



# 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 mood<sup>1</sup>



<sup>1</sup> Survey by Anumeha Jain:

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

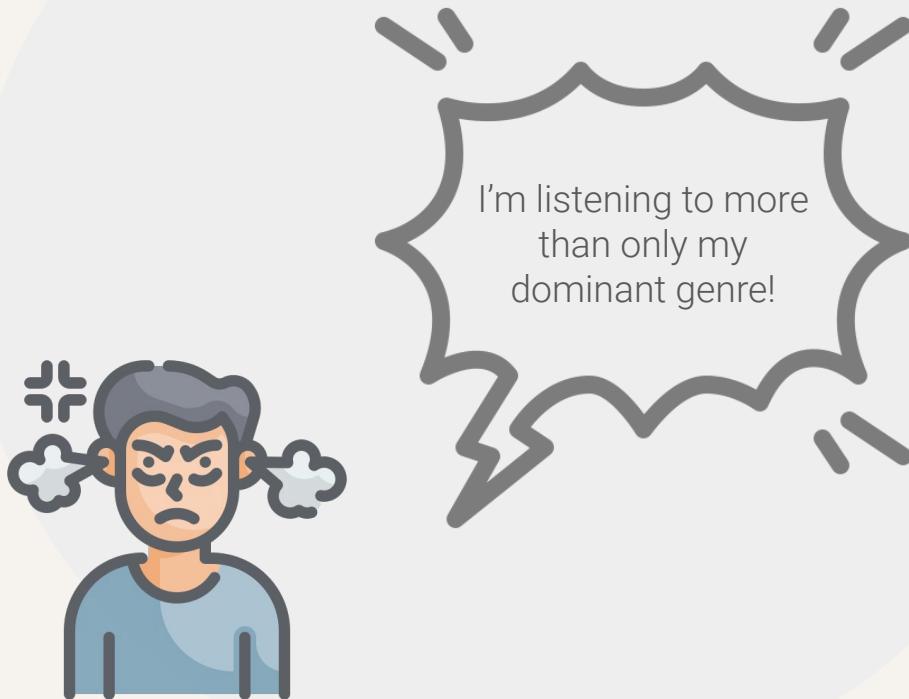
# Mood Management

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

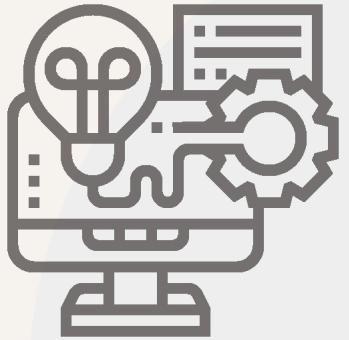


## The Problem - Genre

Genre is also a key factor:



# Our Vision



For: Individuals, Music  
streaming platforms

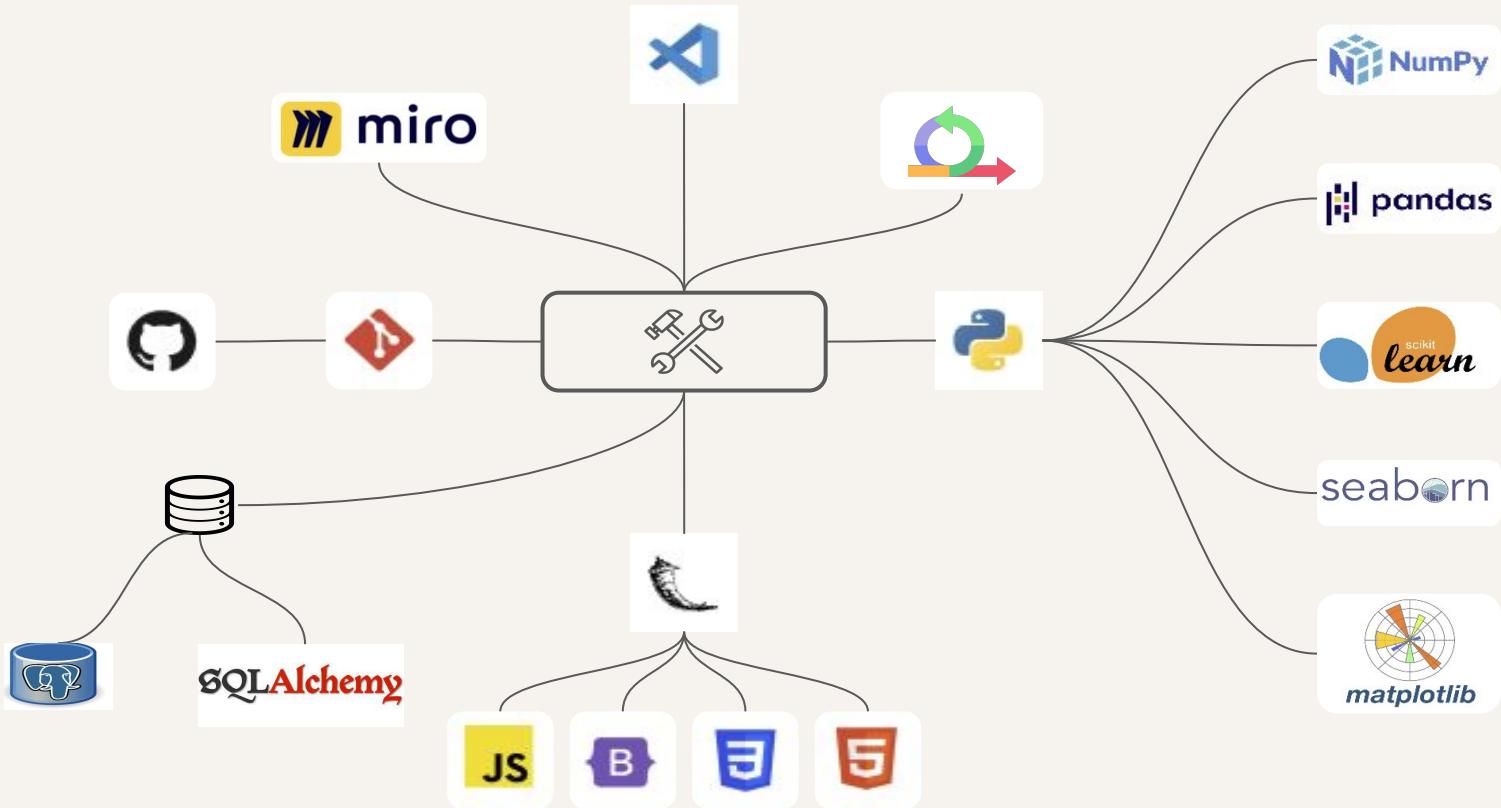
Mood  
Management

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

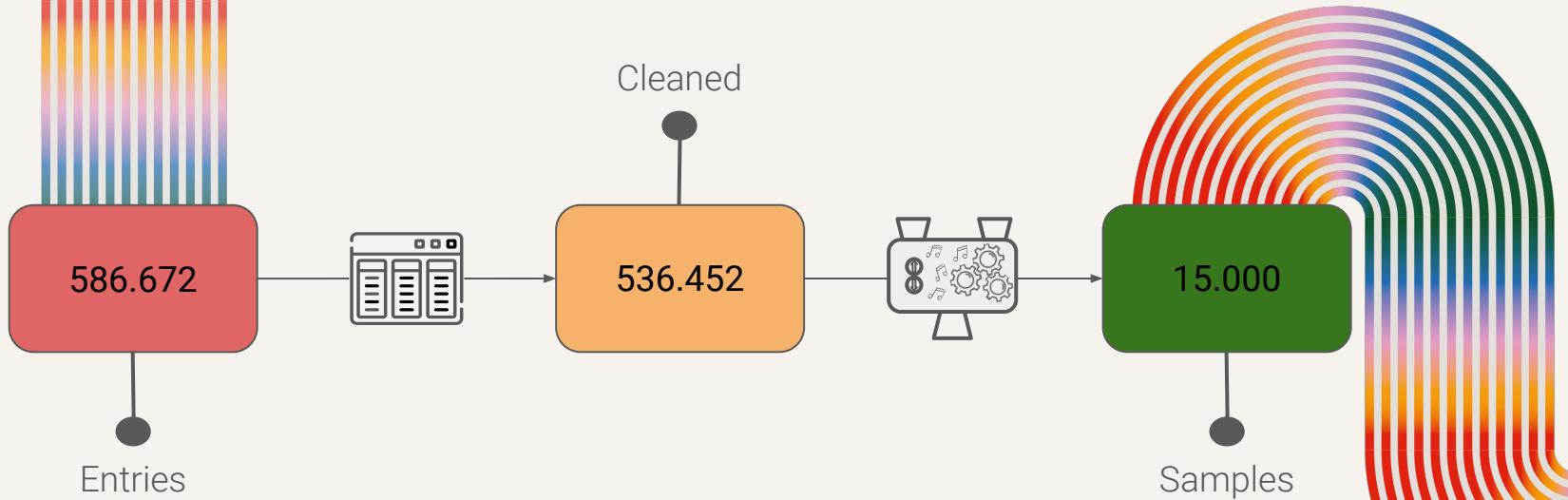
Tracks from 1921-2020



# EDA

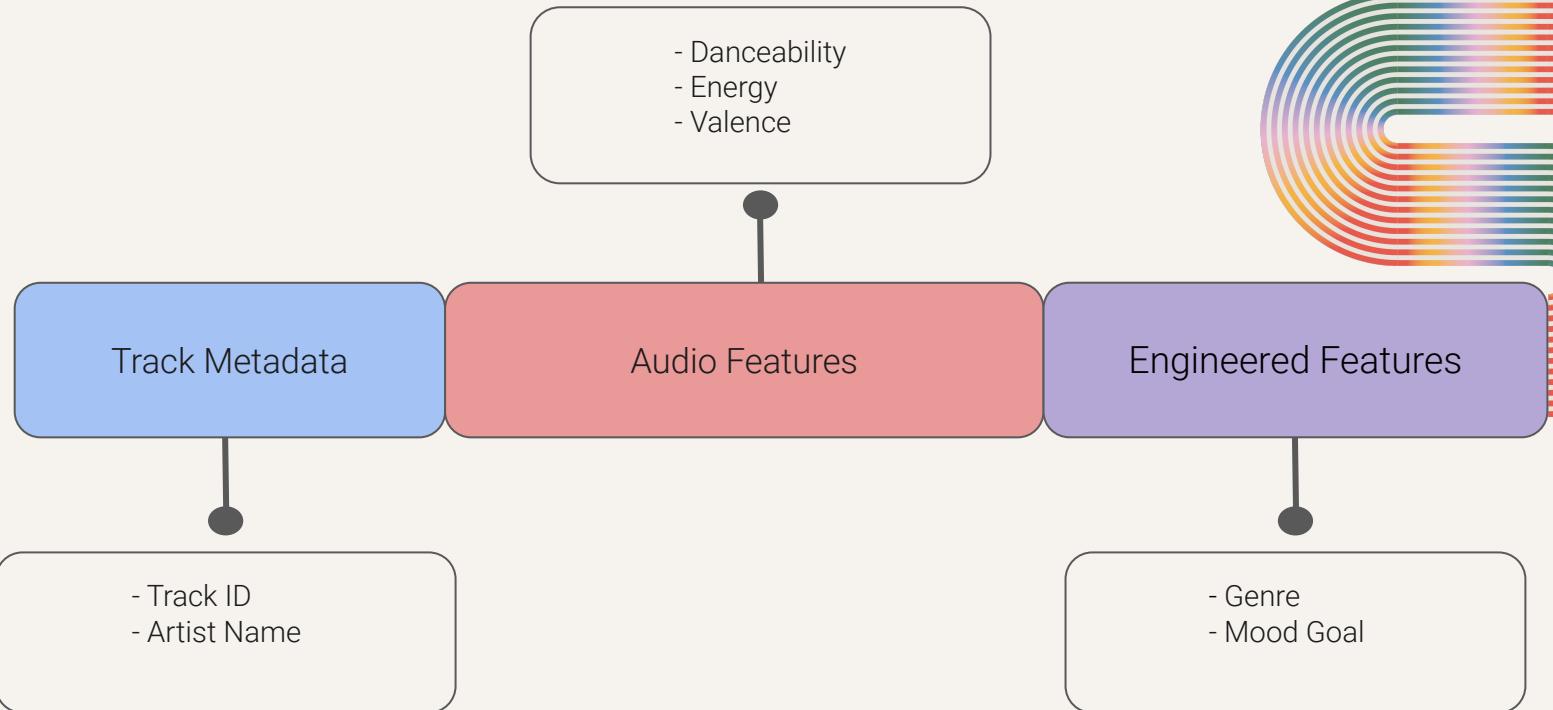
