

Spotify Music Segmentation Analysis

Start Presentation

RevoU FSDA Final Project • Group E • APRIL2023



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About Spotify

Spotify is a leading audio streaming platform that connects millions of listeners and creators around the world. Founded in 2006 in Sweden, Spotify offers access to over 70 million tracks and podcasts from various genres and languages. Spotify's mission is to unlock the potential of human creativity by giving a voice to artists and enabling everyone to enjoy and be inspired by music and stories.

**489
Million**

Monthly Active User

**205
Million**

Premium Active User

**€3.1
Million**

Total Revenue

21%

Shares comes from
USA + Canada



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Rai F
Project
Manager



Aminuddin
Data
Cleaning &
Analysis team



Fikri
Visualization
&
Presentation
Team



Nhane
Visualization
&
Presentation
Team

Q&A



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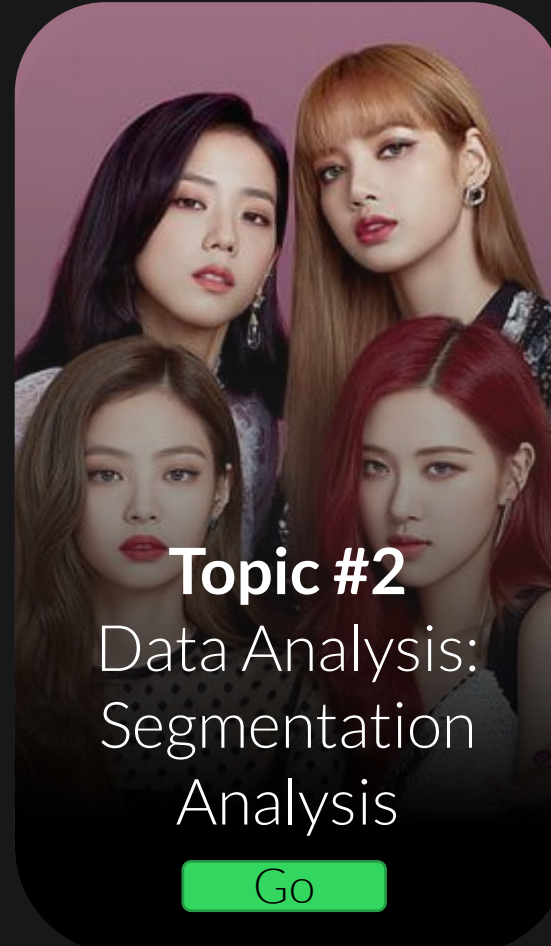
Conclusions

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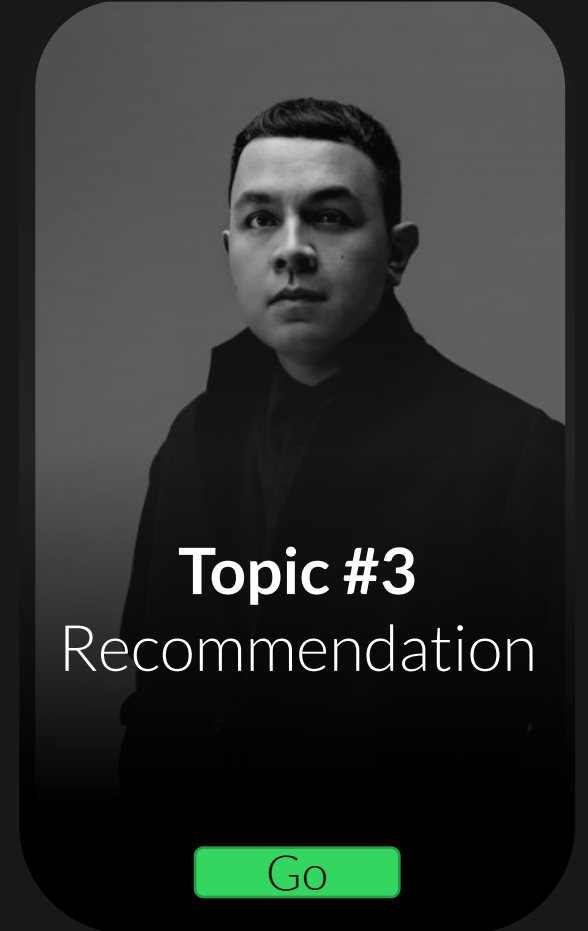
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Data Cleaning
& EDA

Go



Topic #2
Data Analysis:
Segmentation
Analysis

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Topic #3
Recommendation

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3:10

4:55



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Objective



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Project Objective



The music industry is highly competitive, and record labels are always looking for ways to promote their artists and increase their revenue. One of the challenges faced by record labels is to understand the music listening behavior of consumers on platforms like Spotify.

This is a data analysis of daily music on Spotify in order to provide better recommendations to music labels in order for them to gain more listeners and become more popular.



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Methodology



- ❖ The Spotify daily chart dataset was **gathered** from the website Kaggle
 - **Clean** dataset using Python to change the datatype, handling null values, remove irrelevant values, and duplicates
- ❖ Utilising **EDA** to extract demographic, pattern, and insight from data
 - Provide **recommendation** from data analysis

Data Source: [Spotify HUGE database - daily charts over 3 years | Kaggle](#)

“Database to Calculate Popularity” Includes all the daily entries (8mln+) for the songs which made it to the top 200.

“Final Database” includes many data for each song. It aggregates the popularity for songs into a single score for each.



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Dataset Overview

49941

Total Song from all
datasets.

