

CAPSTONE PROJECT - APRIL 2022

DISCO DUO

BY VI BUI

PROTOTYPING:



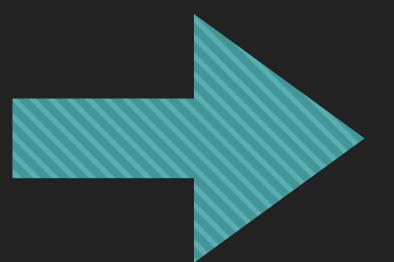
CONNECT PEOPLE THROUGH MUSIC IN A NEW WAY

- ▶ The Idea: **create a platform where listeners of the same or similar songs are connected and able to discover new songs through their “connector song”**
by requesting another song based on a musical metric such as: danceability, energy, speechiness, acousticness, instrumentalness, liveness, and valence
- ▶ Business Value: **connect people through music in a new way // connect people in a new way through music**

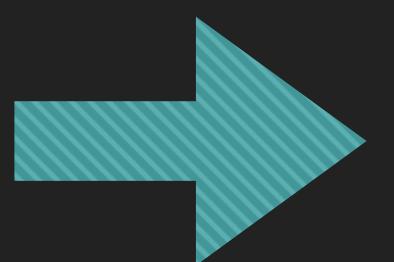


LIKE A LOT OF DATA, MUSIC DATA IS DIRTY . . . WE CLEANED IT

CLEAN



PREPARE

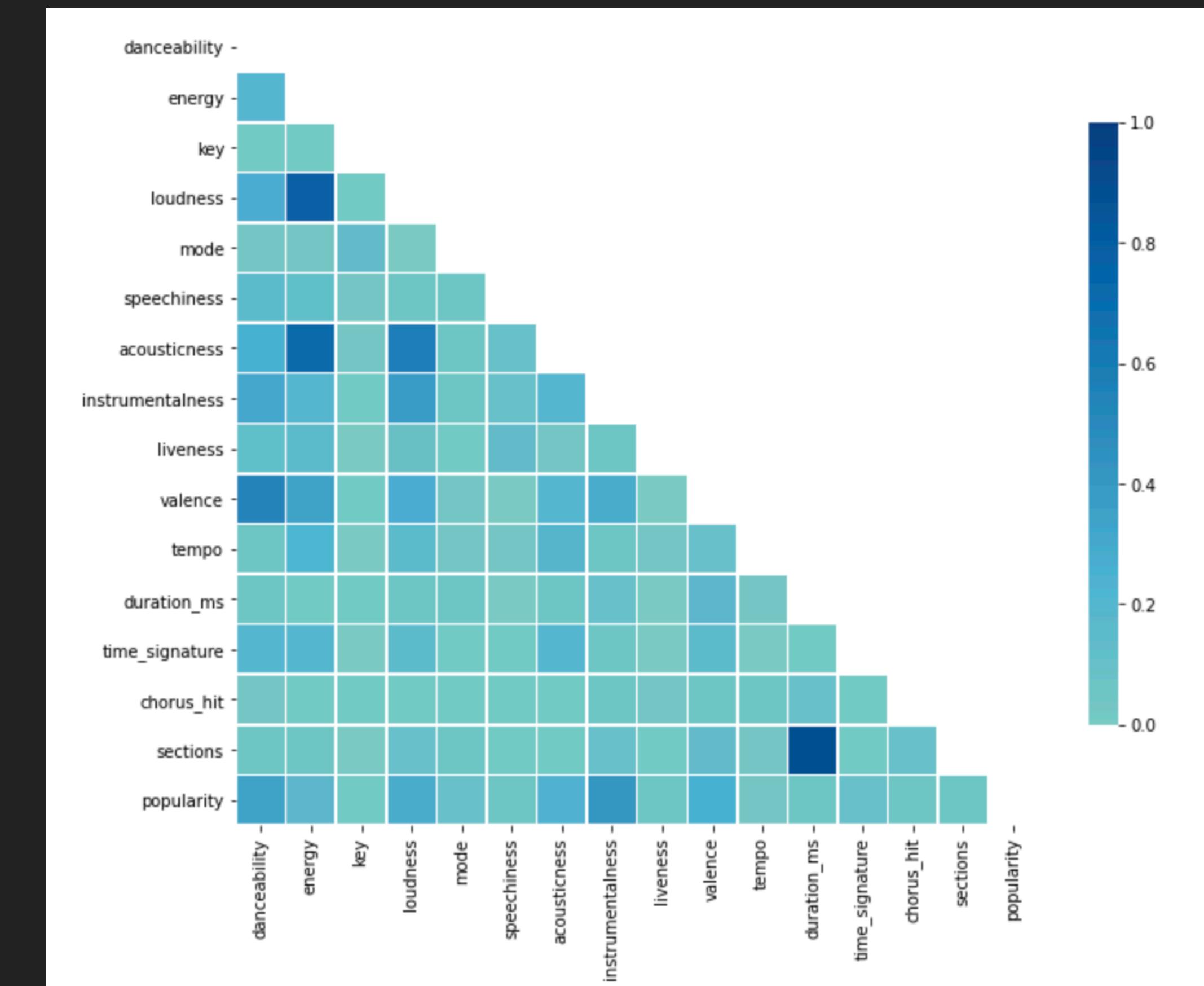


MODEL

- Original dataset:
58,472 entries
 - After removing duplicates:
47,816
 - Random Sample:
1000
 - Usable sample:
652
- Aligned .mp3
and .png data in
dataset before
Train Test Split
- Converted music
files into
Spectrogram
images (.png
files)
- Neural Networks / Sequential
Models (Keras)
 1. Layers, Epochs
 2. Stochastic Batching
 3. Add Layers to Model 1