How did we get our data

## Getting to the right size





# How an actual track now looks like





# EDA

First insights

# Feature Engineering - Genres

Genre combinations:

18.514

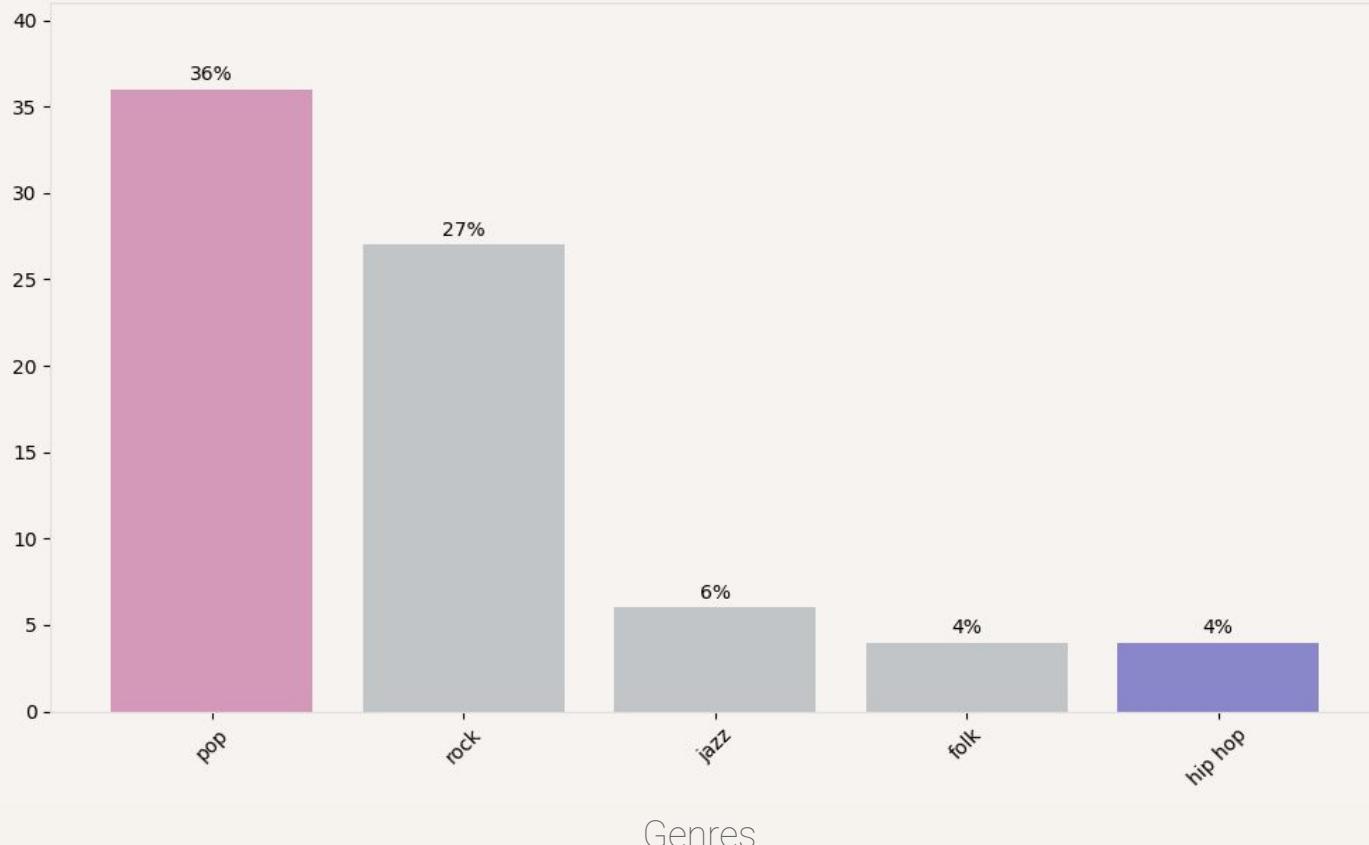
Unique subgenres:

7.033

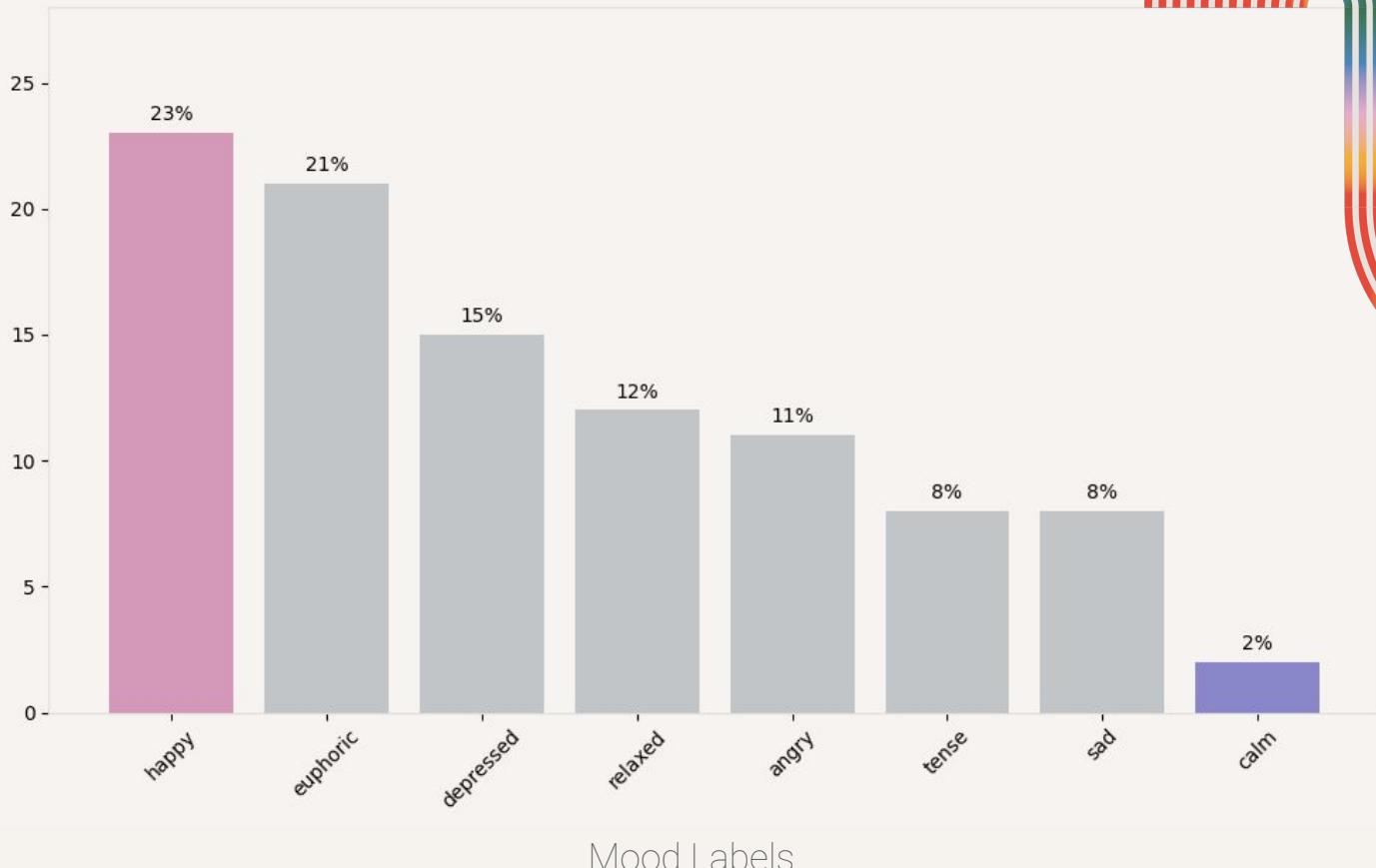
Main Genres:

26

# Distribution of the Top 5 Main Genres



# Distribution of the 8 Moods in our dataset

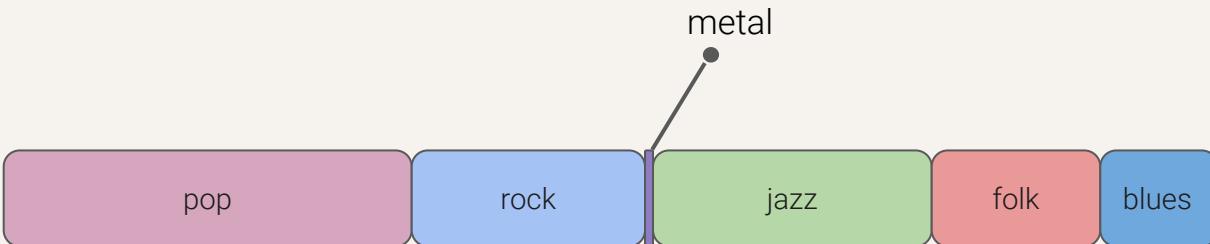


# How are the Genres distributed over the Moods?

Tense



Calm





# Feature Engineering Mood

Mood to Music Track



# Mood Feature Engineering

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

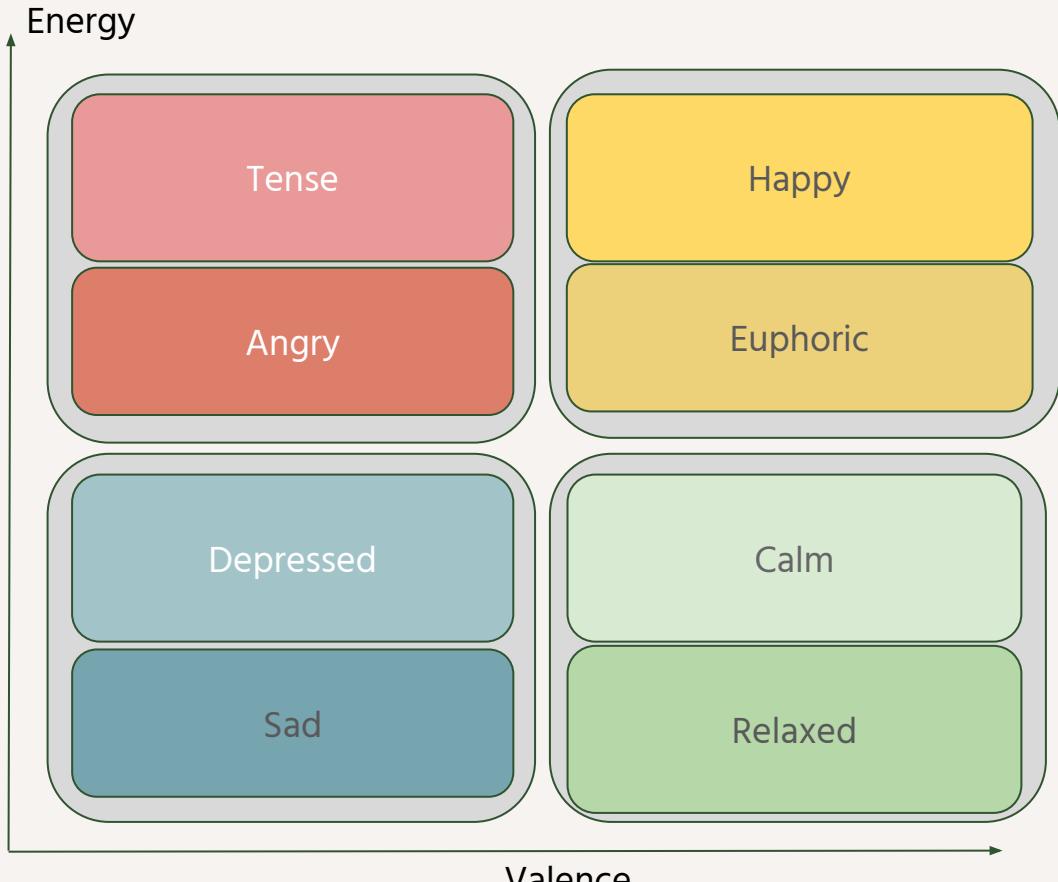
- **Valence:**  
Does the music track make you feel positive (pleasant) or negative (unpleasant) ?
- **Energy:**  
Do you want to get active when listening to the music track or do you want to chill?

# Mood Feature Engineering

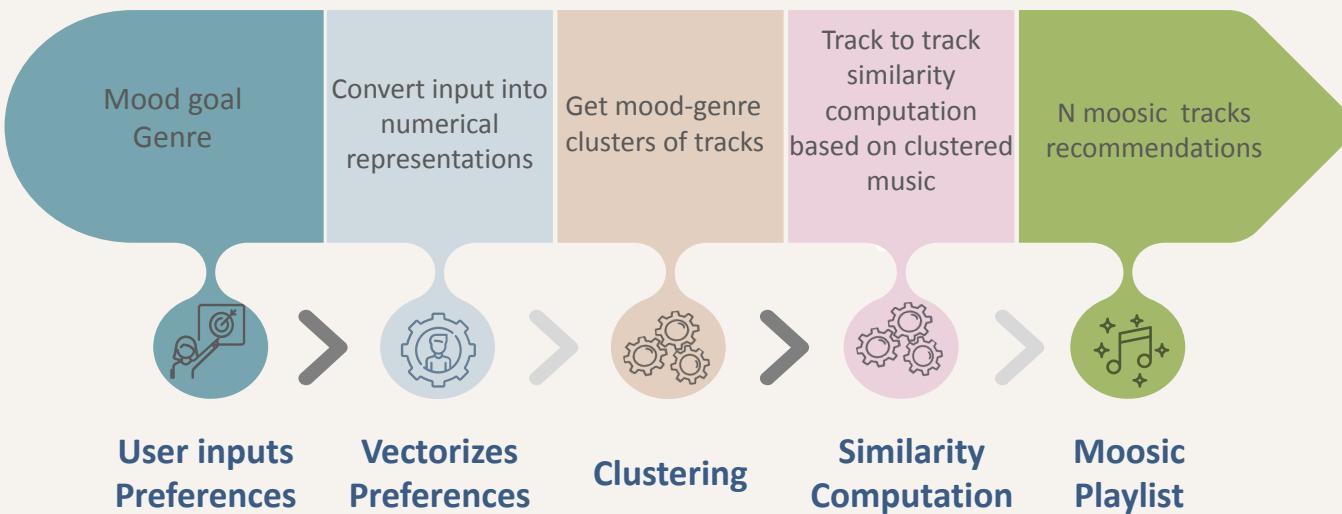
Mood labelling validated using :