159

Total column from all
datasets.

62420 + 65499

Total row from "Database to Calculate Popularity" +
"Final Database" table.

*join table are from this table using inner join and
filter the data into Indonesian popularity only

3069

total song in Indonesia
Popularity Dataset

1402

Total artist in Indonesia
Chart List

2056

Total Albums in
Indonesia Chart List

Ed
Sheeran

Most Popular in
Indonesia



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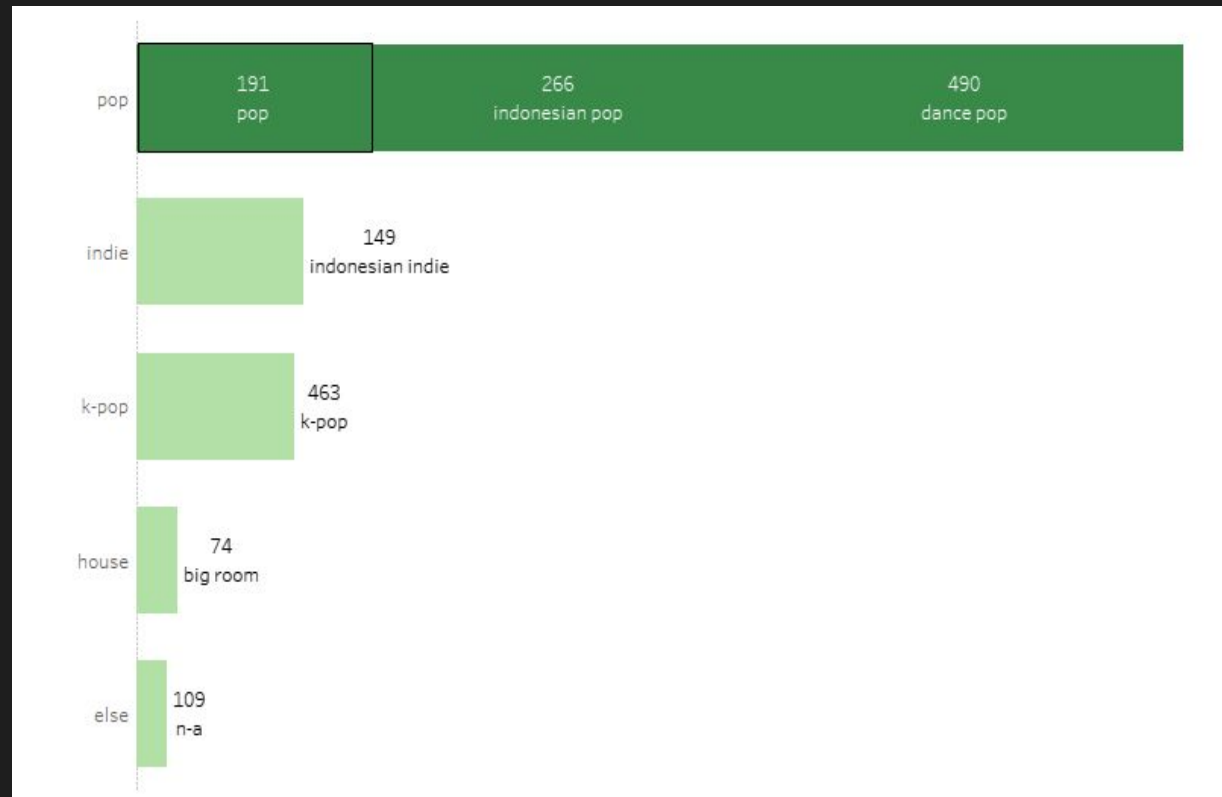


