Melody Meets Metrics: Reinventing Moosic's Playlist Strategy with Data

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Database

5235 songs → **5114 songs**

Information

name + artist = **name_artist**
id
danceability
energy
key
loudness
mode
speechiness
acousticness
instrumentalness
liveness
valence
tempo
type
duration_ms
time_signature
HTML
Unnamed: 0

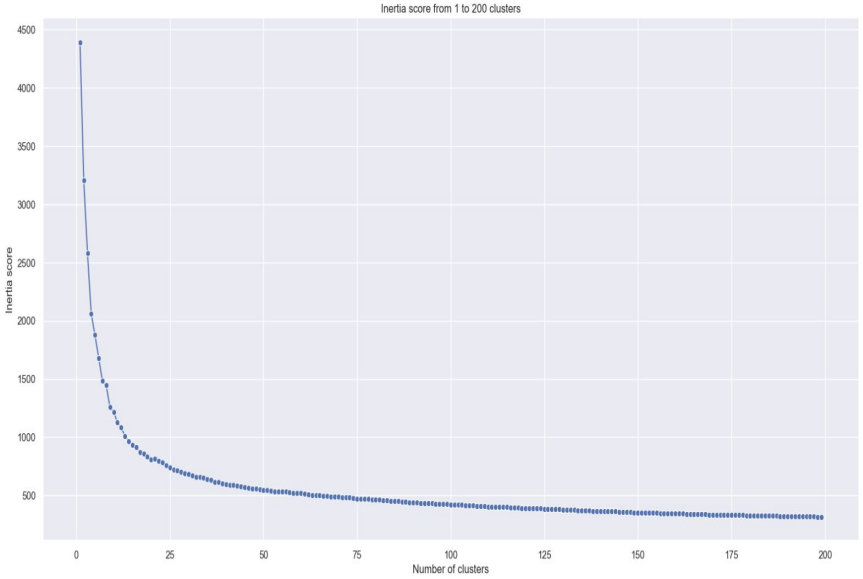
Scaler : Min Max Scaler

Standard Scaler
Robust Scaler
Quantile Transformer
PowerTransformer

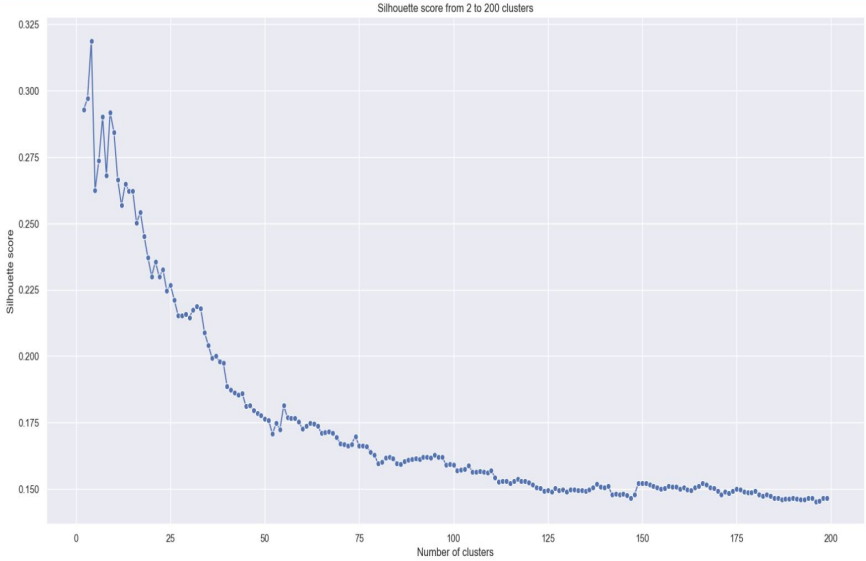
- Useful when you want to scale your data to a specific range
- Preserves the relationships among the original data points
- The scaling to a [0, 1] range makes the results more interpretable and easier to report