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

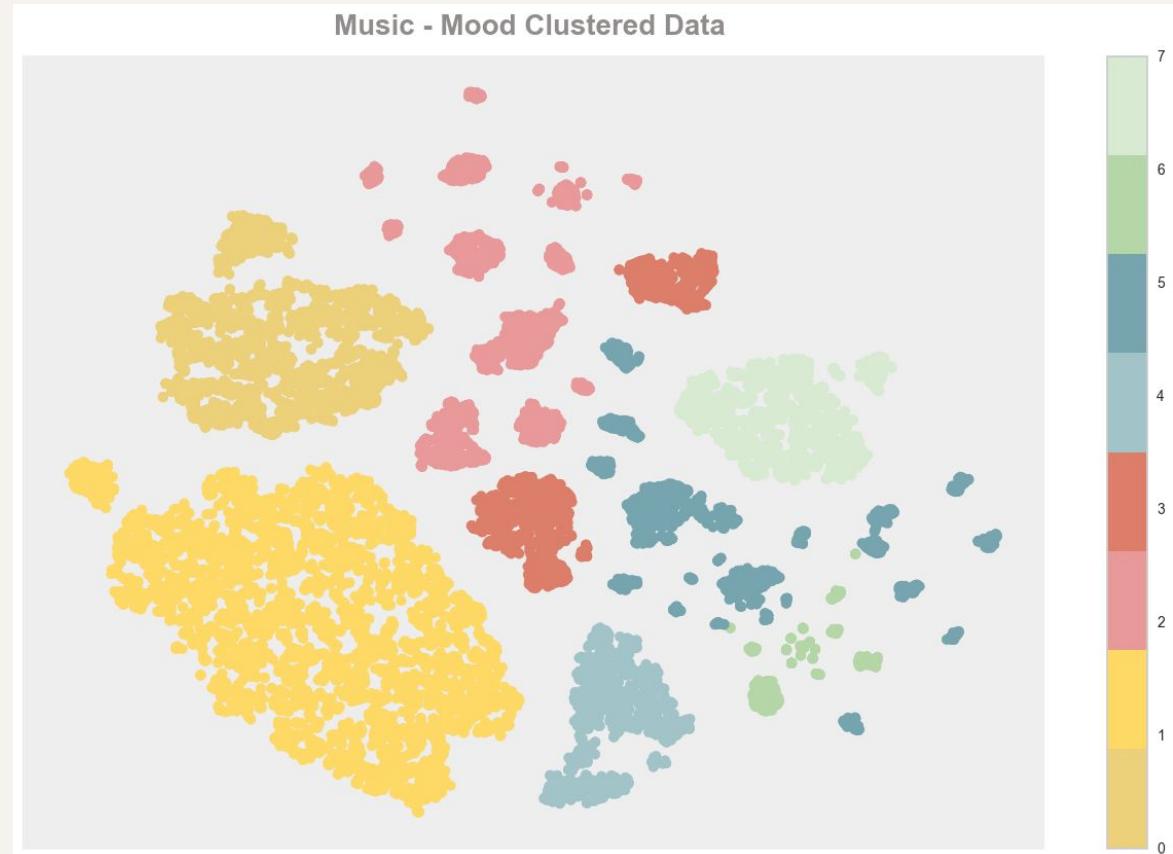
Eight (8) basic mood categories with umbrella affect terms words defined in the quadrants of the 2-D space



# 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



Your Mood.  
Your Music.