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Popular Genre



POP GENRE IS THE MOST POPULAR GENRE, THIS INCLUDING SUB GENRE DANCE POP AND INDONESIAN POP



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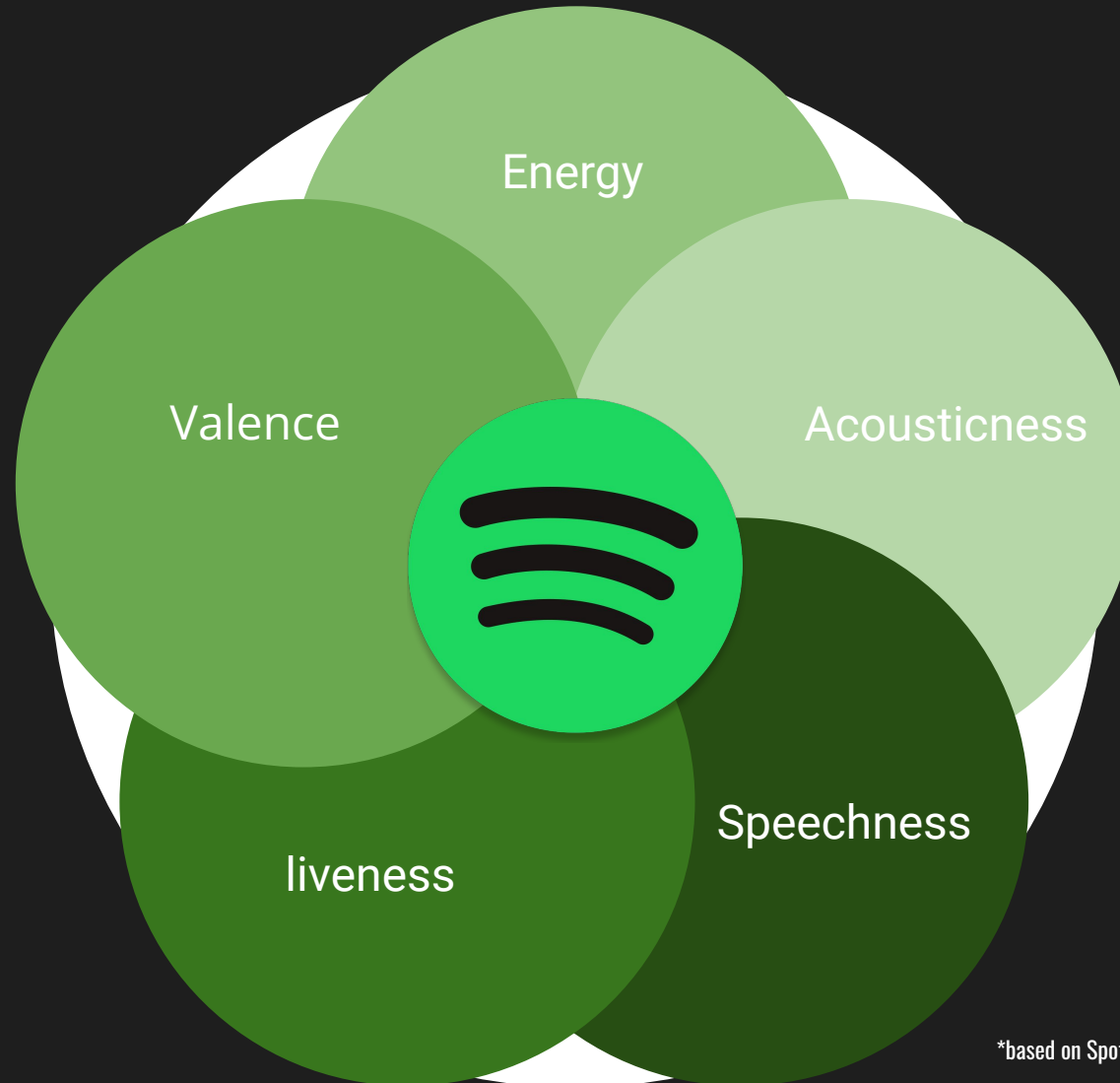


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Conclusions

EDA - 5 MAIN POINT MUSIC CHARACTERISTICS TO ANALYZE



*based on Spotify algorithm music detection



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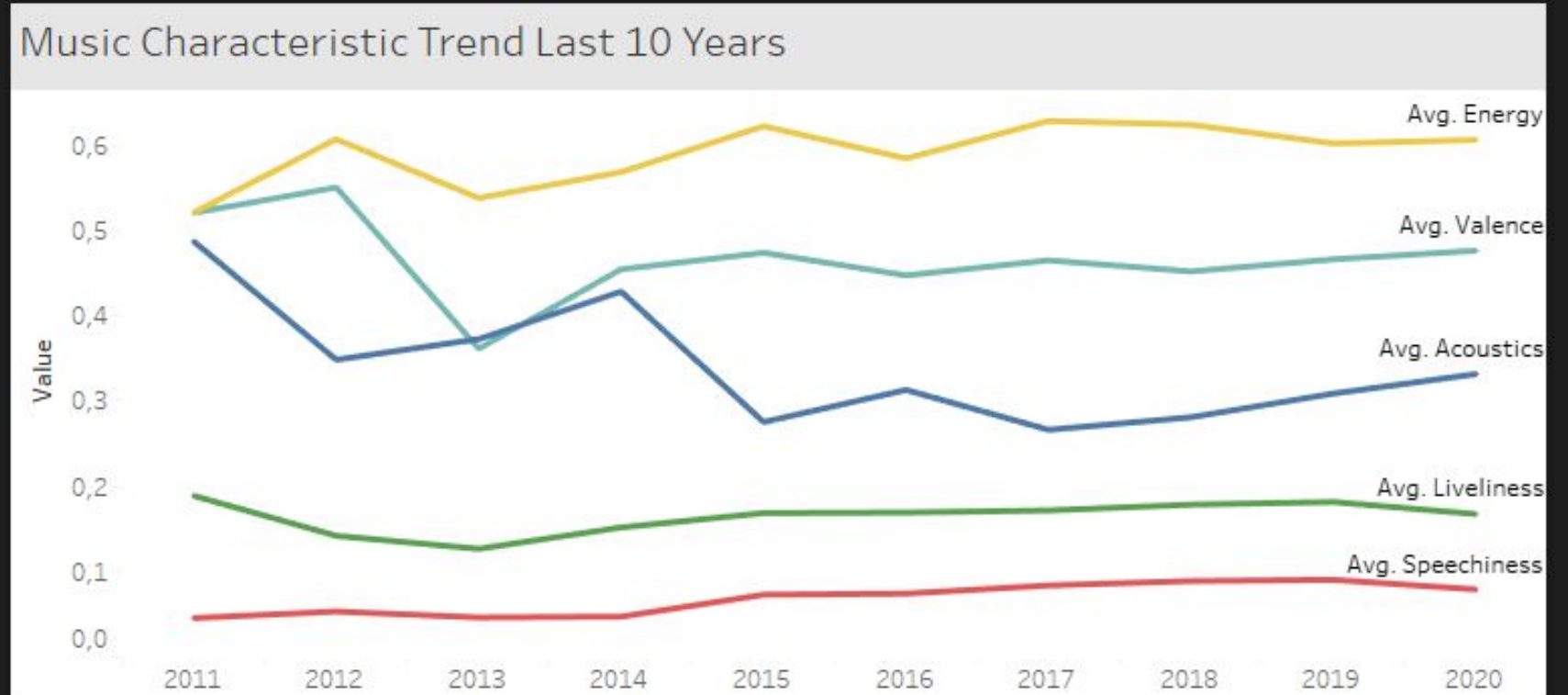


