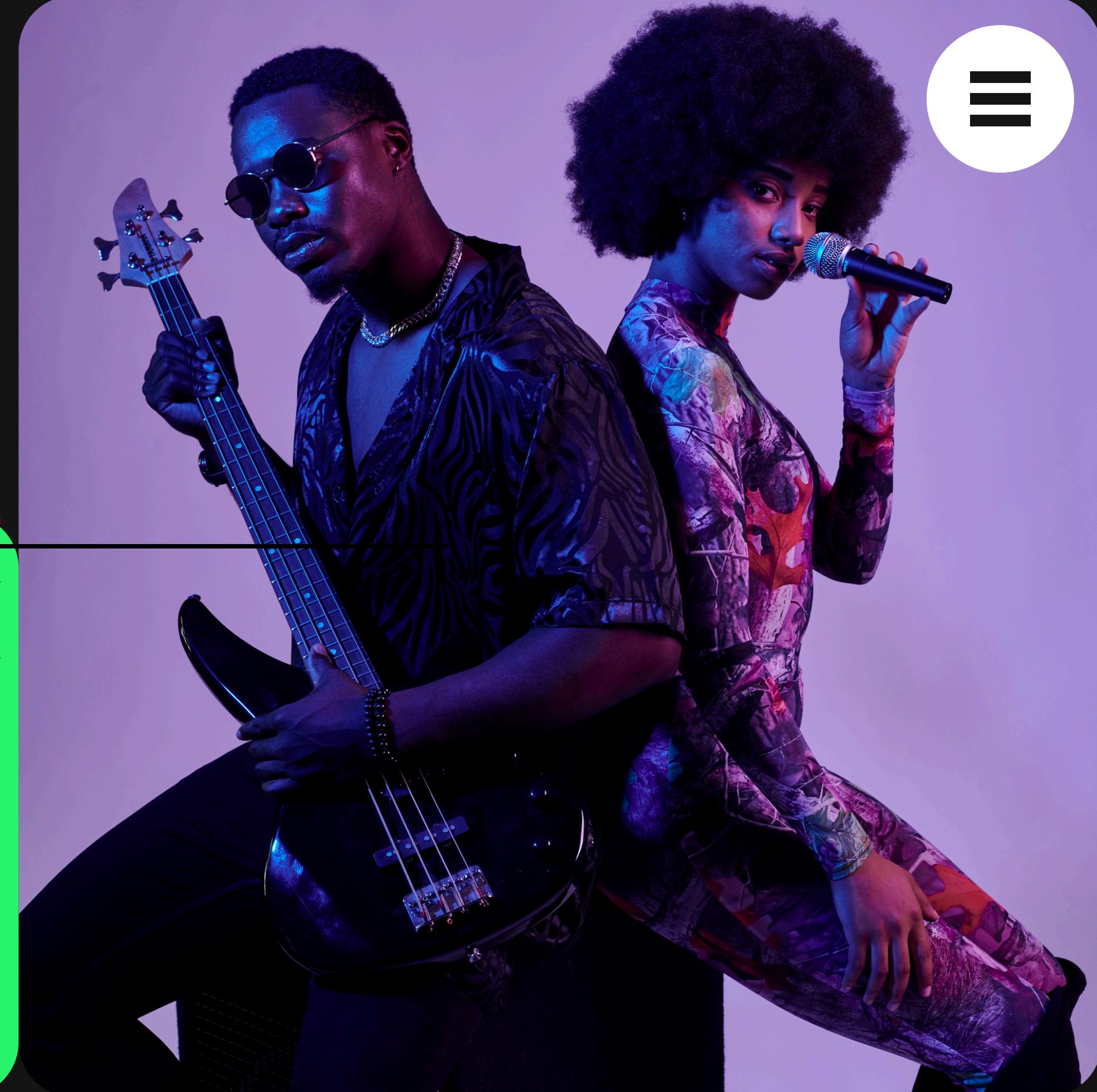


# SPOTIFY EXPLORATORY DATA ANALYSIS

A presentation is a method of communicating information, ideas, or proposals to an audience.

