



MOOSIC



Your Mood.
Your Music.

19.09.2023
Capstone Project
Neufische Data Practitioner



Meet the team - Rhythm Byte Engineers



Shahi



Christian



Grace



Intro

Idea and Vision

The Problem - Mood

59% of people often face difficulty in finding playlists according to their mood¹



¹ Survey by Anumeha Jain:

<https://medium.com/@jainanumeha74/spotify-ux-research-case-study-68997acf20f1>

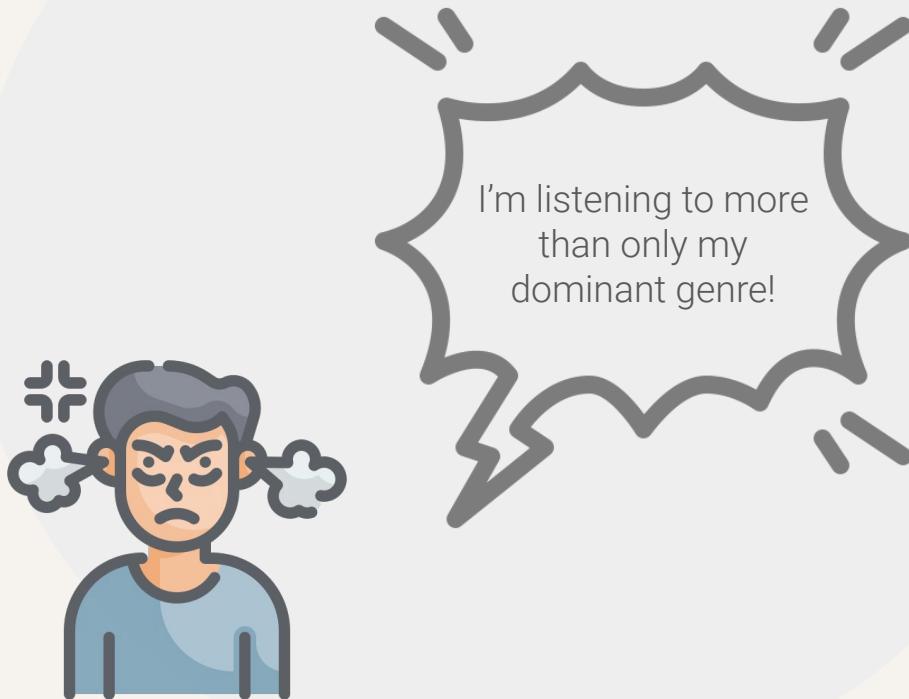
Mood Management

Participants of a study ², conducted by British psychologists, responded that they use music to express emotions and manage their mood.

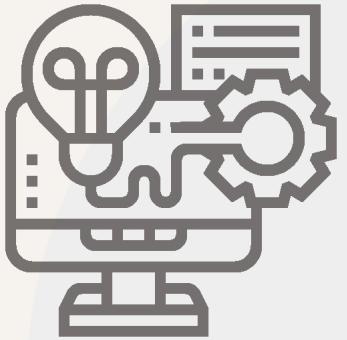


The Problem - Genre

Genre is also a key factor:



Our Vision



For: Individuals, Music
streaming platforms

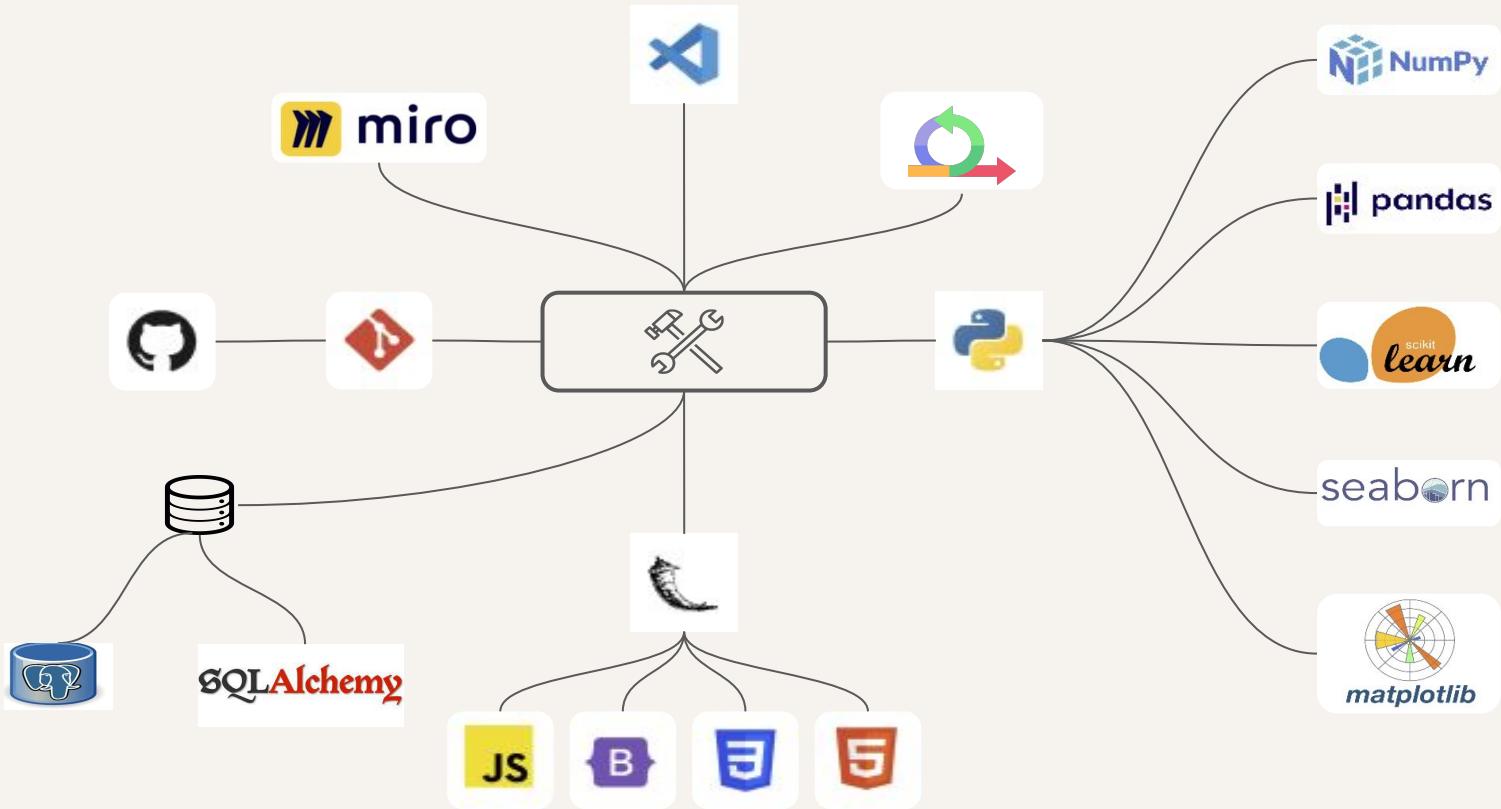
Mood
Management

Improve User
Experience

Diverse
Recommendations



Our Tech Stack



The Data Set - Spotify 600k+

from Kaggle (1.7 Mio entries)