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Conclusions

LET US SEE HOW'S THE MUSIC CHANGES LAST 10 YEARS BASED ON POPULARITY TRENDS





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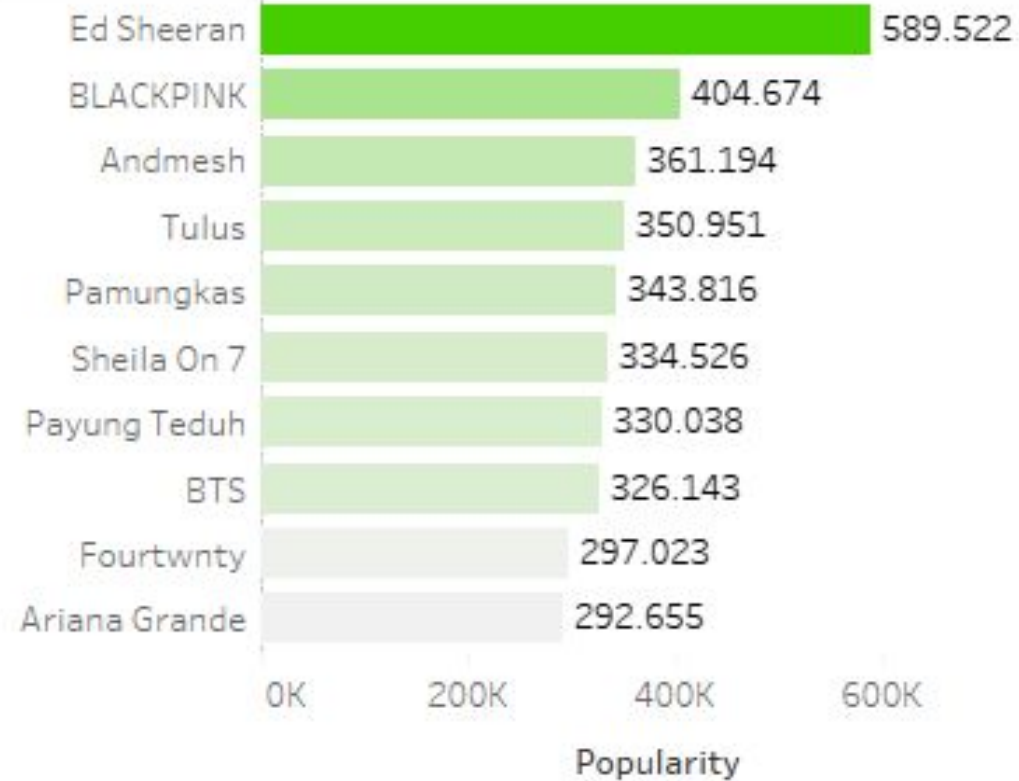
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TOP 10 MOST POPULAR ARTIST IN INDONESIA

Popularity by Artist





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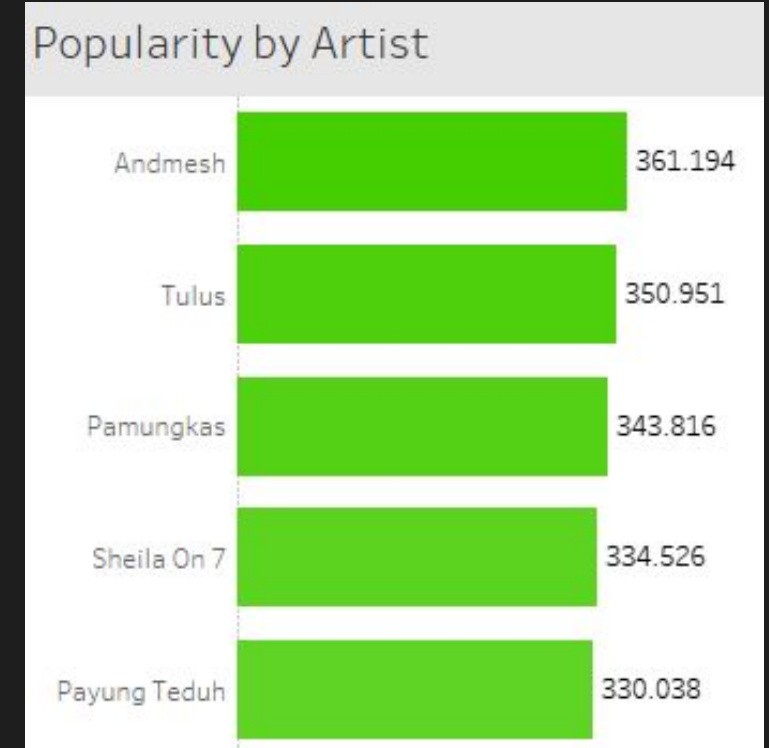
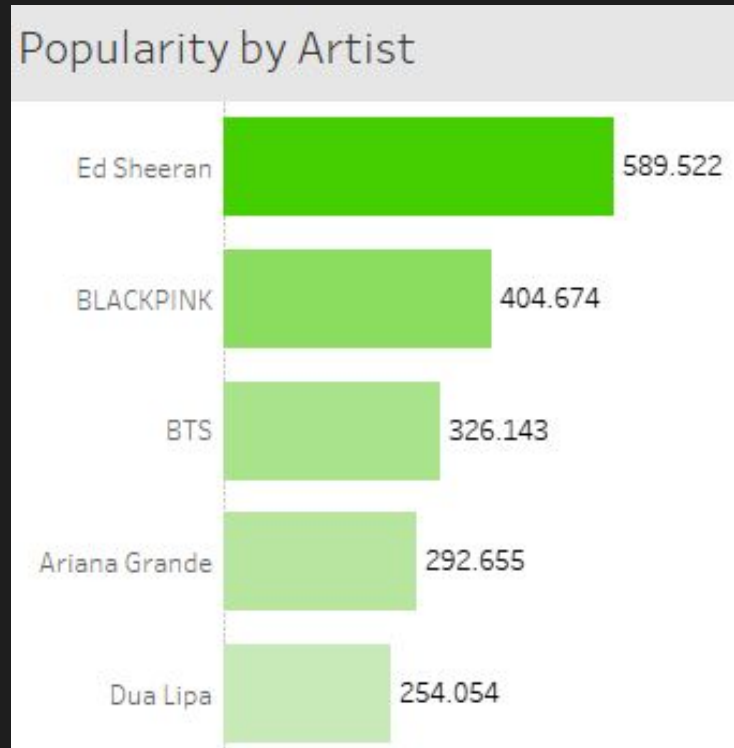