Number of clusters

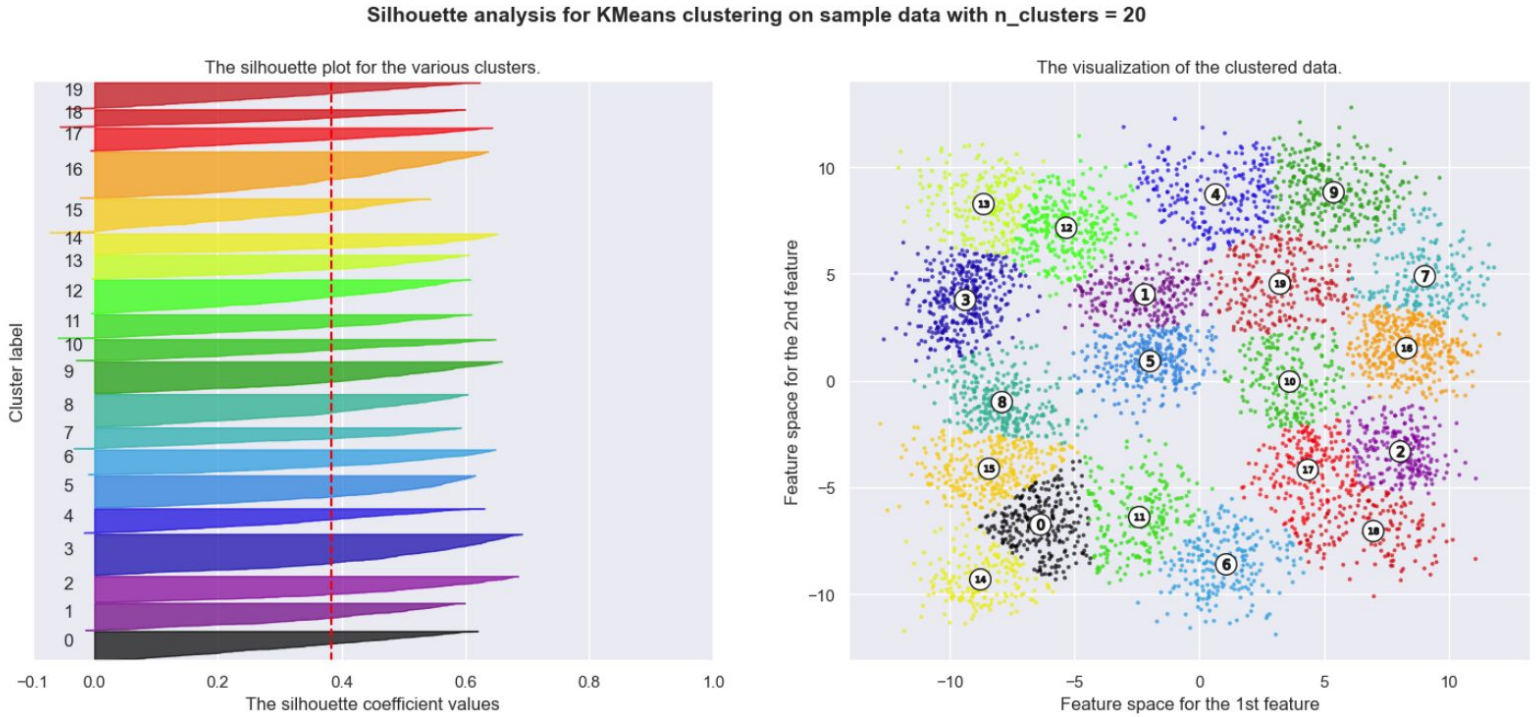
Elbow methods



Silhouette methods

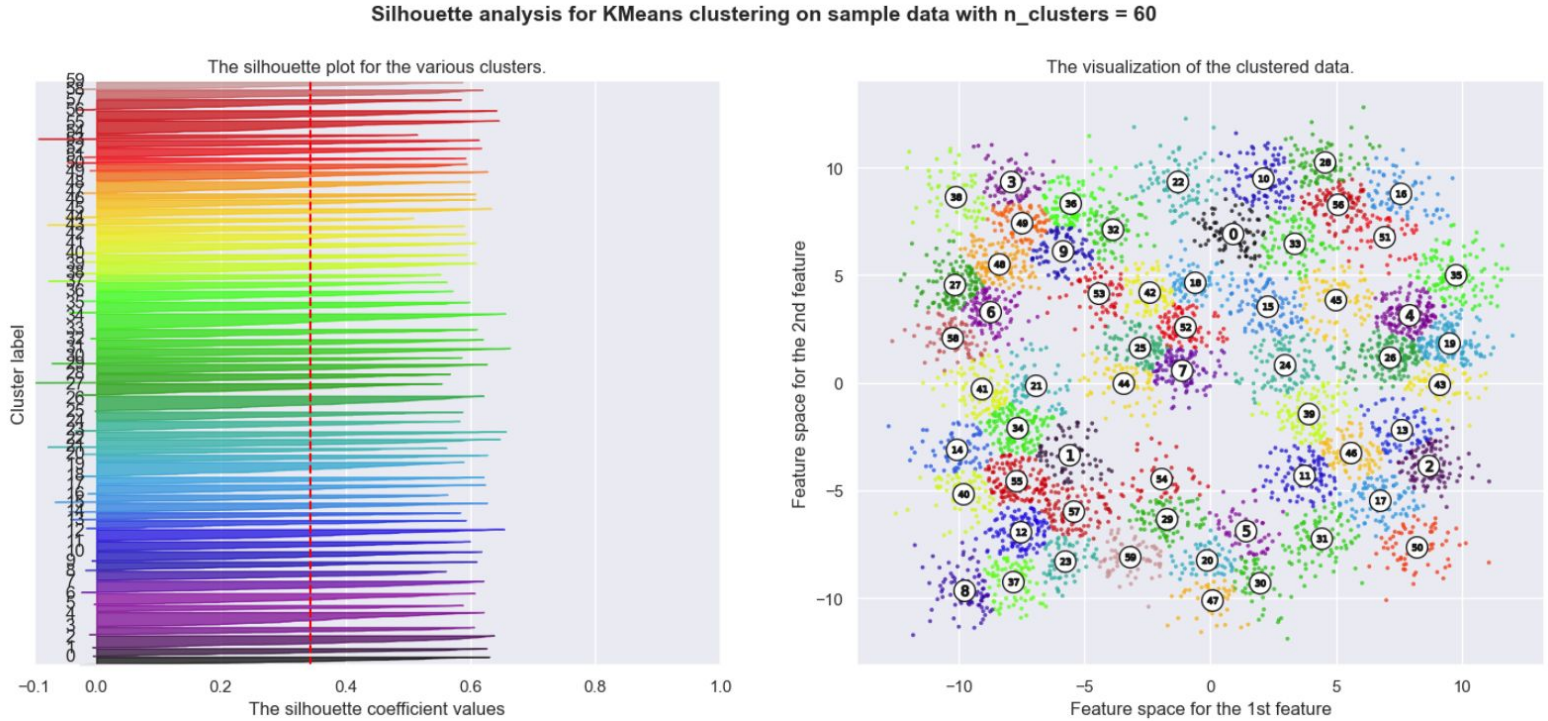


Silhouette methods



20 clusters = 0.38

Silhouette methods



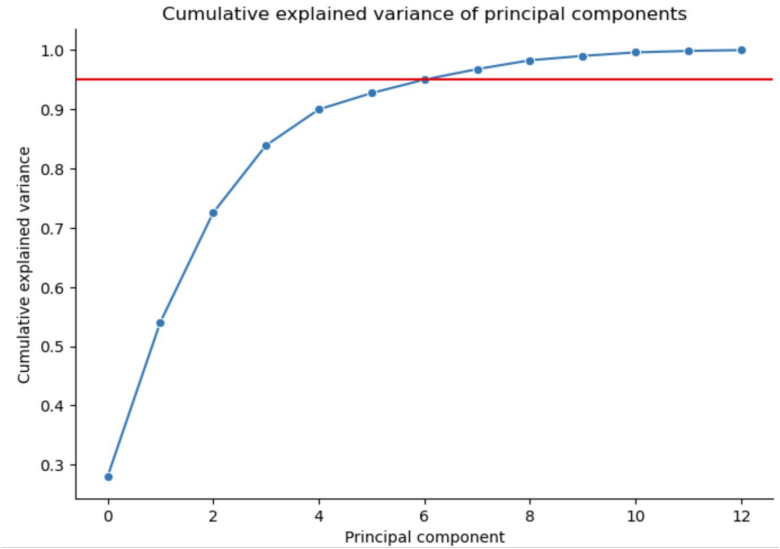
30 clusters = 0.36

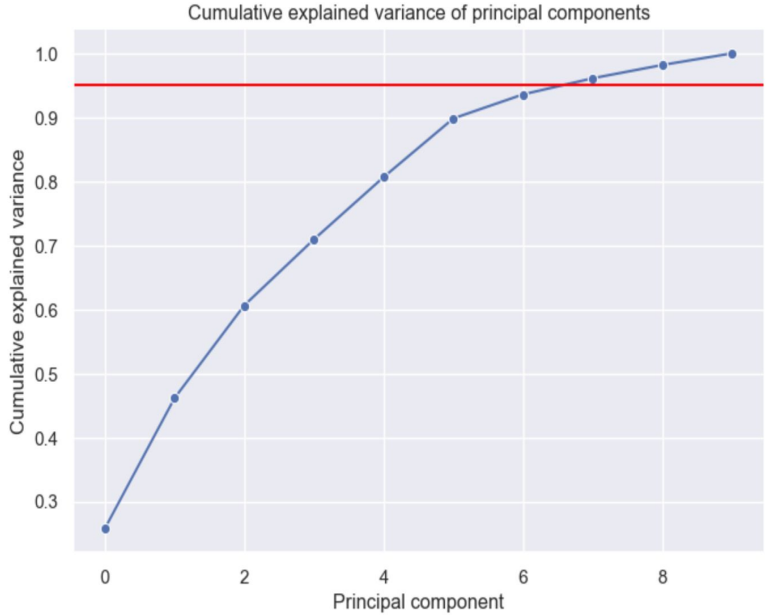
55 clusters = 0.34

65 clusters = 0.33

80 clusters = 0.33