NEXT





# OBJECTIVES

- 1 . To understand the key audio features that drive track popularity .
- 2 . To visualize how different characteristics (e. g , danceability , energy) correlate with popularity .
- 3 . To uncover time-based trends in music popularity .
- 4 . To cluster and classify music for targeted production strategies .
- 5 . To help mixing engineers and production fine-tune songs for greater success .



# MAIN DIMENSIONS OF STUDY



Songs: Explore duration, tempo, danceability, energy.



Artists: Find most frequent & popular artists.



Genres: Compare genre frequency & popularity.



POPULARITY: STUDY DISTRIBUTION AND KEY FACTORS.



TRENDS: OBSERVE CHANGES IN MUSIC FEATURES OVER YEARS.





# POPULARITY ANALYSIS

## INSIGHTS ON SONG POPULARITY

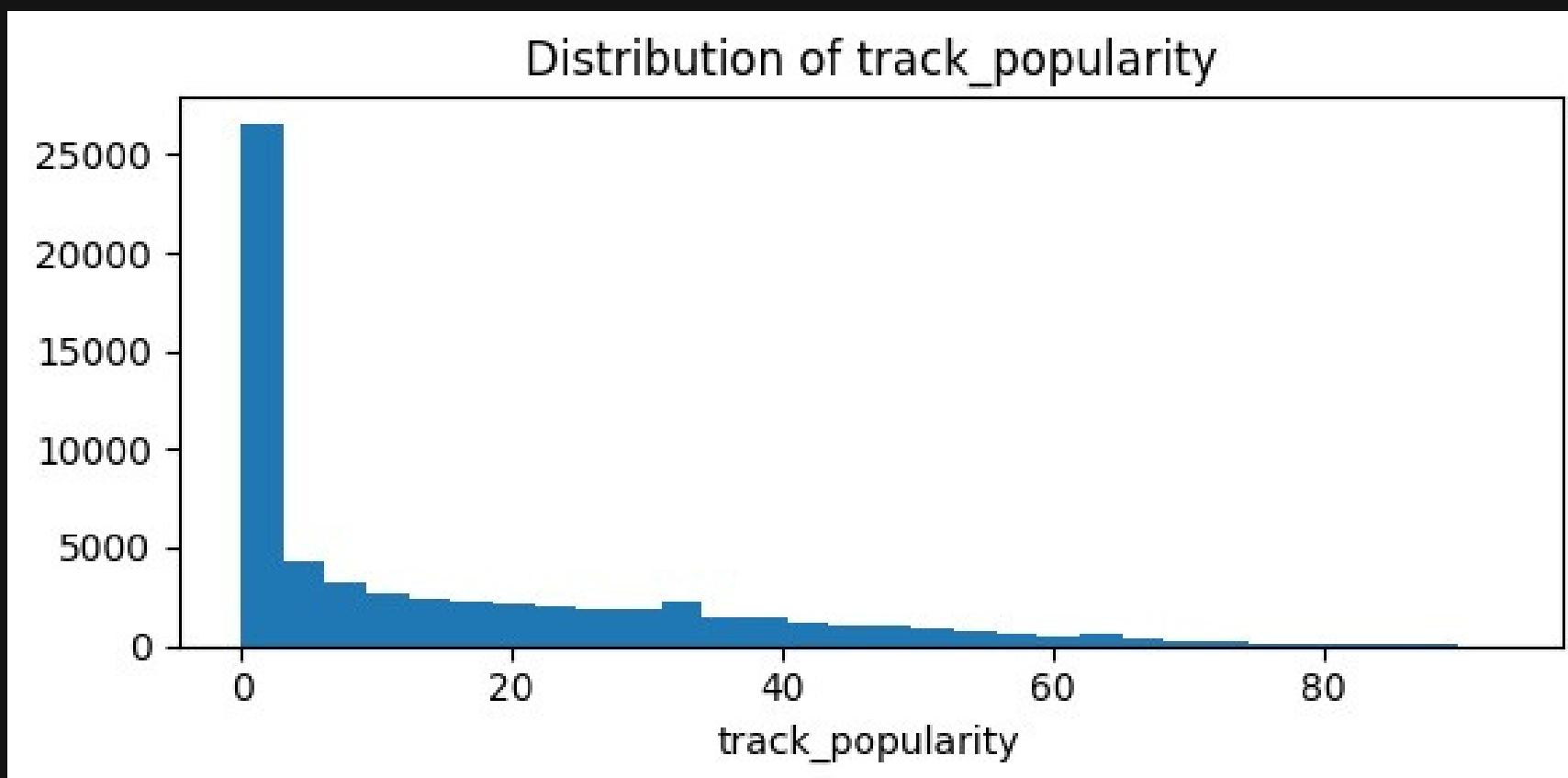
- ▶ **1** Distribution of track popularity (low vs high).
- 2** Top artists with highest popularity.
- 3** Popularity trend across years/releases.
- 4** Popularity vs audio features.