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FOREIGN ARTIST VS INDONESIA ARTIST



*FILTERED INDONESIA ARTIST ONLY



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Preparation for Clustering Analysis using python # 2

Clustering analysis is needed to
find the typical music of each
group

Preparation for Clustering Analysis using python

Cluster analysis or clustering is the task of **grouping a set of objects** in such a way that objects in the same group (called a cluster) are more similar (in some sense) to each other than to those in other groups (clusters).



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Preparation for Clustering Analysis using python

CHECKING DATA DISTRIBUTION

1

IMPORTING LIBRARIES

2

5

ELBOW METHOD

4

K-MEANS CLUSTERING

3

DATA SCALING

DOES MUSIC
CHARACTERISTIC AFFECT
THE POPULARITY?



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Preparation for Clustering Analysis using python



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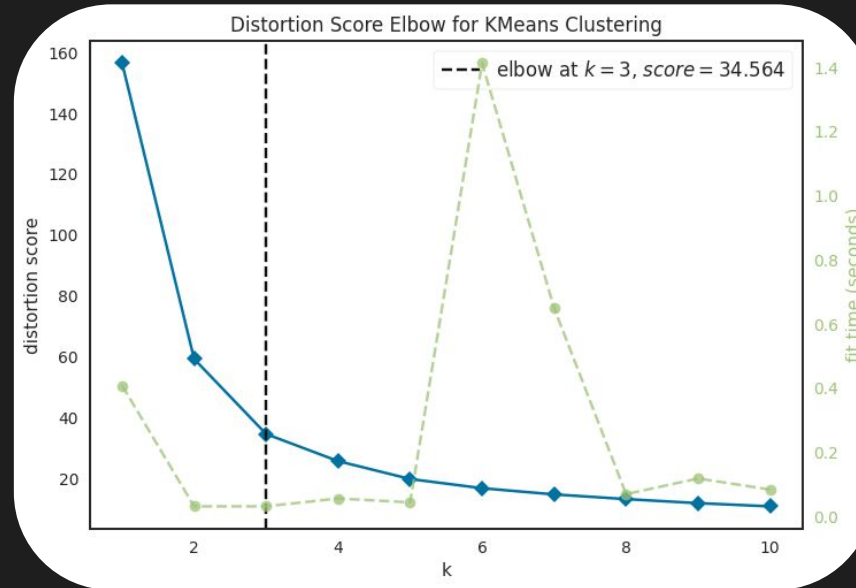
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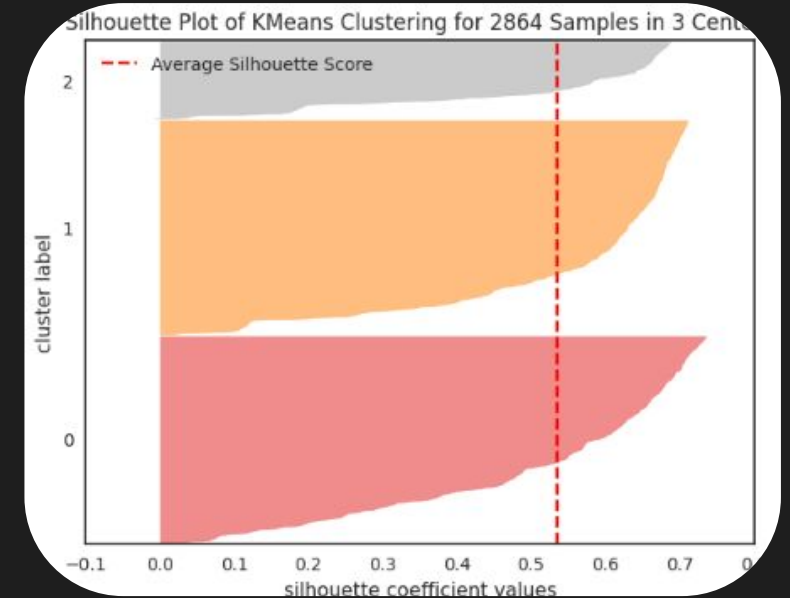
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Elbow Method