Artists.csv:
1.162.095 entries

Tracks.csv:
586.672 entries

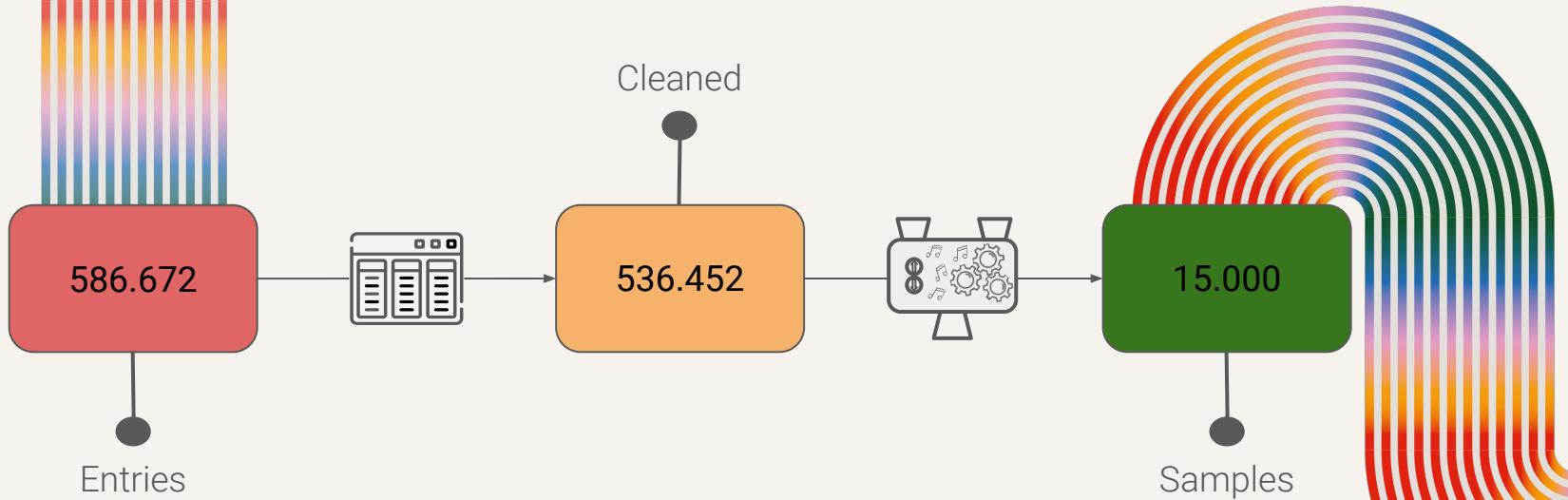
Tracks from 1921-2020



EDA

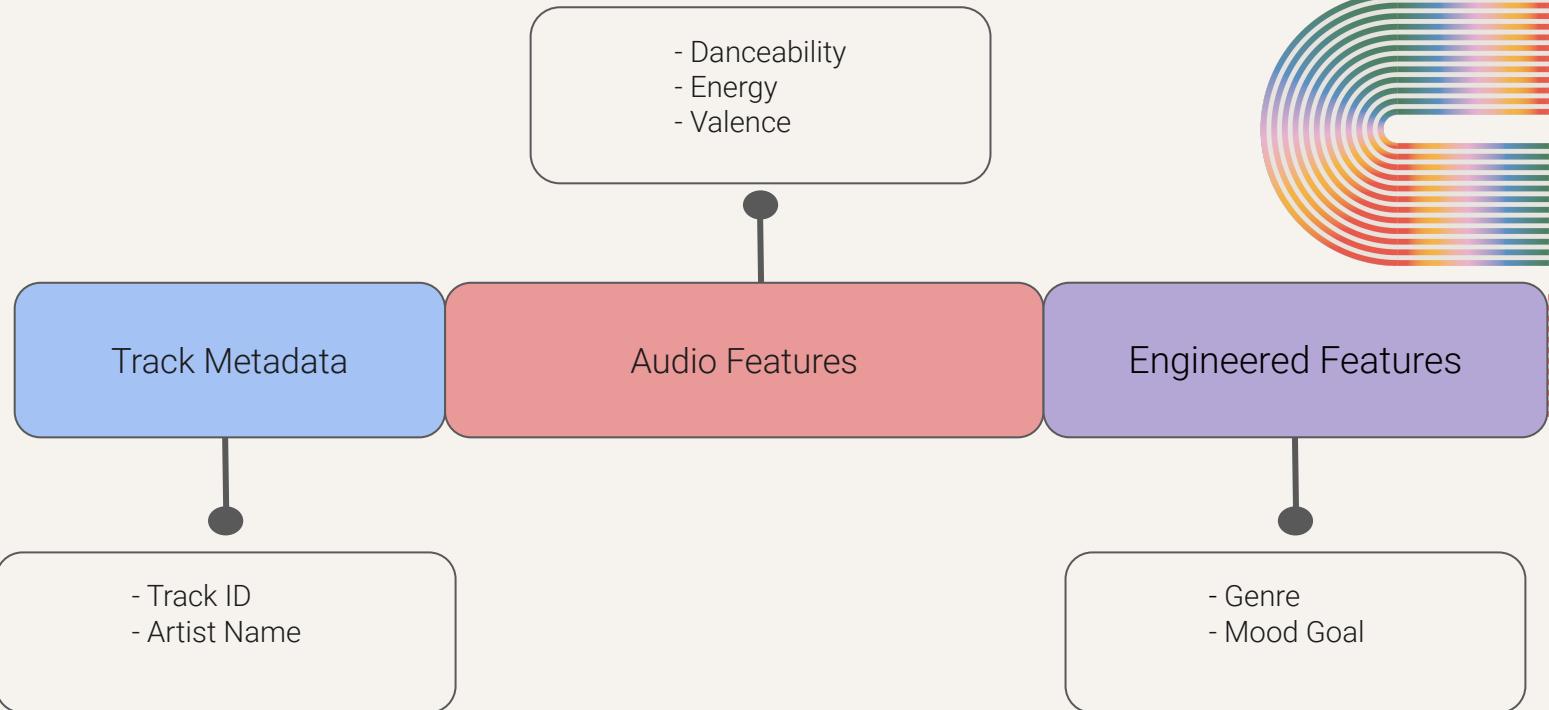
How did we get our data

Getting to the right size





How an actual track now looks like





EDA

First insights

Feature Engineering - Genres

Genre combinations:

18.514

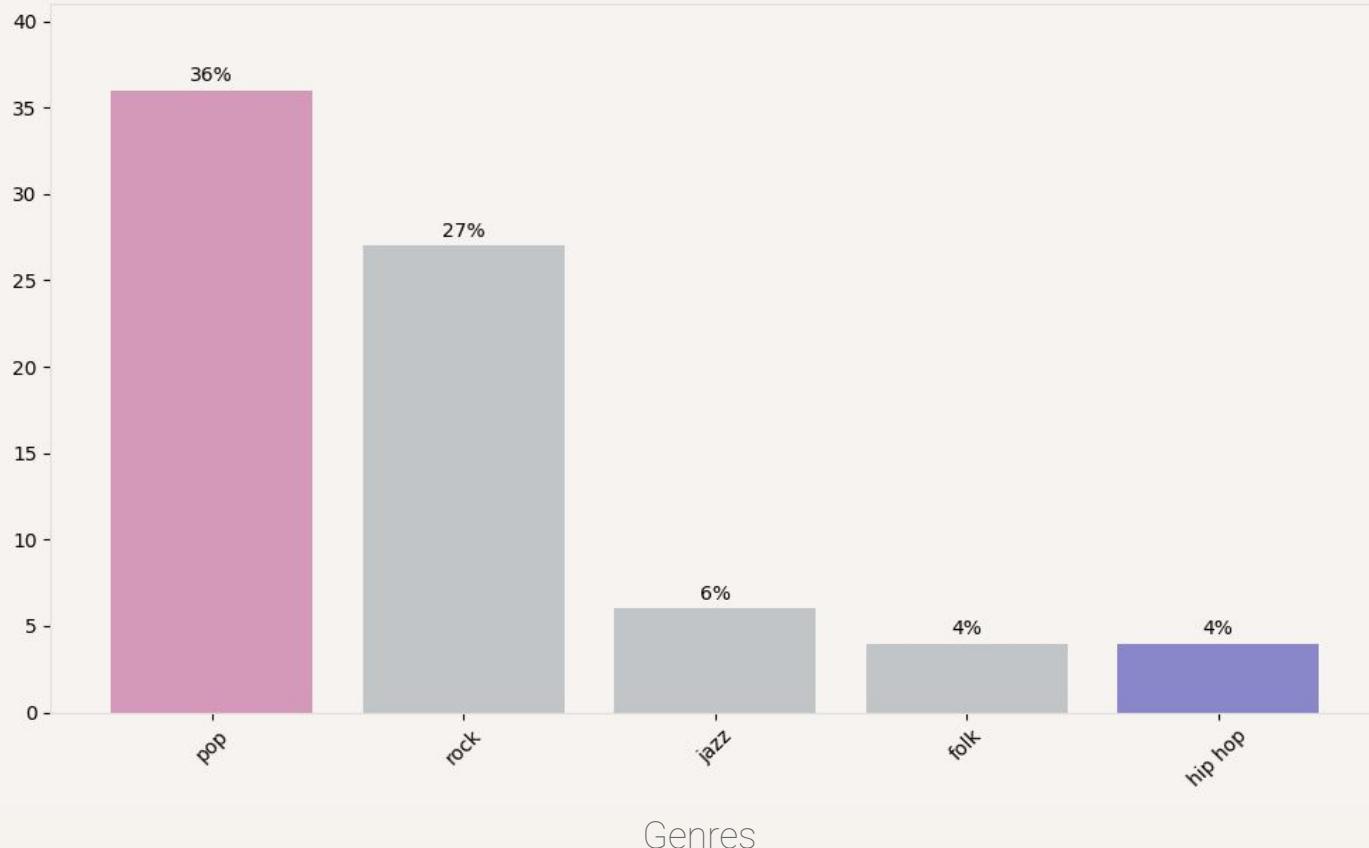
Unique subgenres:

7.033

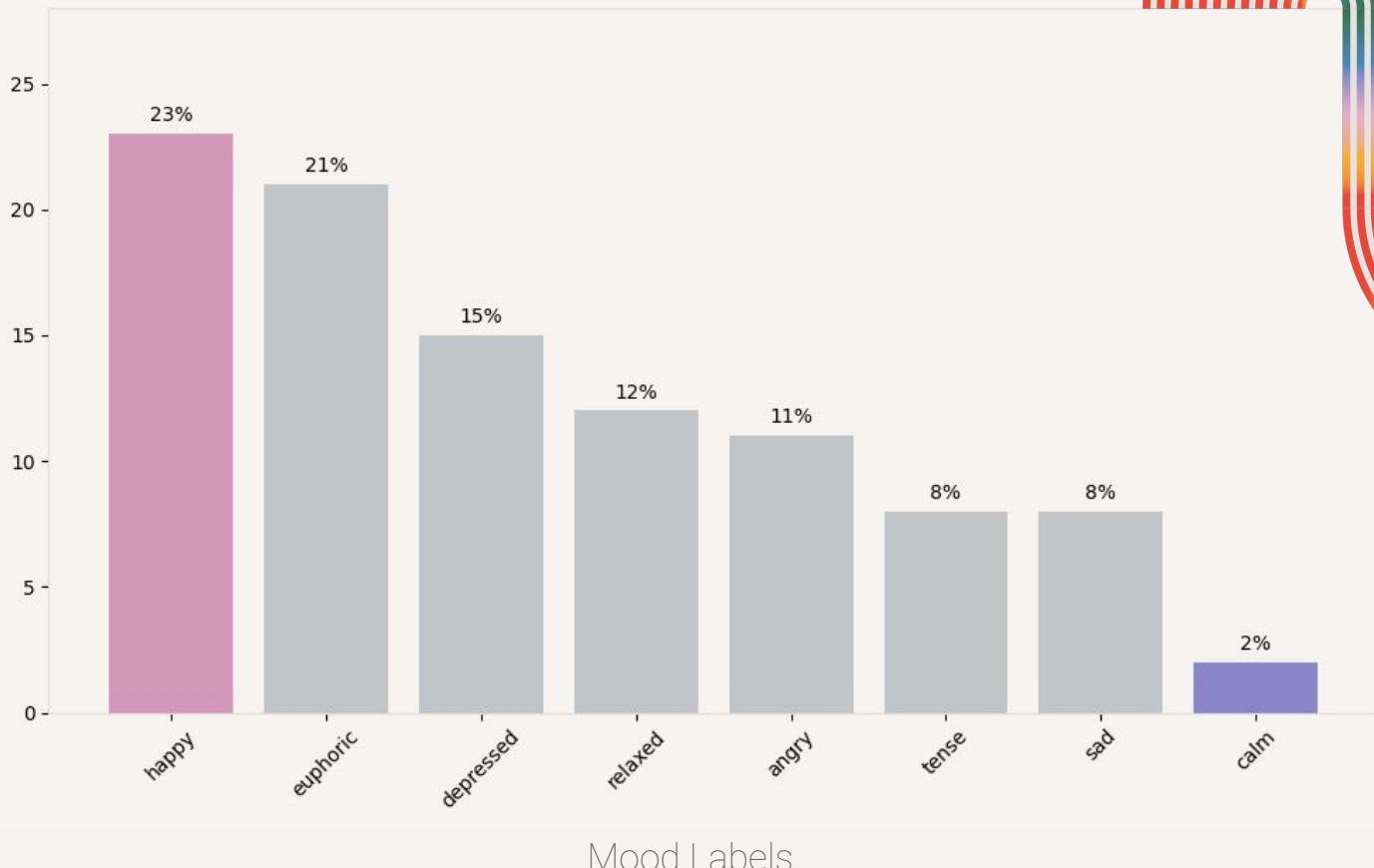
Main Genres:

26

Distribution of the Top 5 Main Genres



Distribution of the 8 Moods in our dataset

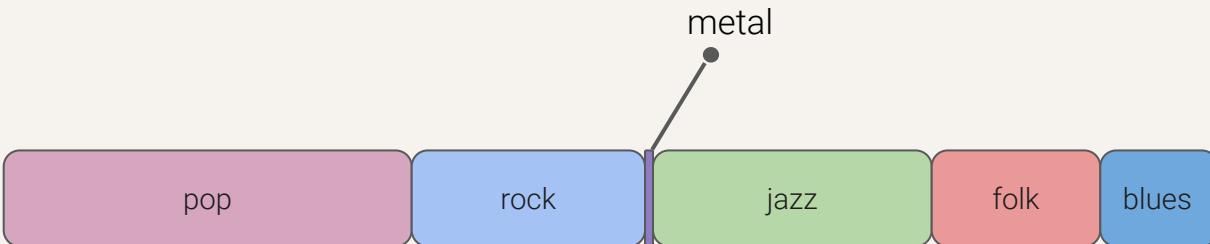


How are the Genres distributed over the Moods?

Tense



Calm





Feature Engineering Mood

Mood to Music Track



Mood Feature Engineering

What emotional and physical responses did the tracks evoke for a listener?

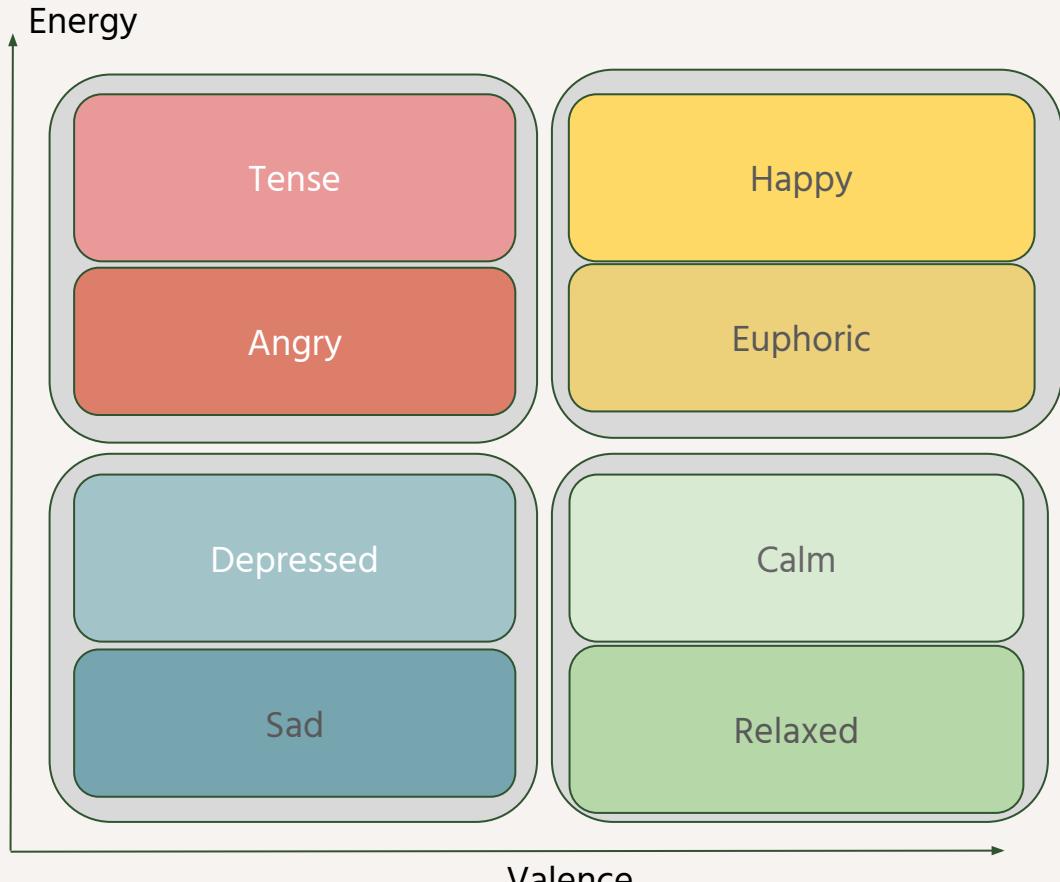
- **Valence:**
Does the music track make you feel positive (pleasant) or negative (unpleasant) ?
- **Energy:**
Do you want to get active when listening to the music track or do you want to chill?

Mood Feature Engineering

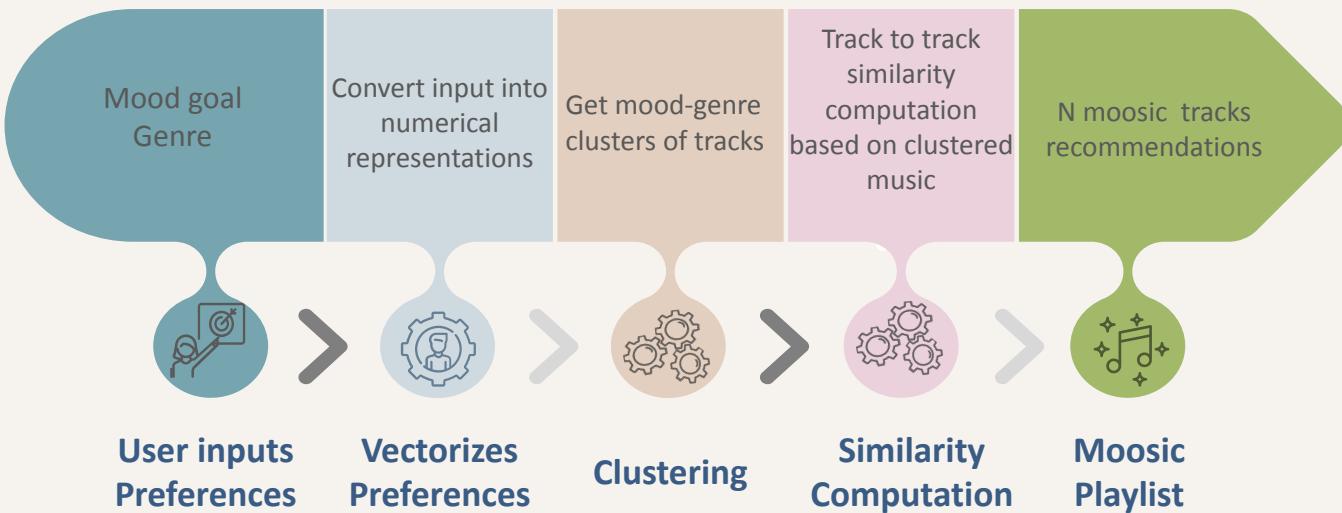
Mood labelling validated using :