# POPULARITY DISTRIBUTION CUNIVARIATE ANALYSIS



## GRAPH: HISTOGRAM + KDE OF POPULARITY



Legend :

X axis = popularity score  
Y axis = Number of tracks

### what it tell us ?

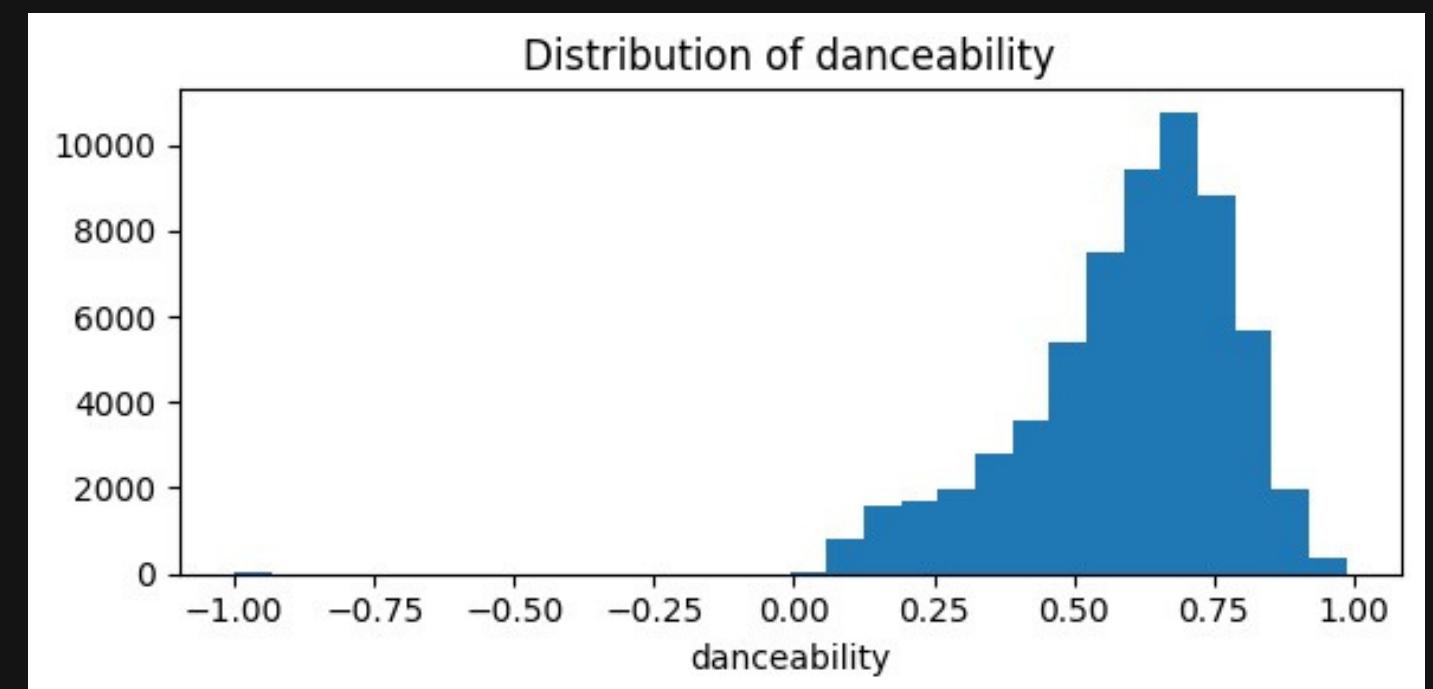
1. MOST TRACKS CLUSTER IN THE 20-60 POPULARITY RANGE
2. Fewer tracks achieve extremely high popularity.