Silhouette Method

Determining the number of cluster by using 2 method

based on the two method now we set the cluster into 3 section



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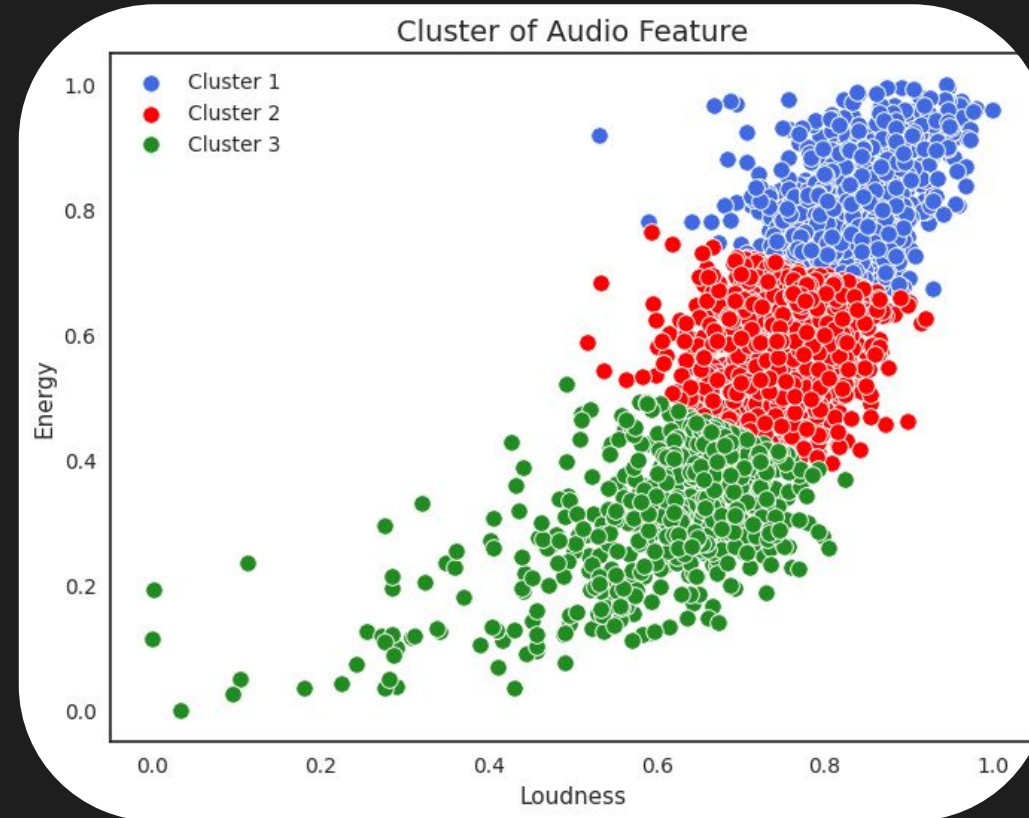
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CLUSTERING MODEL



Cluster model data with $k = 3$

[Link to Collab](#)



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CLUSTERING MODEL

Cluster 1	Cluster 2	Cluster 3
Popularity		
Low Popularity, Moderate Followers	High Popularity, Highest Followers	Highest Popularity, Low Followers
Music Attributes		
High value on danceability, energy, loudness, speechiness, liveliness, valence & tempo	Moderate value on danceability, energy, loudness, speechiness, liveliness, valence & tempo. Also on Acousticness & Instrumentalness	Low value on danceability, energy, loudness, speechiness, liveliness, valence & tempo, Highest on Acousticness & Instrumentalness

- Cluster 1 has the **lowest Popularity**, but **Artist_followers is quite large** compared to cluster 3. This cluster tends to produce songs with danceable and energetic beats, as well as positive and cheerful nuances.
- Cluster 2 has a **fairly high popularity** with the **largest Artist_followers** among other clusters. Has quite high popularity and produces songs with minimal acoustic and instrument nuances, but still danceable and positive nuances.
- Cluster 3 has the **highest Popularity** and the **lowest Artist_followers** compared to the other clusters. This cluster only focus on acoustic and instrumental nuances.



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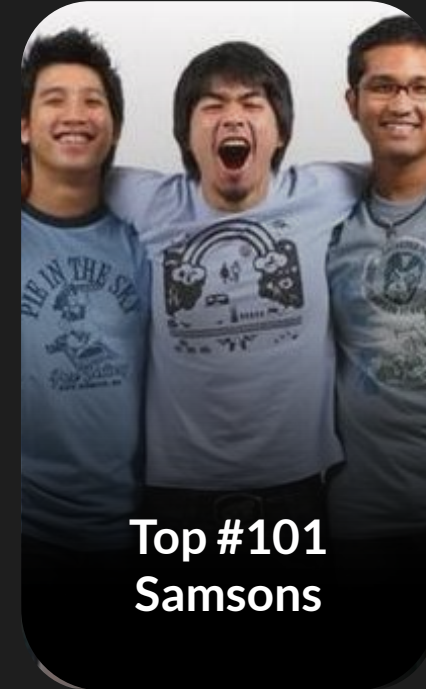
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Number 1 Popular Vs Number 101 in Indonesian Chart



comparing 2 Artist from different clusters and based on
number of popularity in Indonesia