- Modified Russell - Thayer's model of affect
- Plutchik's wheel of emotion (color - to mood matching)
- Elbow method

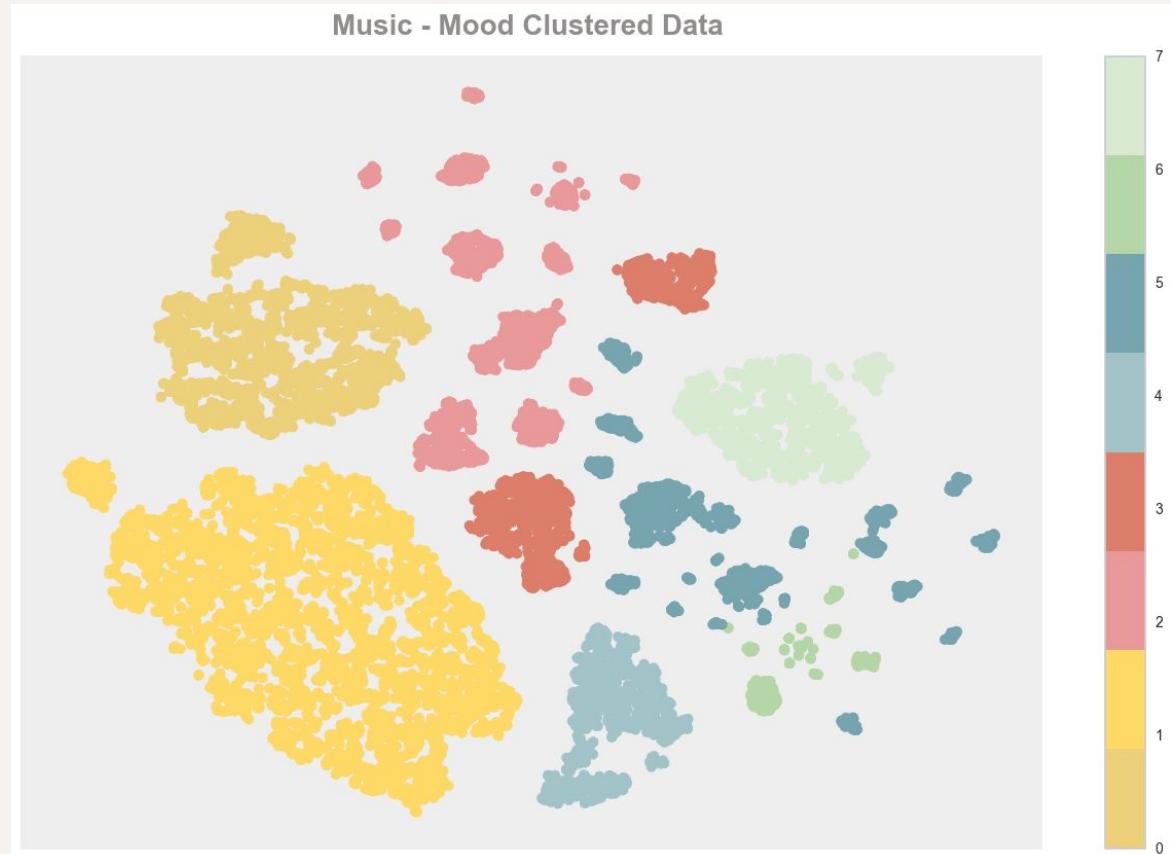
Eight (8) basic mood categories with umbrella affect terms words defined in the quadrants of the 2-D space



How does our recommendation system work?