<https://moosic.winderling.net>

21.08.2023  
Capstone Project  
neufische Data Practitioner



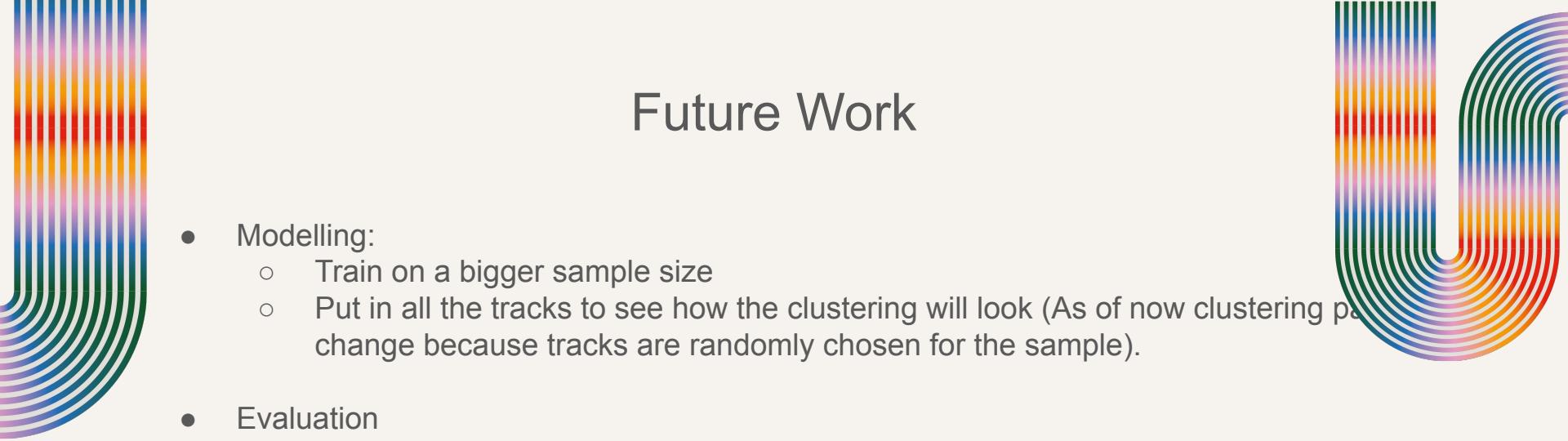
# The End

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

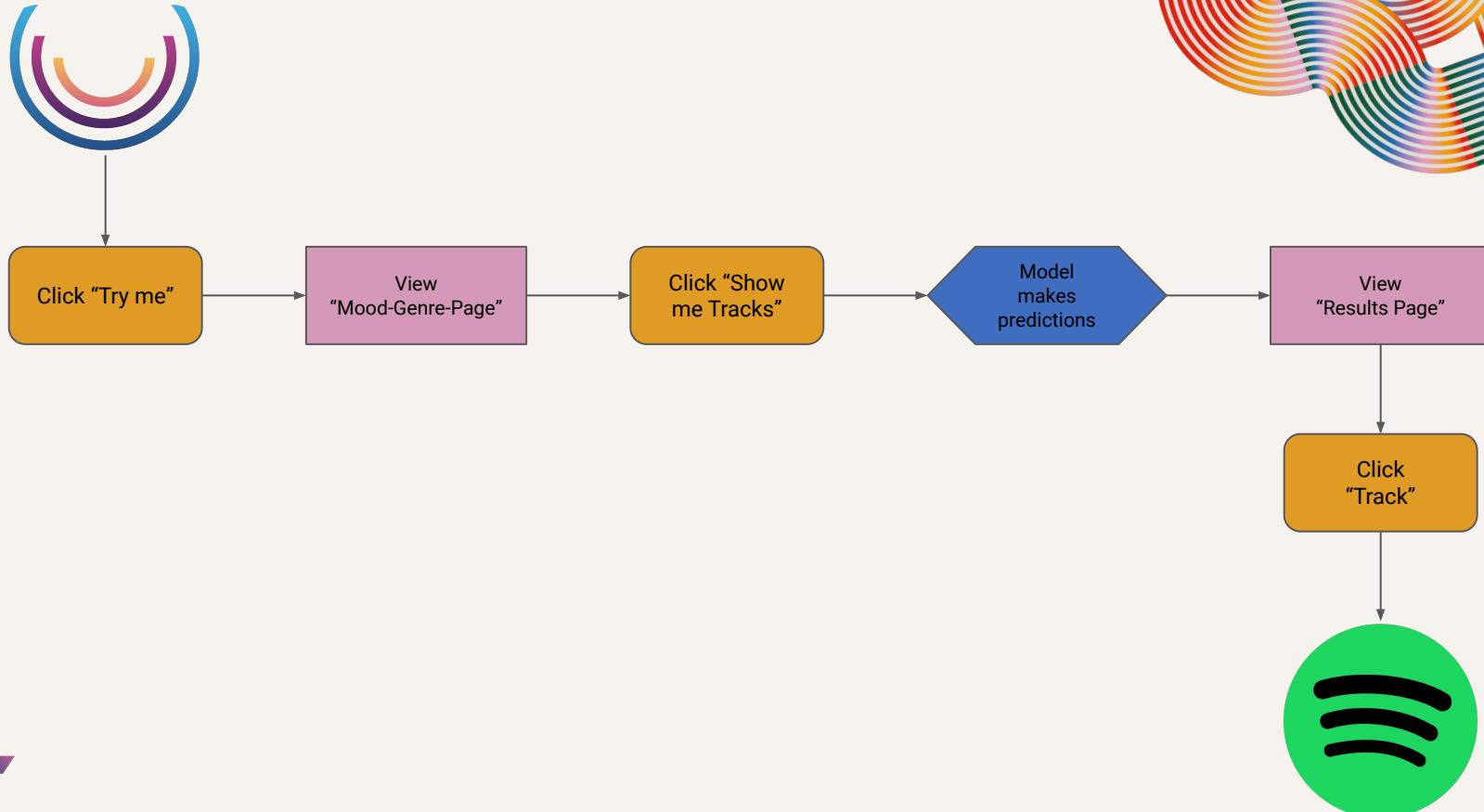
### Alternative approaches

Alternatively, music can be assessed on the three dimensions of "arousal", "valence", and "depth".<sup>[19]</sup> 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).<sup>[19]</sup> These help explain why many people like similar songs from different traditionally segregated genres.<sup>[1]</sup>