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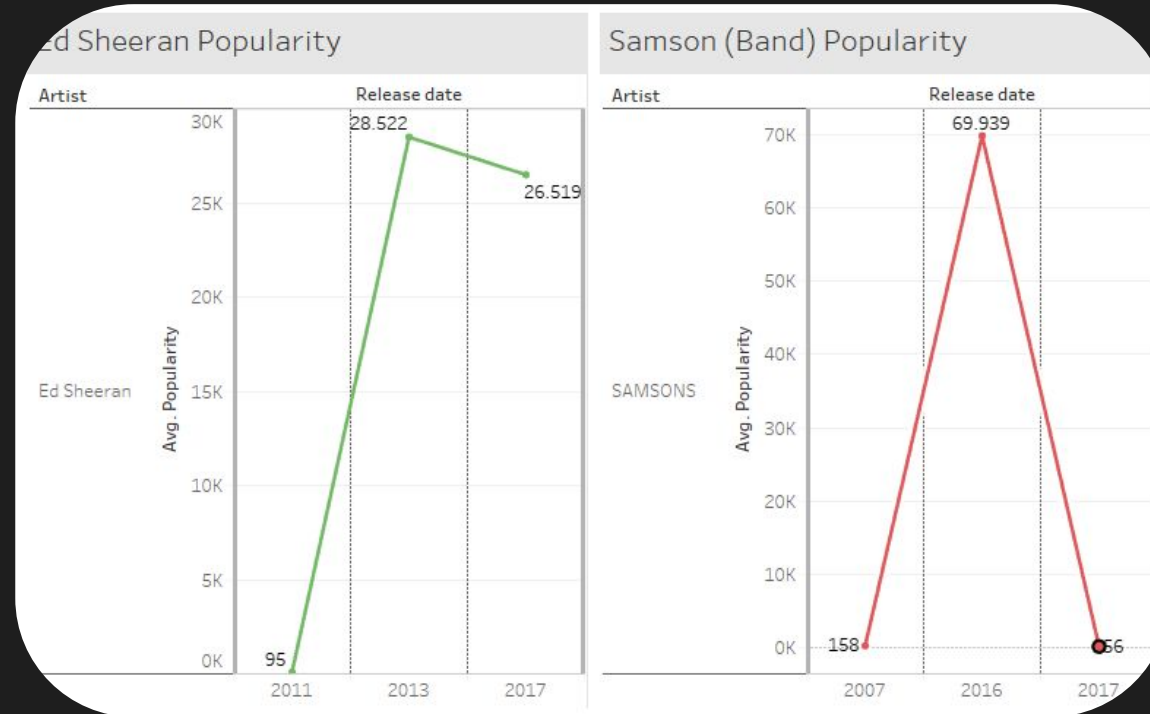
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Number 1 Popular Vs Number 101 in Indonesian Chart



Ed Sheeran

Samsons
Band

In 2011 Ed Sheeran released an song and the popularity score is above 28 Thousand and in 2017 stay relatively still

In some case Samson's song in 2016 is more popular than Ed Sheeran song with almost 70 Thousand score but then decreasing to only 56 making it not so popular anymore



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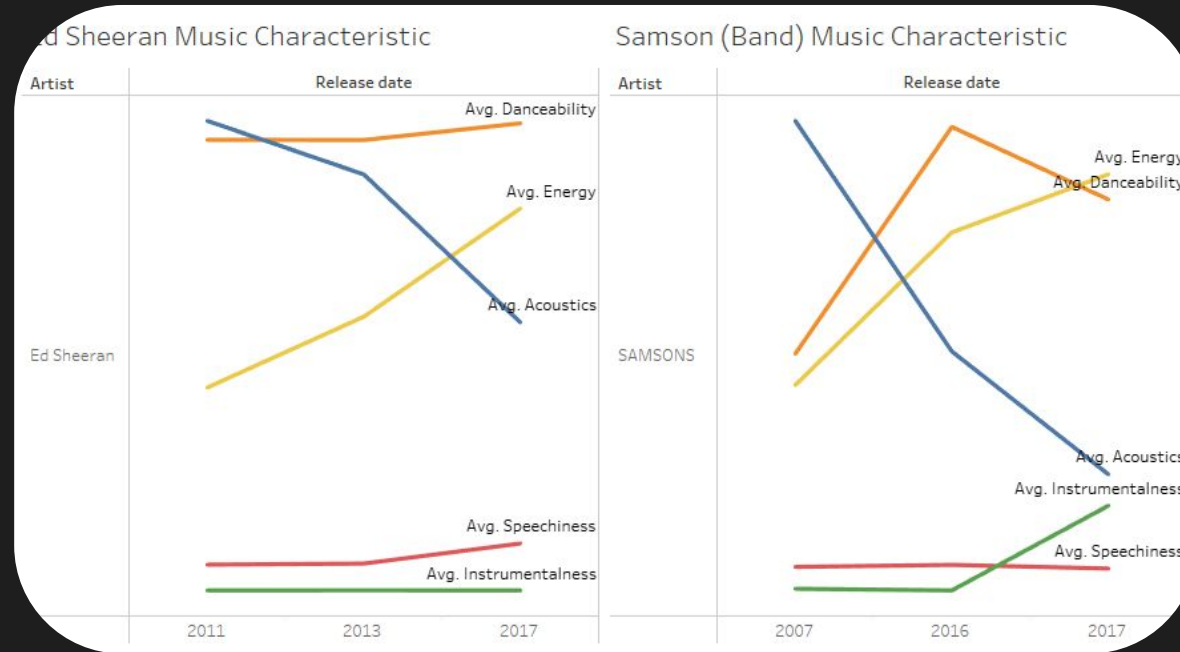
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Number 1 Popular Vs Number 101 in Indonesian Chart



Ed Sheeran

Samsons
Band

Most Ed sheeran popular music have the characteristic of high acoustiness song and high danceability. But not so energetic

Samson's song in the other hand having the Avg. Danceability characteristic are higher and acoustiness level are low.