Evaluation results and error analysis





Moosic recommendations: Relaxed and Pop

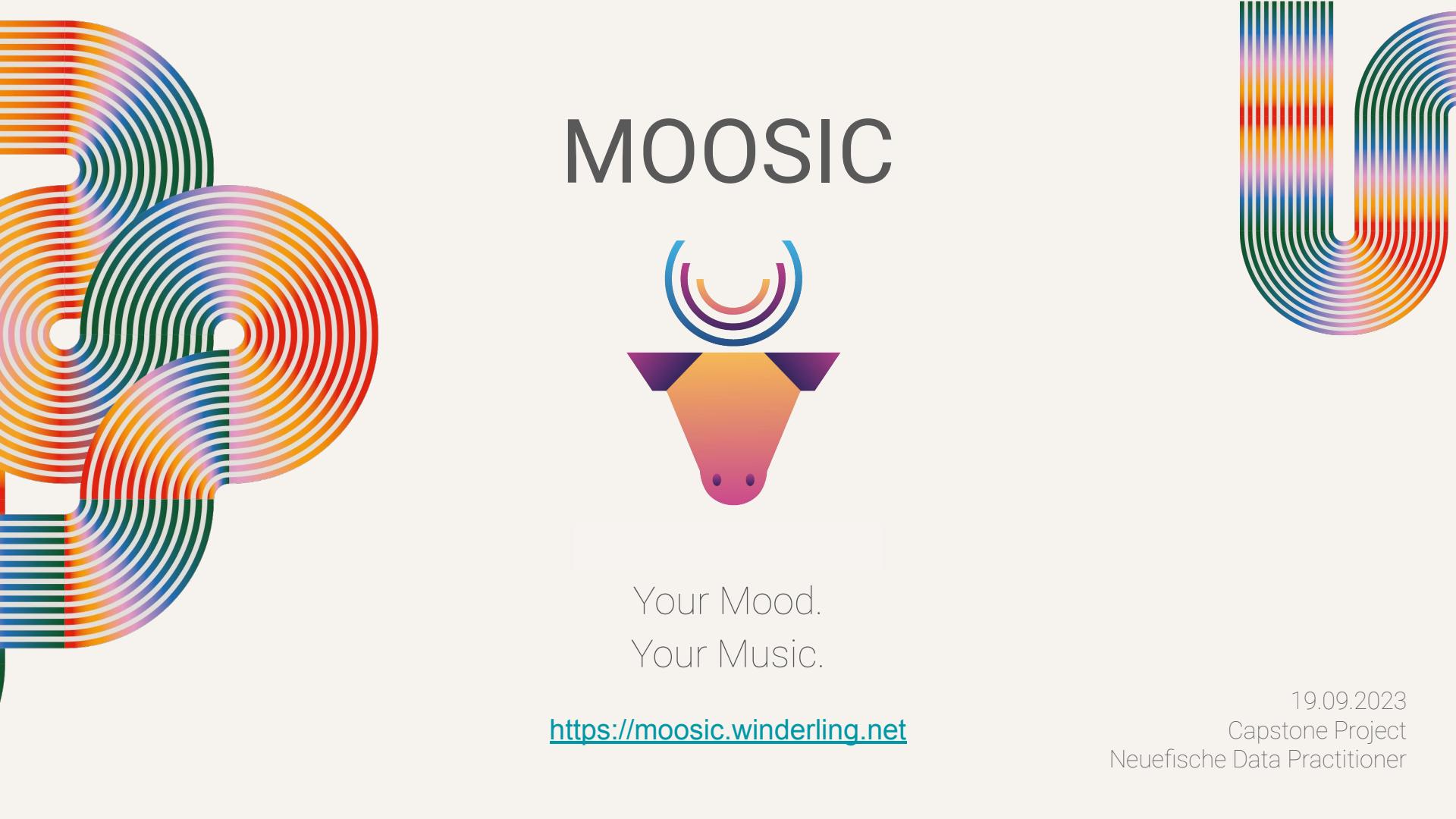


Recommended Tracks	Associated Mood	Associated Genre
Wabash Cannonball	calm	folk
Magic Mirror	calm	folk
Jungle Blues	relaxed	jazz
Limbo Rock	euphoric	pop
Kolly Haga	sad	folk



Web Application

User Interface



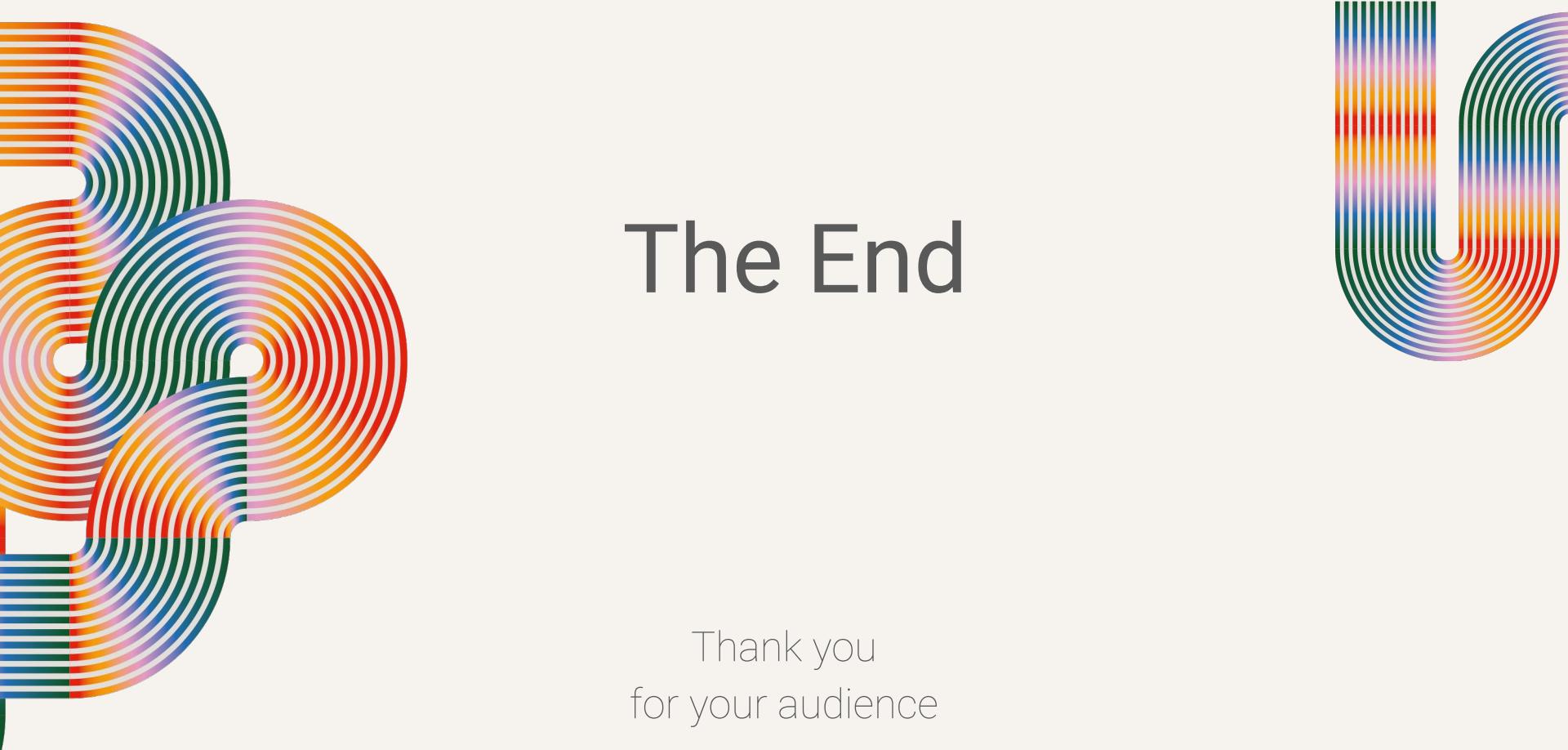
MOOSIC



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<https://moosic.winderling.net>

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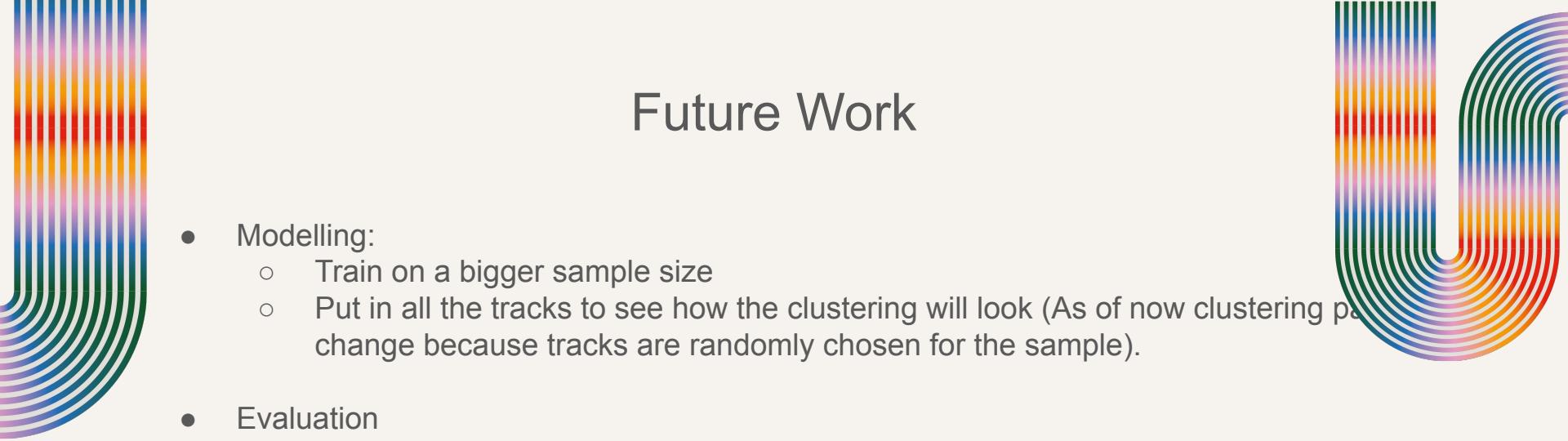
The End

Thank you
for your audience



Future Work

To be continued ...