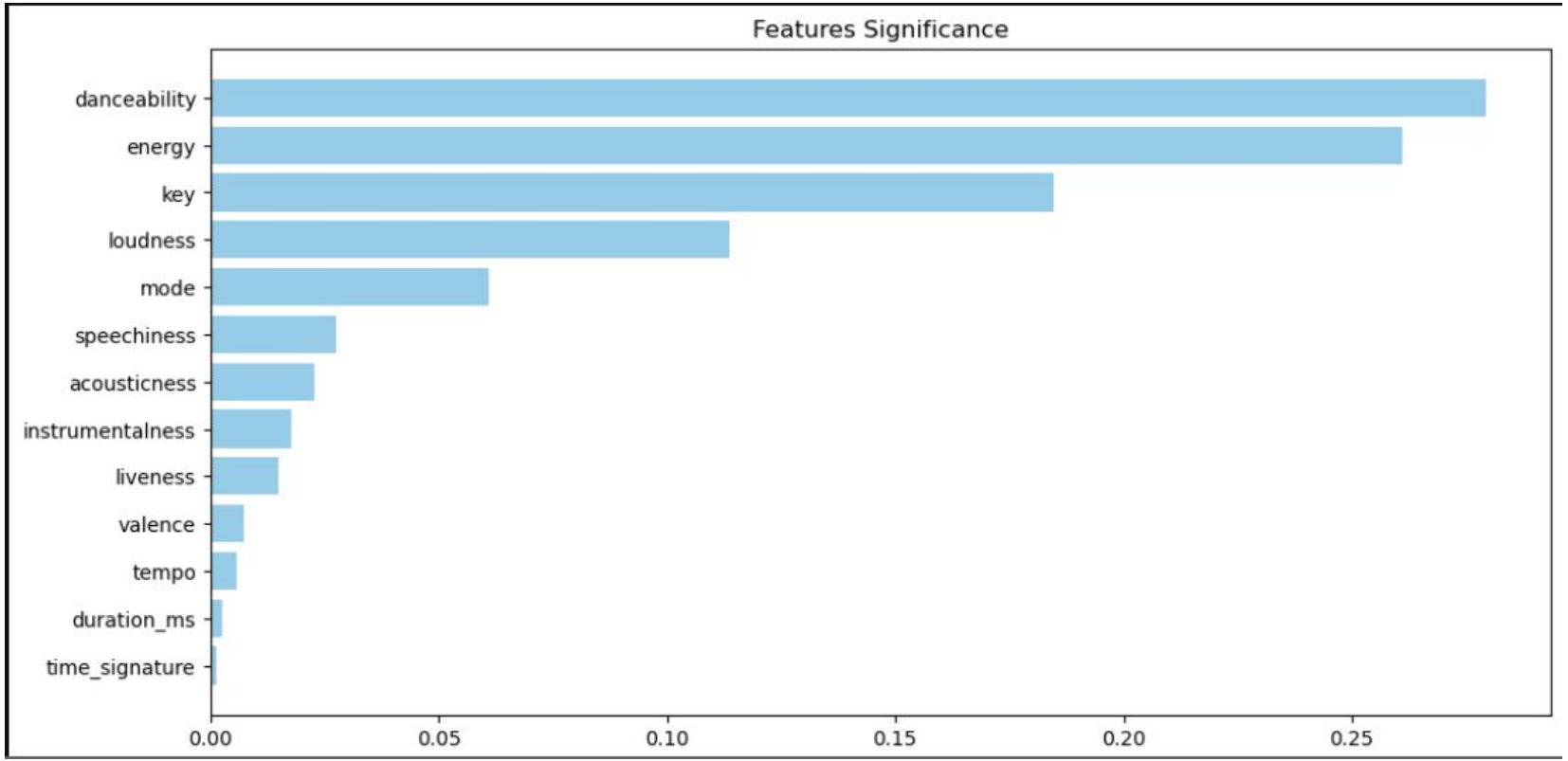
PCA - Principal component analysis



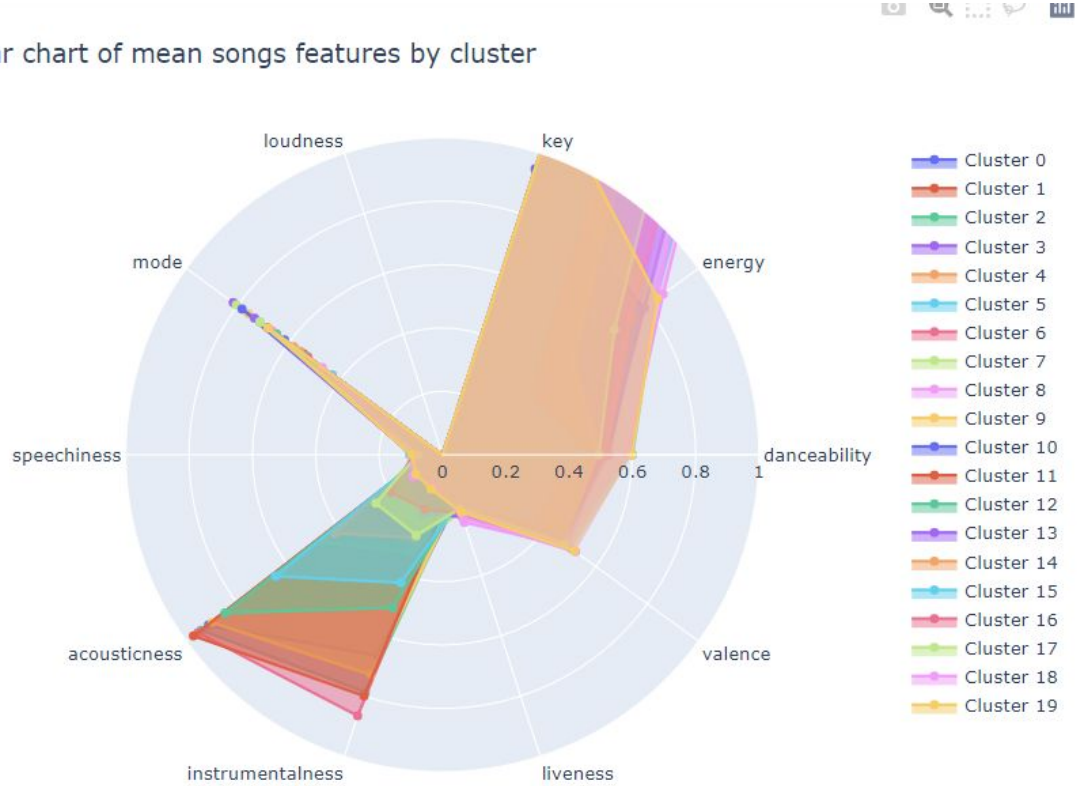


- Choosing the number of principal components - 8

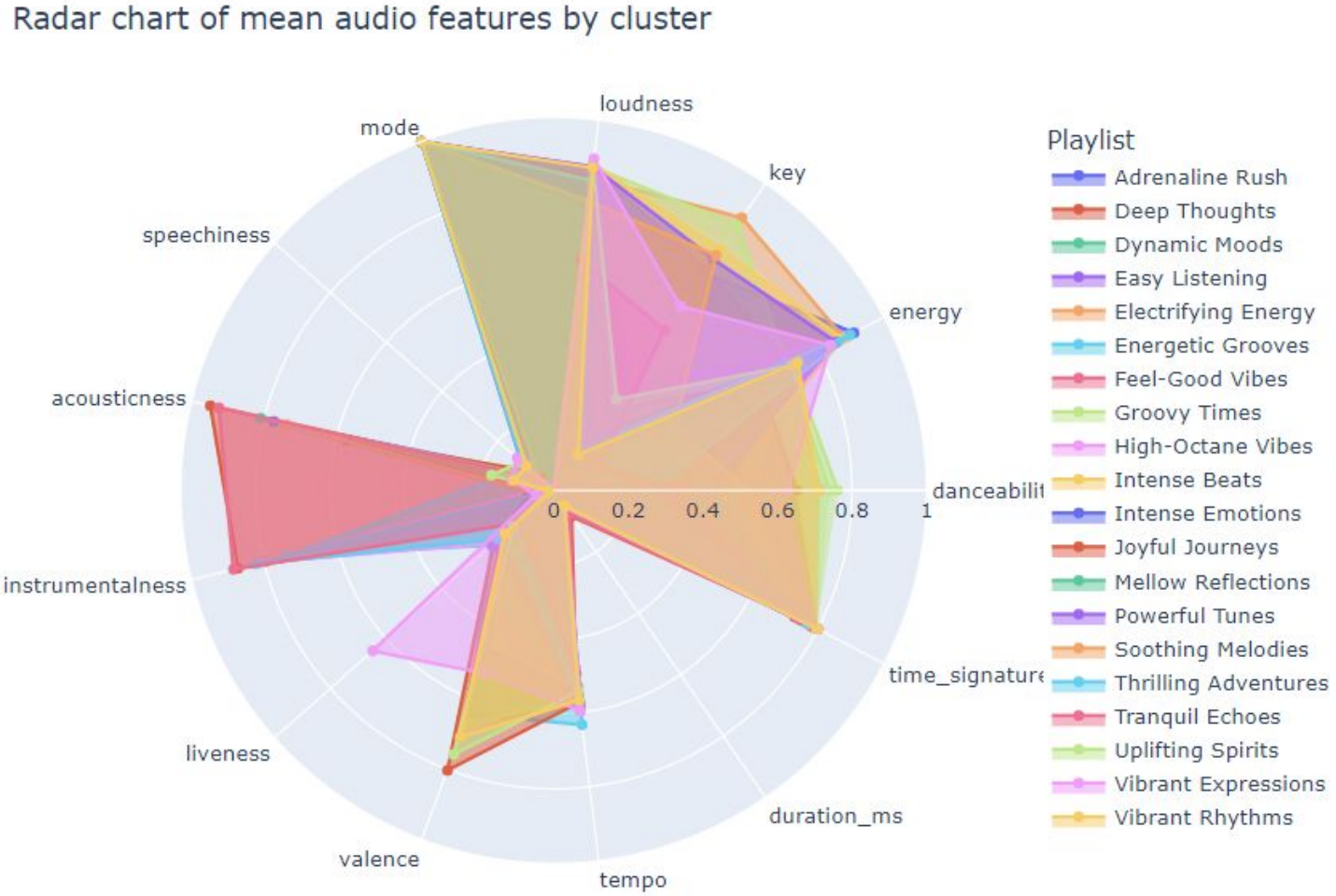
PCA - Principal component analysis



PCA - Principal component analysis

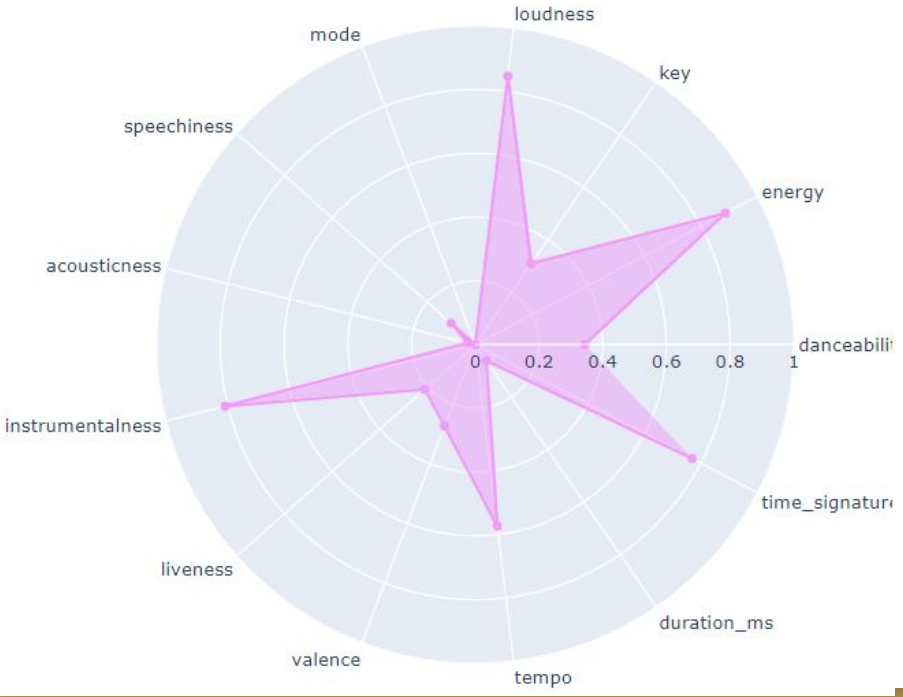


Results