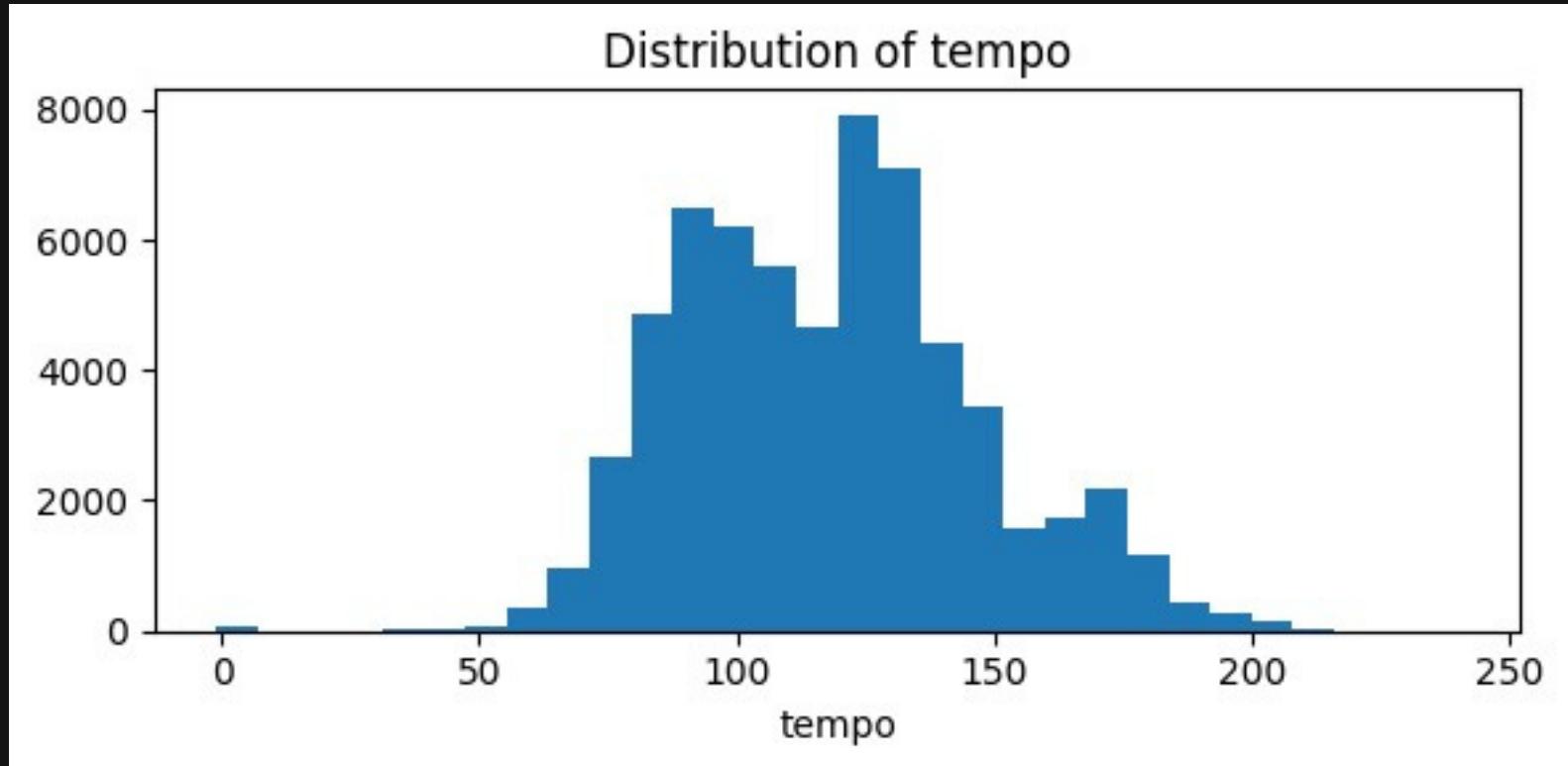
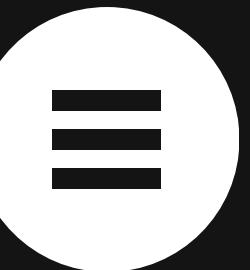


# DANCEABILITY VS. POPULARITY CBIVRIATE

GRAPH: ENHANCED SCATTER  
PLOT (COLOUR CODED BY  
POPULAR INTENSITY)