MUSIC METRICS - CORRELATION MATRIX

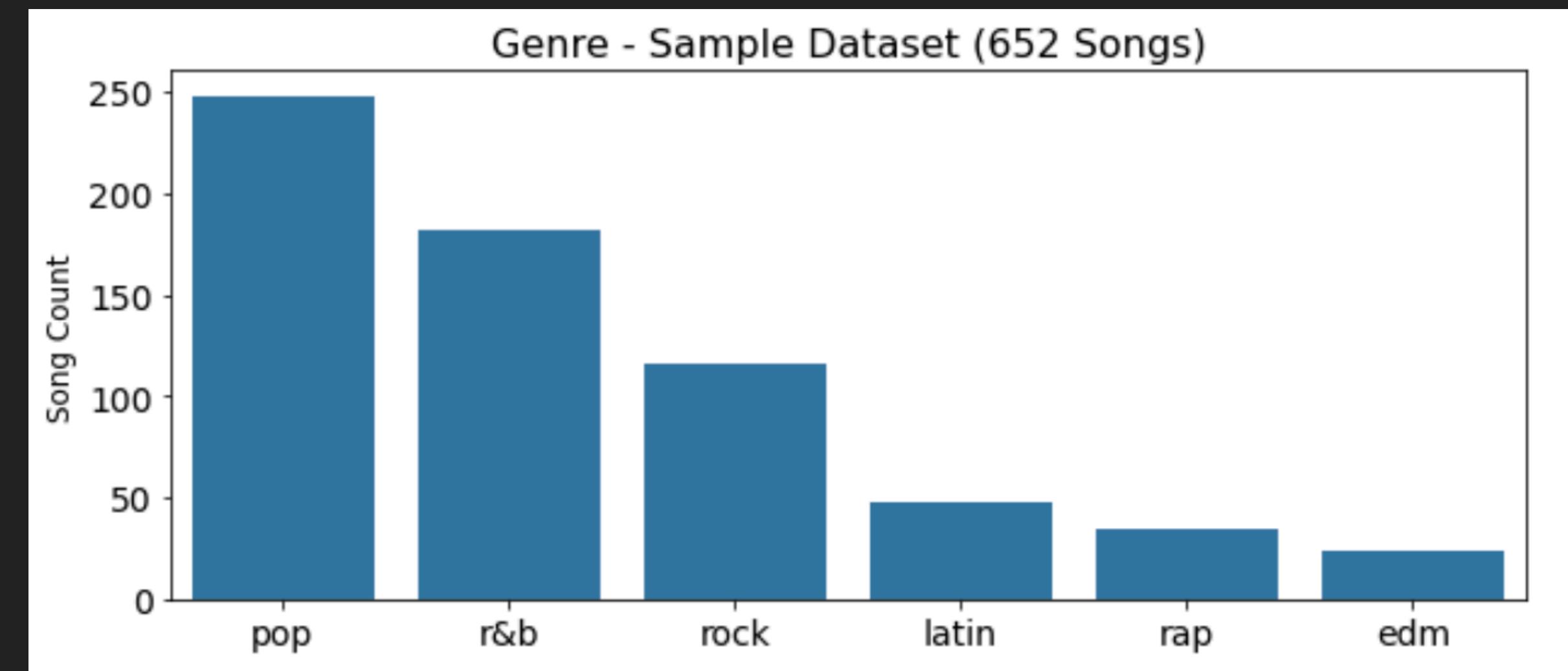
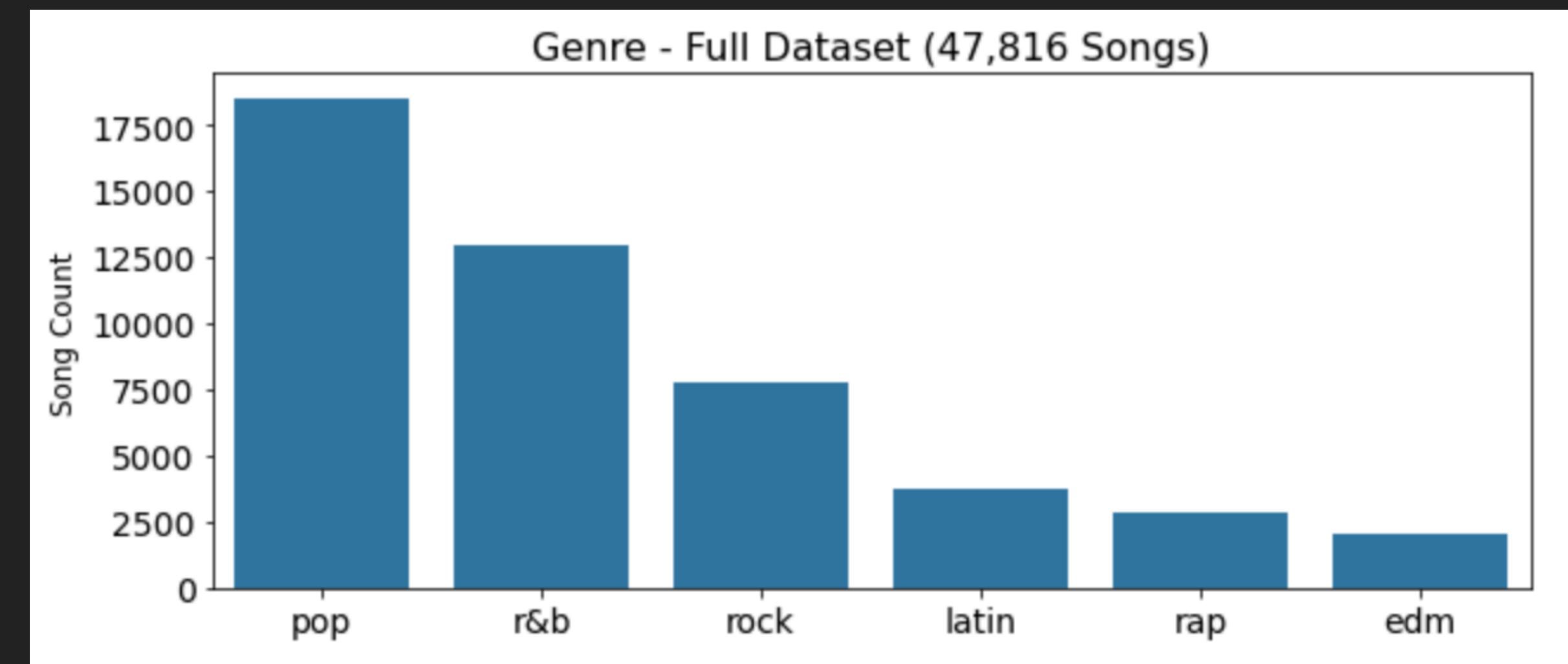
- ▶ Danceability = most strongly correlated with valence (happiness), popularity, loudness, and energy
- ▶ Energy - to be modeled in future = strongly correlated with loudness and acousticness (likely negative correlation)