Radar chart of mean audio features by cluster
loudness
key
energy
danceabilit
time_signature
duration_ms
tempo
valence
liveness
instrumentalness
acousticness
speechiness
mode
0
0.2
0.4
0.6
0.8
1
Playlist
Adrenaline Rush
Deep Thoughts
Dynamic Moods
Easy Listening
Electrifying Energy
Energetic Grooves
Feel-Good Vibes
Groovy Times
High-Octane Vibes
Intense Beats
Intense Emotions
Joyful Journeys
Mellow Reflections
Powerful Tunes
Soothing Melodies
Thrilling Adventures
Tranquil Echoes
Uplifting Spirits
Vibrant Expressions
Vibrant Rhythms

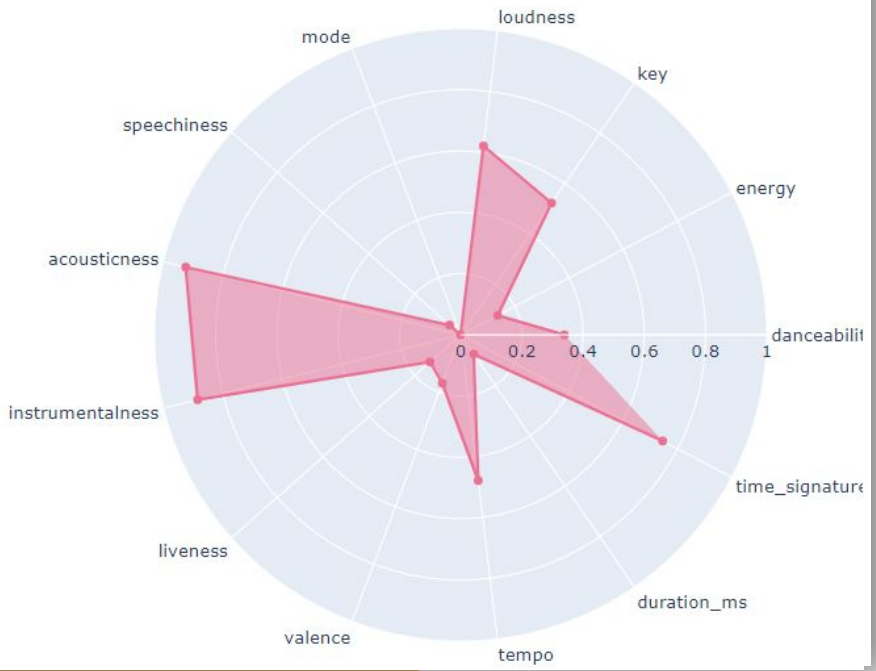
High-Octane Vibes:

Designed for the high-energy listener who thrives on intense, driving beats, such as during a challenging workout or an active night out.



Tranquil Echoes:

Aimed at individuals seeking peace and calm, such as during yoga, spa visits, or moments of stress relief.



Conclusions

- K-Means clustering algorithm demonstrated its effectiveness in segmenting our dataset into distinct, meaningful groups.
- The optimal number of clusters for this particular dataset seems to be around 20, as it provides the highest silhouette score, indicating a better structure and separation between the clusters.
- Using a machine to create playlist is time and cost effective, however, the results are far from replacing human capabilities.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Thank You
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