Future Work

- Modelling:
 - Train on a bigger sample size
 - Put in all the tracks to see how the clustering will look (As of now clustering parameters change because tracks are randomly chosen for the sample).
- Evaluation
 - We used the
 - Use other offline metrics like the Normalised mutual
- Automation, Workflow Orchestration and other services
 - Airflow
 - Spark
 - Nifi/+Kafka
 - Docker + Kubernetes
 -
- Etc

2. Feature engineering - MOOD

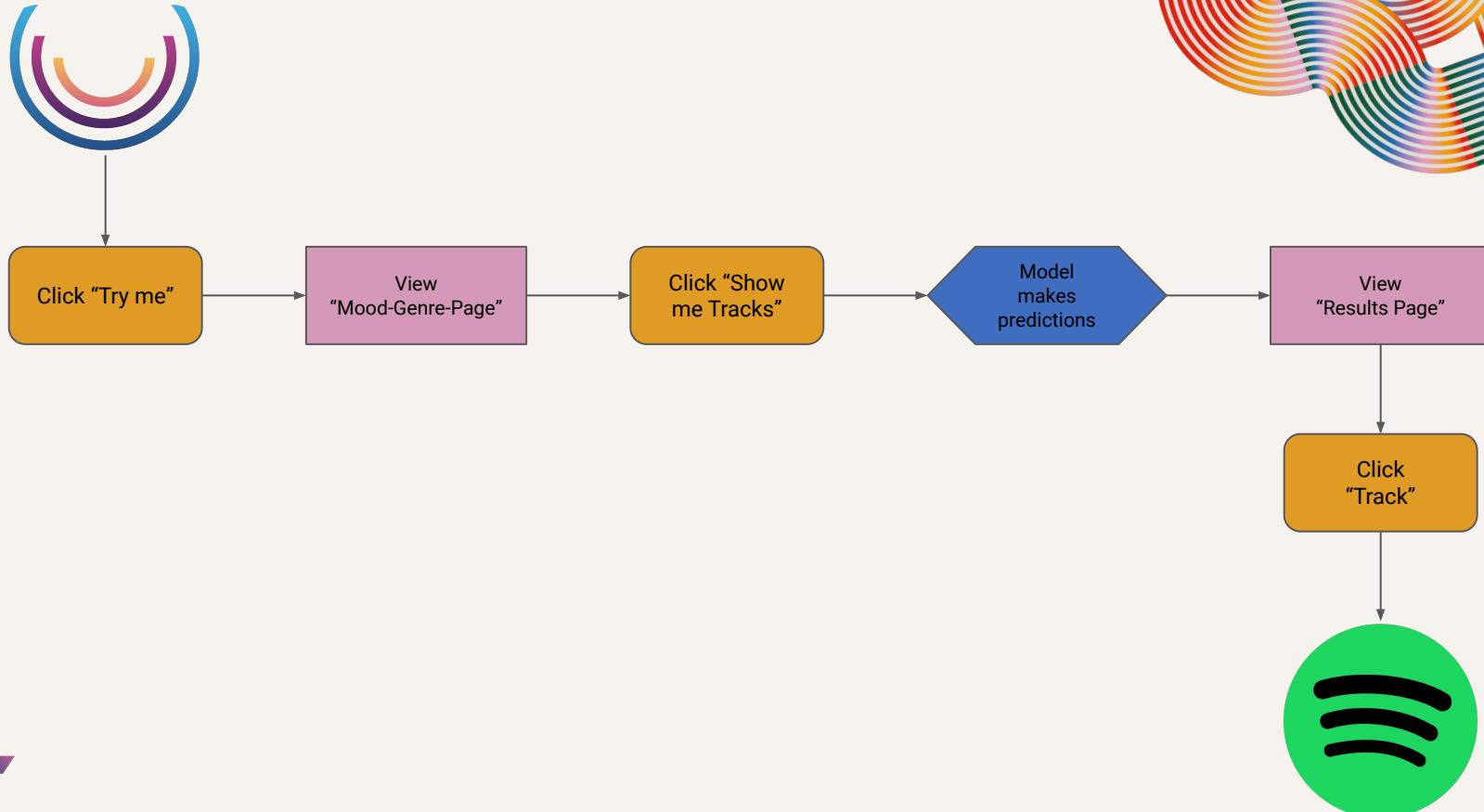
Alternative approaches

Alternatively, music can be assessed on the three dimensions of "arousal", "valence", and "depth".^[19] Arousal reflects physiological processes such as stimulation and relaxation (intense, forceful, abrasive, thrilling vs. gentle, calming, mellow), valence reflects emotion and mood processes (fun, happy, lively, enthusiastic, joyful vs. depressing, sad), and depth reflects cognitive processes (intelligent, sophisticated, inspiring, complex, poetic, deep, emotional, thoughtful vs. party music, danceable).^[19] These help explain why many people like similar songs from different traditionally segregated genres.^[1]