ABOUT THE DATA

GENRE DATA

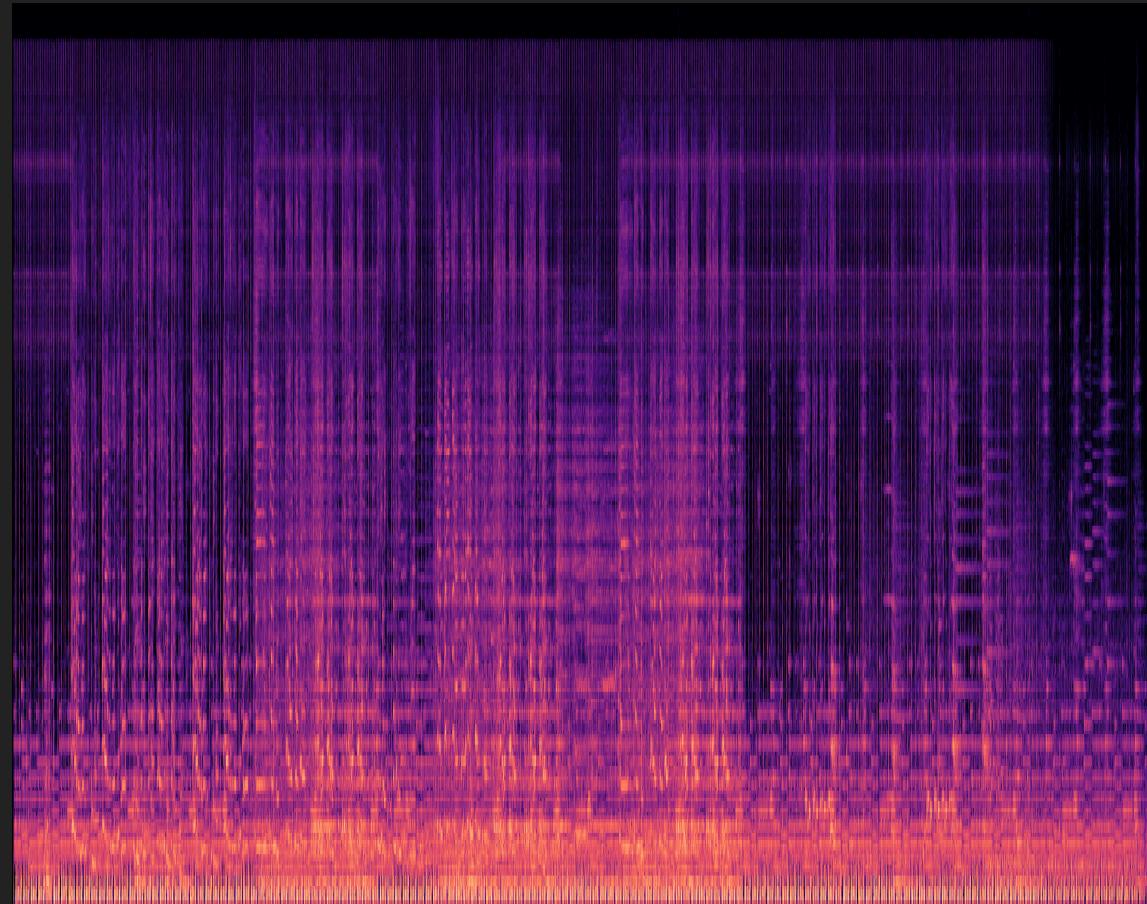
- ▶ Sample dataset has similar genre distribution as full dataset