IT SHOWS THESE 2 MUSIC TYPE ARE DIFFERENT FROM EACH OTHER



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**WE WANTED TO GIVE INSIGHT AND
RECOMMENDATION TO PEOPLE WHO
WANTED TO JOIN INDONESIAN MUSIC
INDUSTRY**



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RECOMMENDATION

to Artist, Band, Musician **who wanted to play role** in
Indonesian music industry



Based on the analysis in the previous slide, we can provide Insight and recommendation to artist to gain more popularity:

- Local Music Still very much appreciated in Indonesia,
- Creating songs that have **high** danceability, energy, loudness, speechiness, liveliness, and valence **without losing** acoustic and instrumental values.



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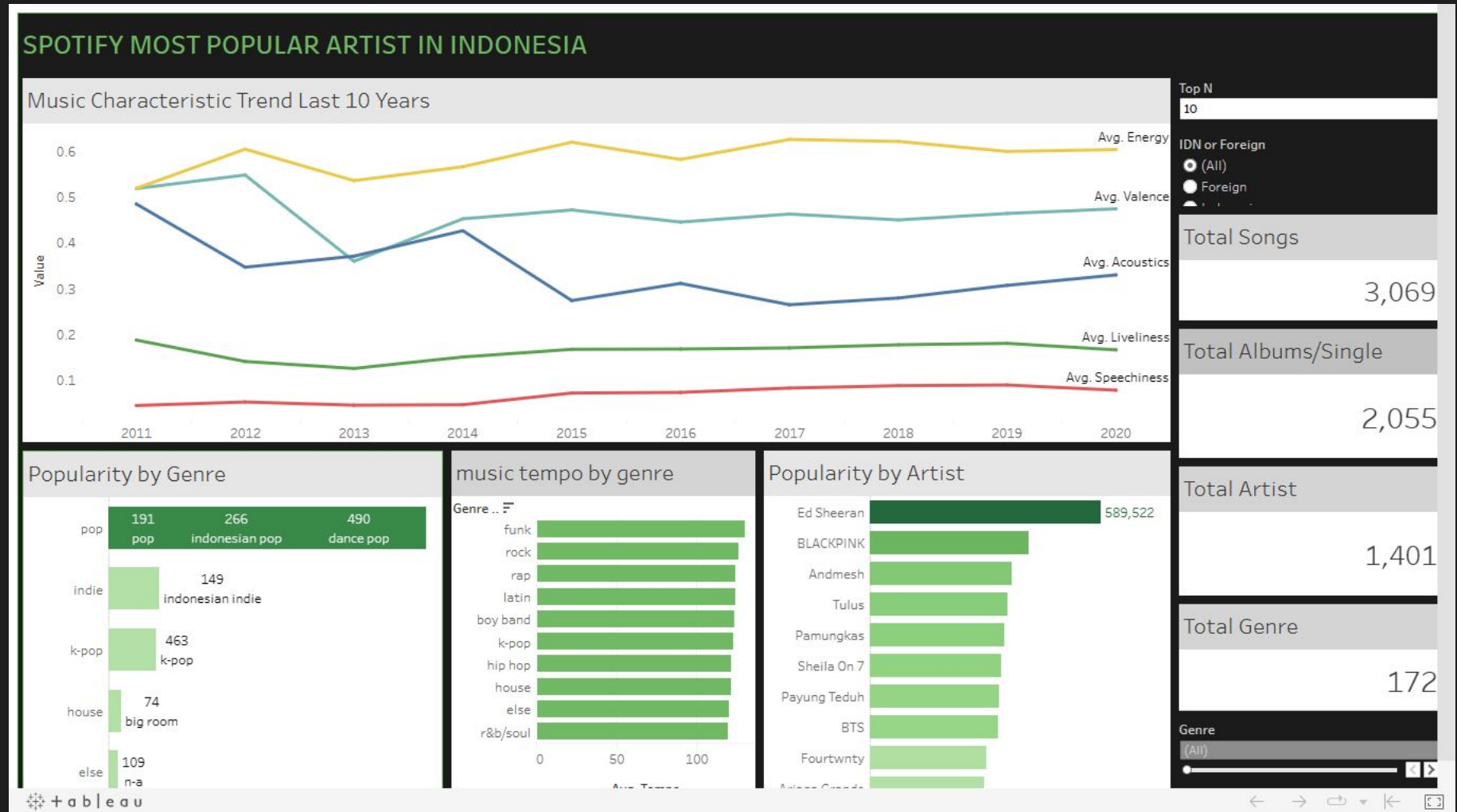


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THE TABLEAU DASHBOARD



[Link to Dashboard](#)



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LINK TO PROJECT

- Google Collab
 - https://colab.research.google.com/drive/1YEBXj4OPSIFRmhYNDDVxPPMdijJb8yL5?usp=share_link
- Tableau Public
 - https://public.tableau.com/views/TeamE_SpotifyDataset_RevoUPitchingDay/Dashboard1?:language=en-US&:display_count=n&:origin=viz_share_link

FURTHER REFERENCE

- Spotify Share Holder Deck 2022 Q4
[Spotify - Investor Relations](#)



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Thanks

Revou Group Final
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