consists of users on Spotify, their age range, the genre hey listen to the most and the time of the day when they most listen to music.
* the other consists of popular songs on Spotify with their genre and the name of the artist.

The datasets should be preprocessed in order to have the fields that properly fit our project.