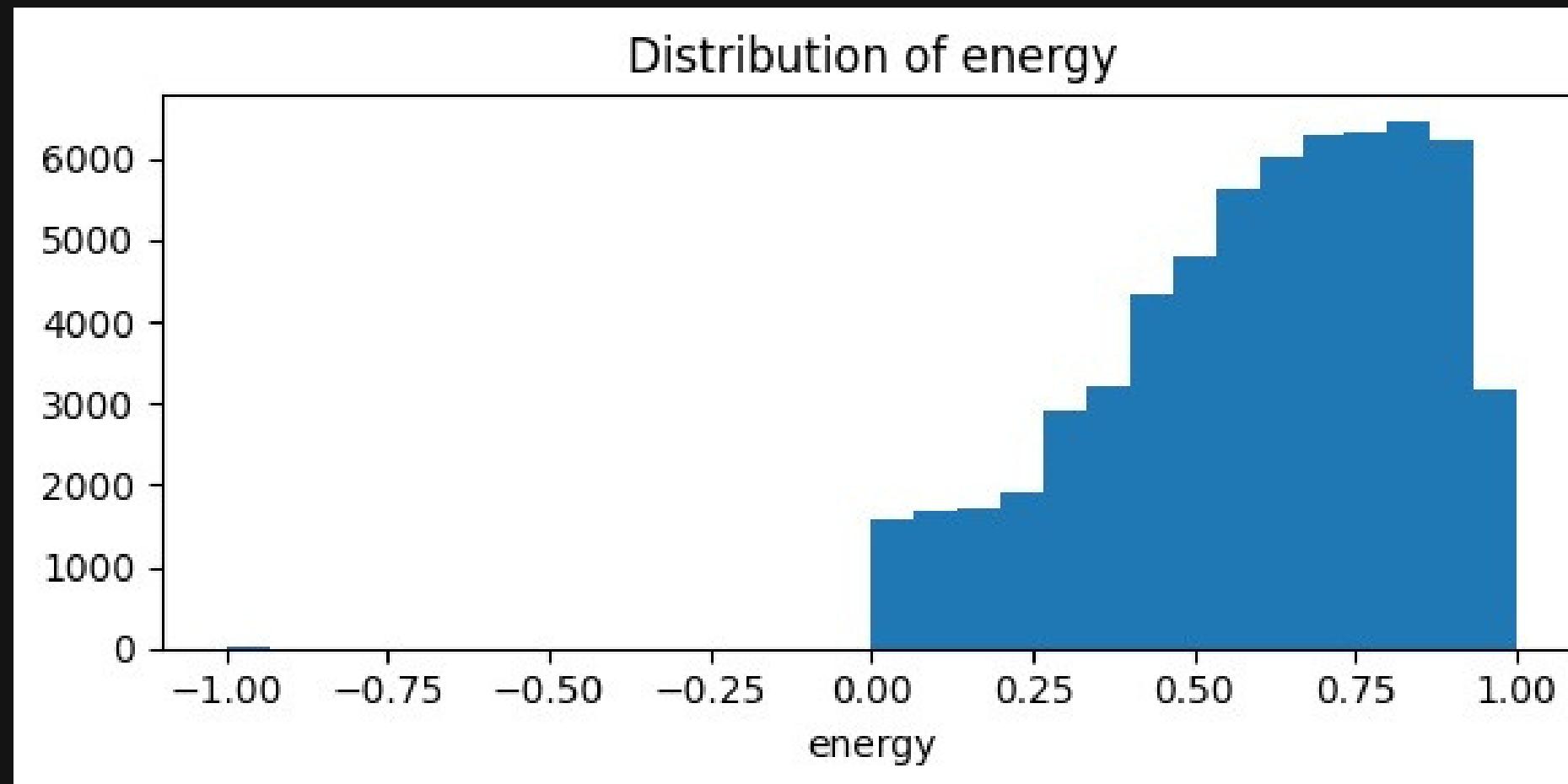
# 🎵 Distribution of Tempo (Beats Per Minute)



**MOST SONGS HAVE TEMPOS BETWEEN 100–140 BPM, INDICATING A PREFERENCE FOR MID-TEMPO, DANCEABLE RHYTHMS COMMON IN POP AND EDM TRACKS.**



