

Amazon Music Clustering - Project Report

This report summarizes the results of the **Amazon Music Clustering Project**. The goal of this project is to group similar songs based on audio features using unsupervised learning techniques, mainly **K-Means clustering**. By analyzing patterns in features such as *danceability*, *energy*, *tempo*, and more, we automatically organized songs into meaningful clusters, potentially representing genres or moods.

Key Results

Best Number of Clusters (k)	_____
Silhouette Score	_____
Davies-Bouldin Index	_____
Number of Songs in Dataset	_____

Cluster Profiles

Below is a placeholder for summarizing the main characteristics of each cluster. You can update this after analyzing the cluster means (average feature values).

Cluster	Characteristics
Cluster 0	High danceability, high energy → Party tracks
Cluster 1	Low energy, high acousticness → Chill acoustic
Cluster 2	Balanced features → Mixed genre

Visualizations

Include the following plots generated from the pipeline: Elbow Method Curve (Inertia vs k)
Silhouette Score Plot PCA or t-SNE 2D Cluster Visualization Average Feature Values per Cluster (bar chart/heatmap)

Conclusion:

The clustering successfully grouped songs into distinct sets, revealing underlying patterns in music characteristics. These clusters can support personalized playlists, song discovery, and artist insights.