- Danceability
- Energy
- Valence

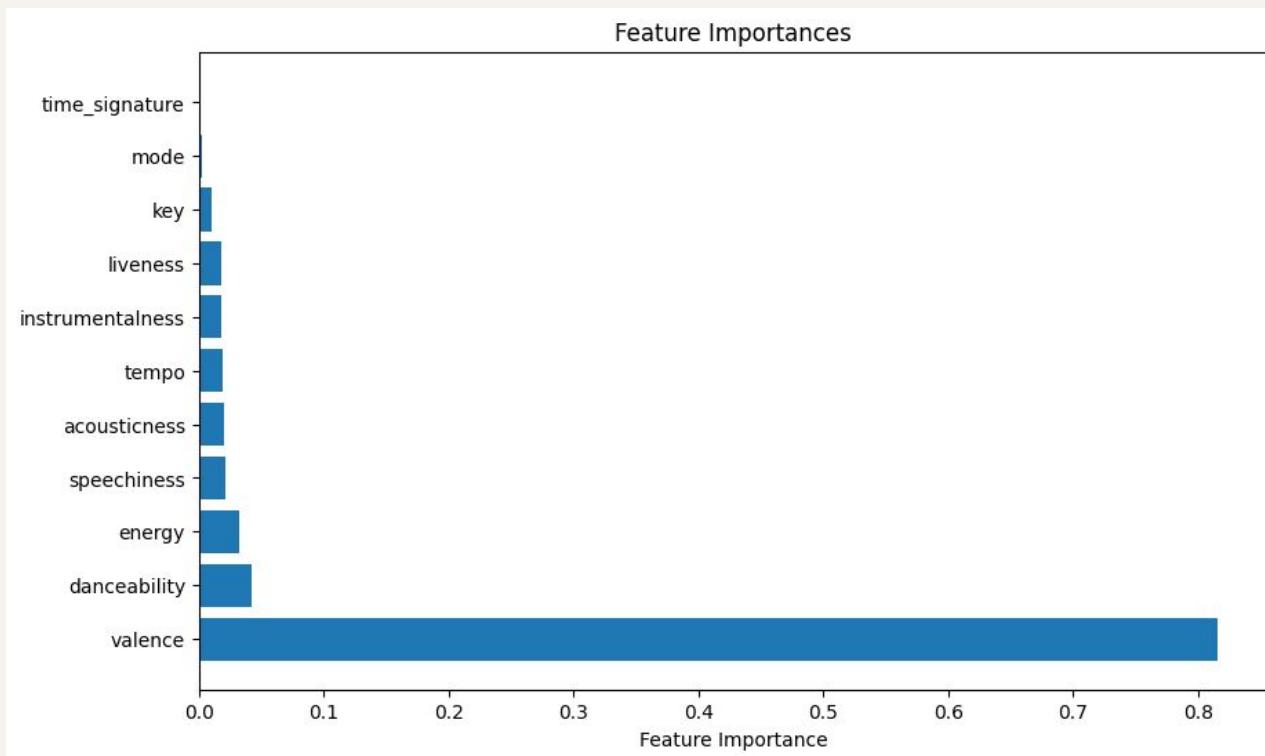
Extra and Credits

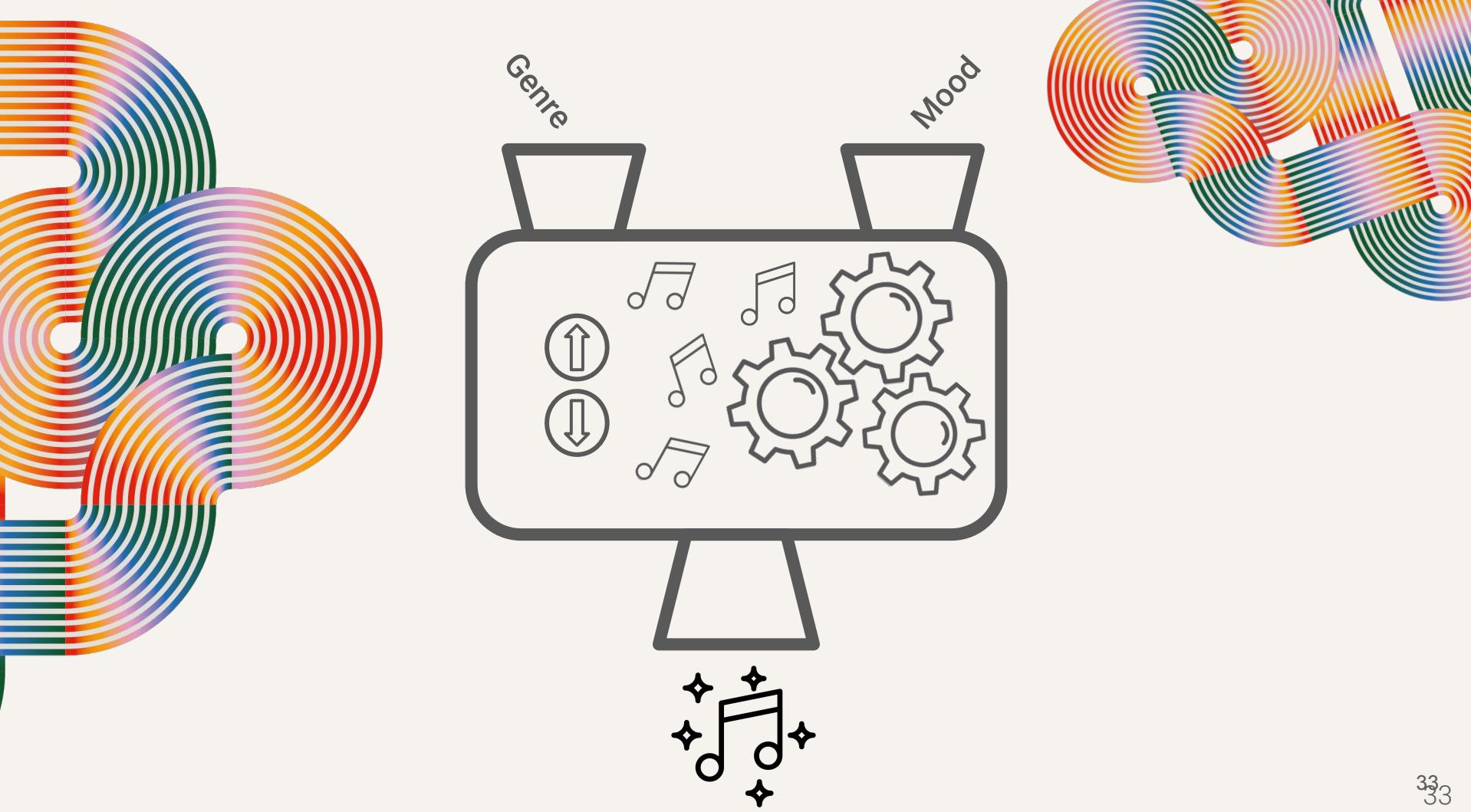
Web App - Flowchart



FAQ-Slide:

Feature importance for generating Mood classes





Credits

Icons:

Slides 5-7:

- Listening icons created by Freepik - Flaticon
- Hip hop icons created by Flat Icons - Flaticon
- Student icons created by Iconjam - Flaticon
- Emotions icons created by Freepik - Flaticon
- Mood icons created by Flat Icons - Flaticon
- Anger icons created by wanicon - Flaticon
- Speech bubble icons created by iconixar - Flaticon
- Coordination icons created by Freepik - Flaticon
- Question mark icons created by Freepik - Flaticon
- Angry icons created by Freepik - Flaticon
- Credit: <https://www.titanui.com/117730-150-tech-design-stack-icons-figma/> (slide 10)
- Machine-learning icons created by Eucalyp - Flaticon



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Alternative **resources**

Here's an assortment of alternative resources whose style fits the one of this template:

Vectors

- [Instagram posts collection world music day celebration](#)