# Energy Distribution graph



**Most tracks show high energy levels (0.6–1.0), reflecting the dominance of lively, upbeat music styles like pop, dance, and EDM in the dataset.**



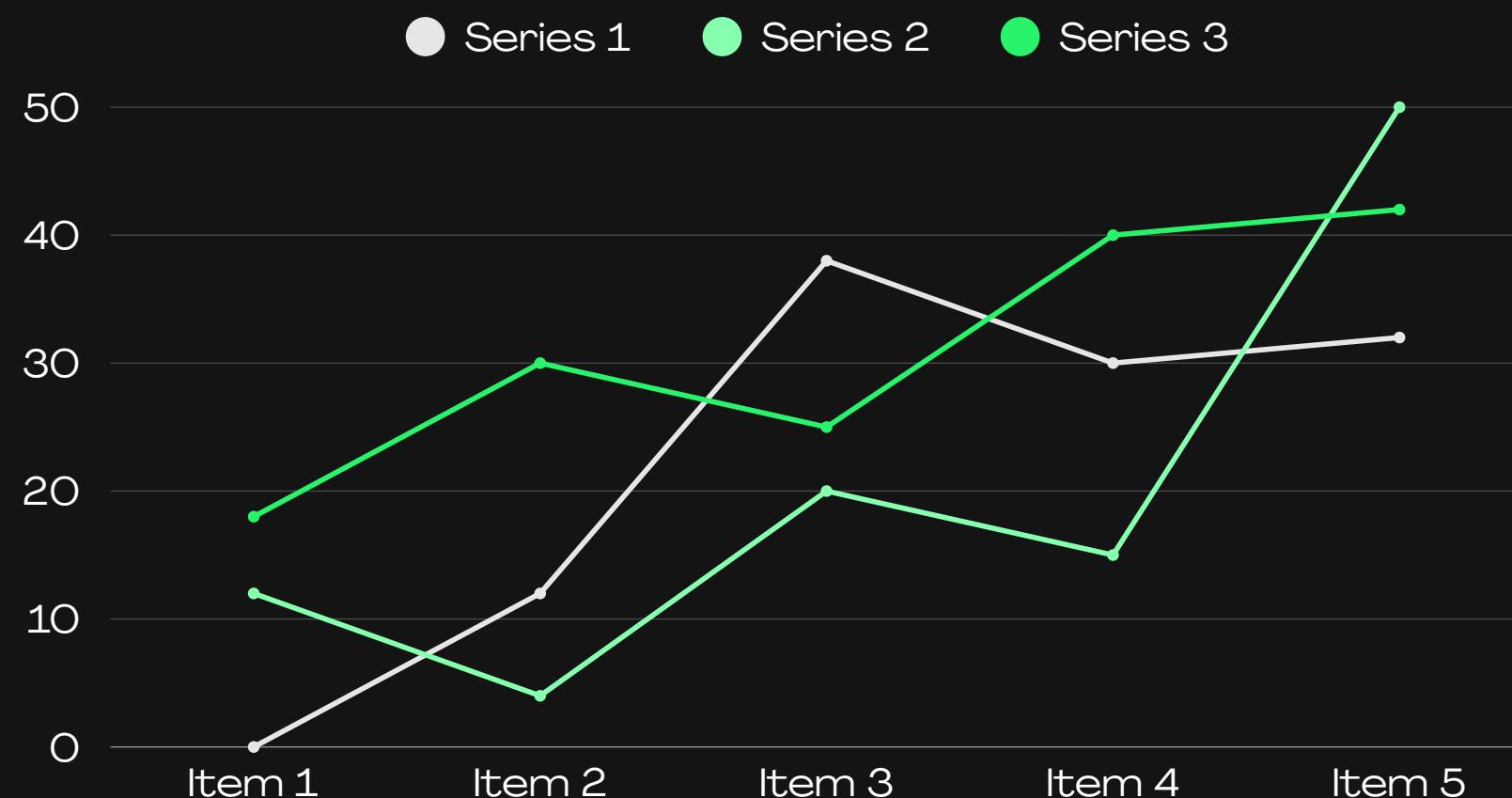
MAJORITY OF TRACKS FALL WITHIN HIGH ENERGY LEVELS (0.6–1.0), SHOWING THAT ENERGETIC MUSIC DOMINATES STREAMING PLATFORMS.

