## **Task lab#07**

## **1.1 Objective:**

Utilize clustering algorithms to organize music preferences and construct a personalized playlist recommendation system.

## **1.2 Dataset:**

Use the "Million Song Dataset" containing a diverse array of music attributes like artist, genre, tempo, key, duration, etc.

**Data Acquisition and Preprocessing:**

Obtain the Million Song Dataset,

Preprocess the dataset to extract relevant features for clustering (e.g., artist, genre, tempo).

**Clustering Music Preferences:**

Apply various clustering techniques (e.g., K-Means, Hierarchical Clustering) to group similar music preferences together.

Explore different representations of music features to identify meaningful clusters.

**Cluster Analysis and Visualization:**

Analyze formed clusters to understand common music characteristics within each cluster.

**Personalized Playlist Recommendation System:**

Develop a personalized playlist recommendation mechanism based on the clusters created.

**User-Specific Playlist Recommendation**:

* For a given user, determine the cluster label that represents their music preferences. Retrieve songs or artists that are popular or highly liked within that cluster. Recommend songs or create a playlist for the user comprising tracks that align with the preferences of their cluster.
* Creating Cluster-Centric Playlists: Generate playlists based on each cluster's preferences.
* Aggregate the most popular or frequently listened-to songs within each cluster. Create cluster-centric playlists that represent the collective music tastes of users within a cluster.