- Danceability
- Energy
- Valence

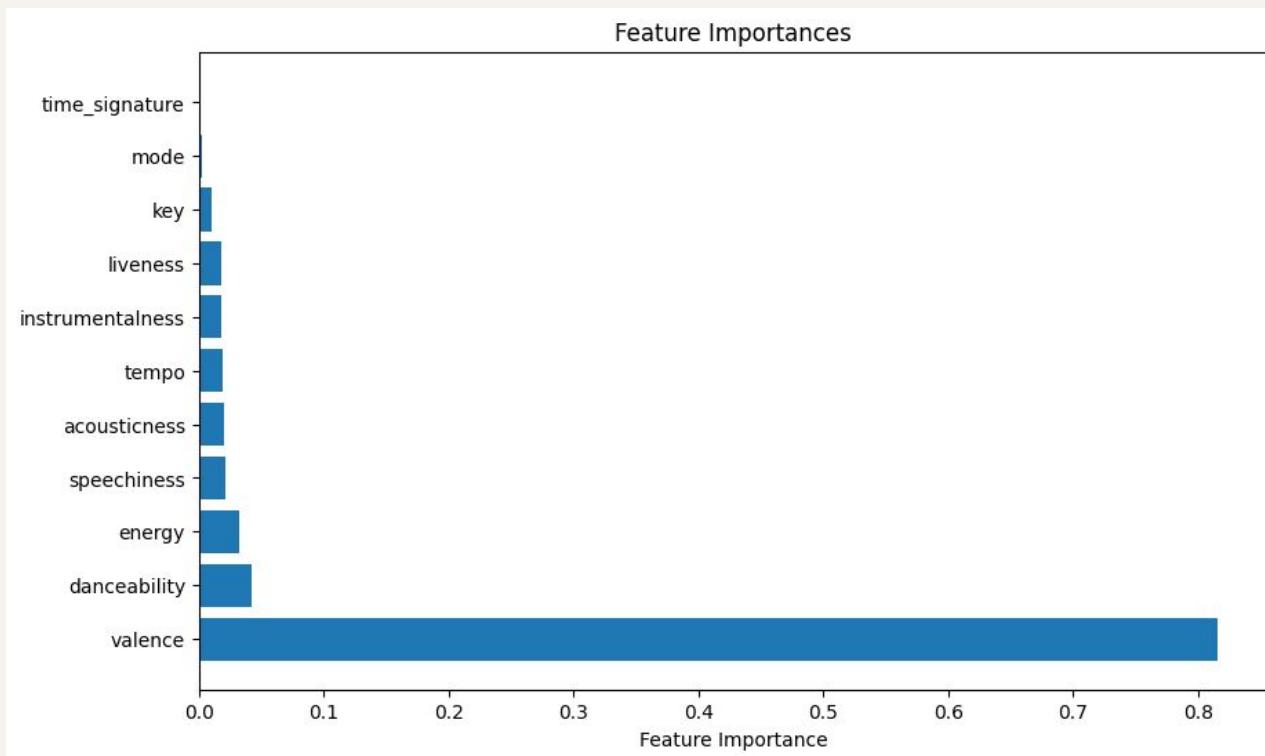
# Extra and Credits

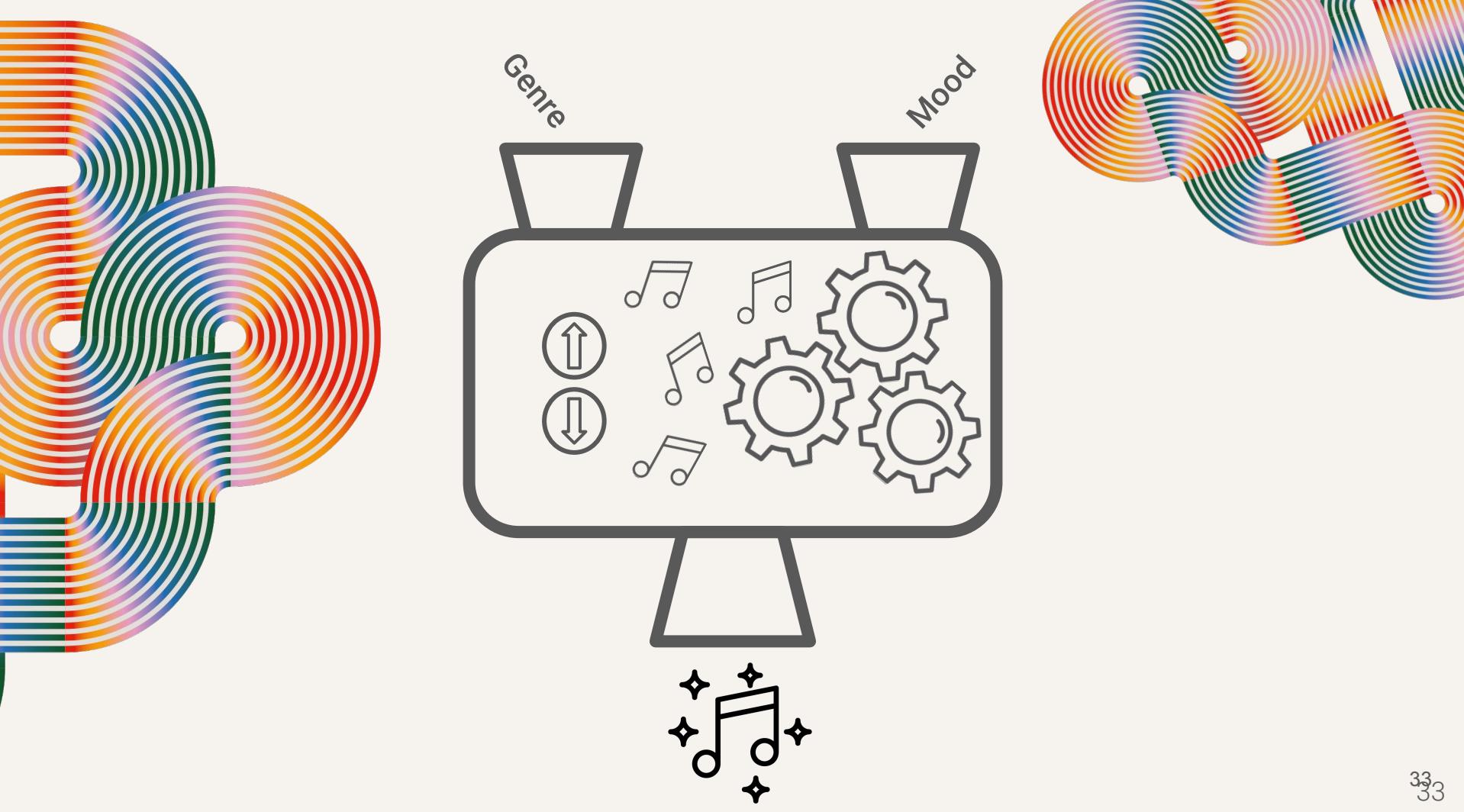
## Web App - Flowchart



## FAQ-Slide:

### Feature importance for generating Mood classes





# Credits

Icons:

Slides 5-7:

- <a href="https://www.flaticon.com/free-icons/listening" title="listening icons">Listening icons created by Freepik - Flaticon</a>
- <a href="https://www.flaticon.com/free-icons/hip-hop" title="hip hop icons">Hip hop icons created by Flat Icons - Flaticon</a>
- <a href="https://www.flaticon.com/free-icons/student" title="student icons">Student icons created by Iconjam - Flaticon</a>
- <a href="https://www.flaticon.com/free-icons/emotions" title="emotions icons">Emotions icons created by Freepik - Flaticon</a>
- <a href="https://www.flaticon.com/free-icons/mood" title="mood icons">Mood icons created by Flat Icons - Flaticon</a>
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- <a href="https://www.flaticon.com/free-icons/angry" title="angry icons">Angry icons created by Freepik - Flaticon</a>
- Credit: <https://www.titanui.com/117730-150-tech-design-stack-icons-figma/> (slide 10)
- <a href="https://www.flaticon.com/free-icons/machine-learning" title="machine-learning icons">Machine-learning icons created by Eucalyp - Flaticon</a>



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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](#)