LOWER-ENERGY SONGS ARE LESS COMMON, TYPICALLY REPRESENTING ACOUSTIC OR MELLOW GENRES.

HIGH ENERGY OFTEN CORRELATES WITH GREATER LISTENER ENGAGEMENT AND POPULARITY, ESPECIALLY IN POP AND ELECTRONIC GENRES.



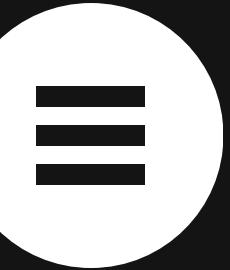
# SPOTIFY DATASET STATISTICS



- Dataset includes thousands of tracks featuring key audio features like danceability, energy, valence, and tempo.
- Provides a comprehensive view of music characteristics and trends across genres and years.
- Enables analysis of how audio attributes influence popularity and listener preferences.
- Useful for identifying patterns in successful songs and guiding music production strategies.



# CONCLUSION



- Music trends evolve over time; modern songs are often shorter and more energetic.

- Popularity depends on multiple factors: genre, artist, tempo, and danceability.

- Pop, Hip-Hop, and EDM dominate the Spotify dataset in terms of track count and popularity.

- Certain audio features (energy, danceability) are strongly linked to popular tracks.

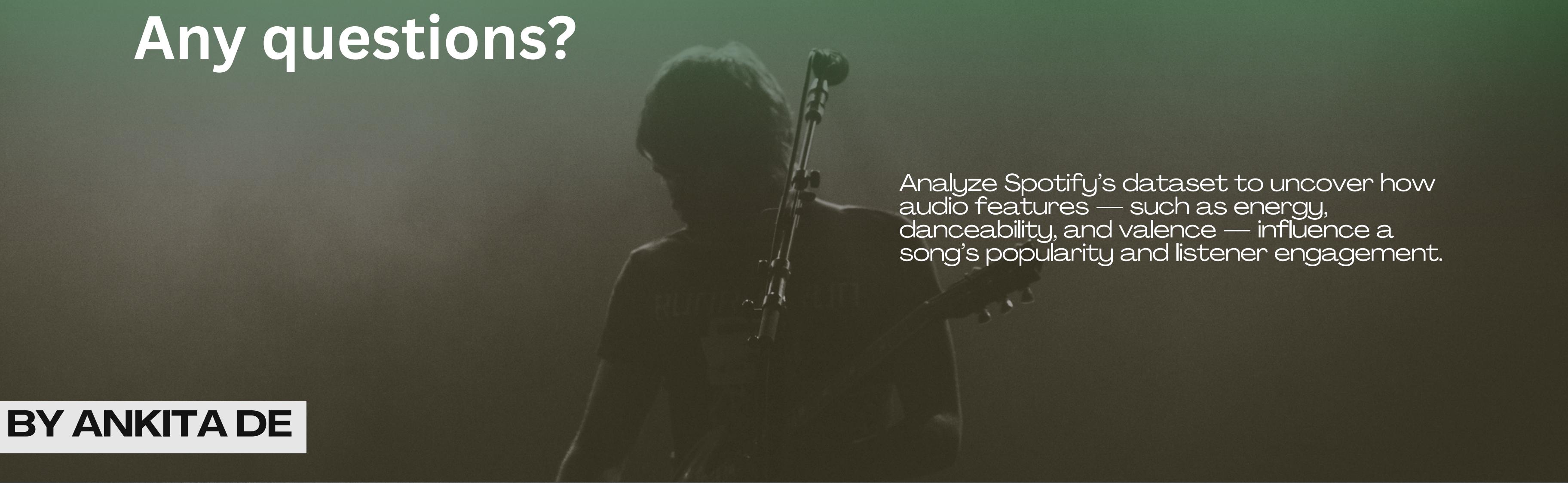
- Insights can help in music recommendations, marketing, and trend prediction.



# THANK YOU

Any questions?

BY ANKITA DE



Analyze Spotify's dataset to uncover how audio features — such as energy, danceability, and valence — influence a song's popularity and listener engagement.