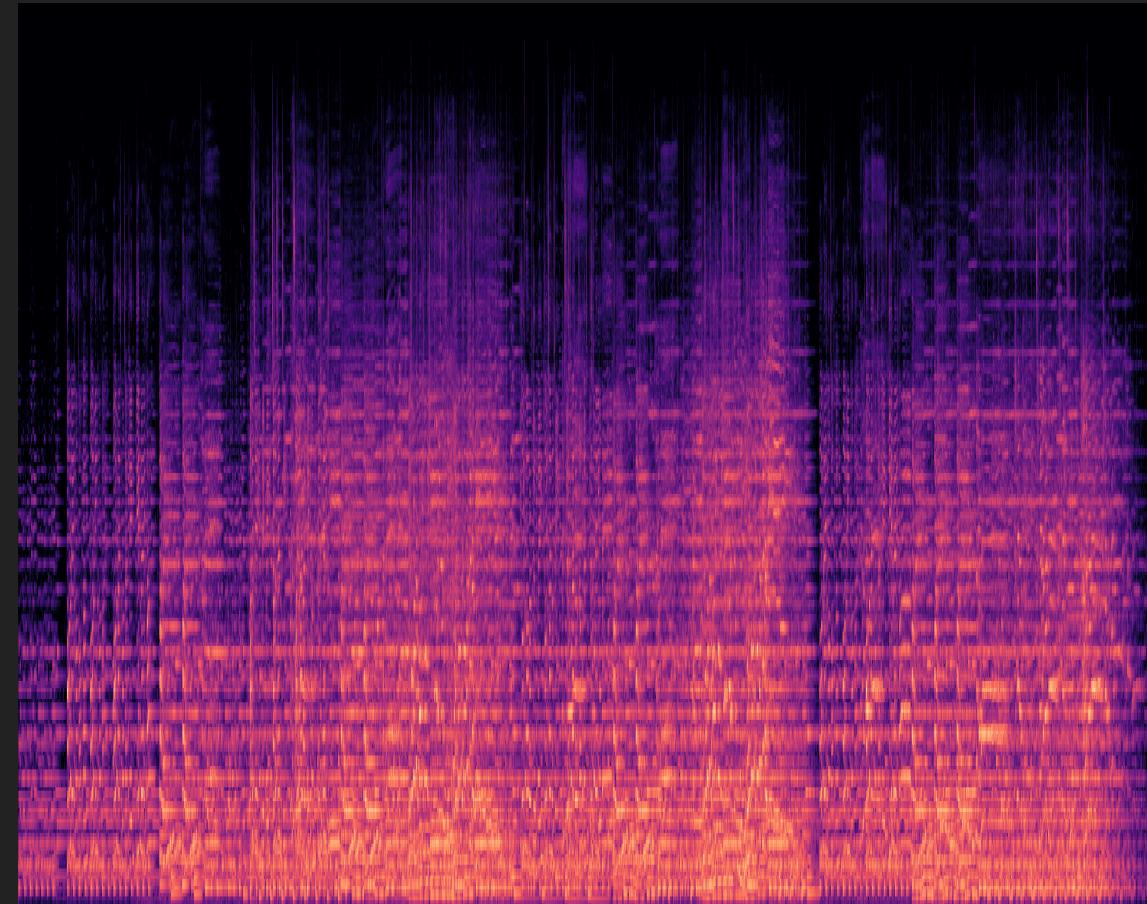
FOR YOUR VISUAUDIO LISTENEARING PLEASURE

SEEING THE SOUND VIA SPECTROGRAMS

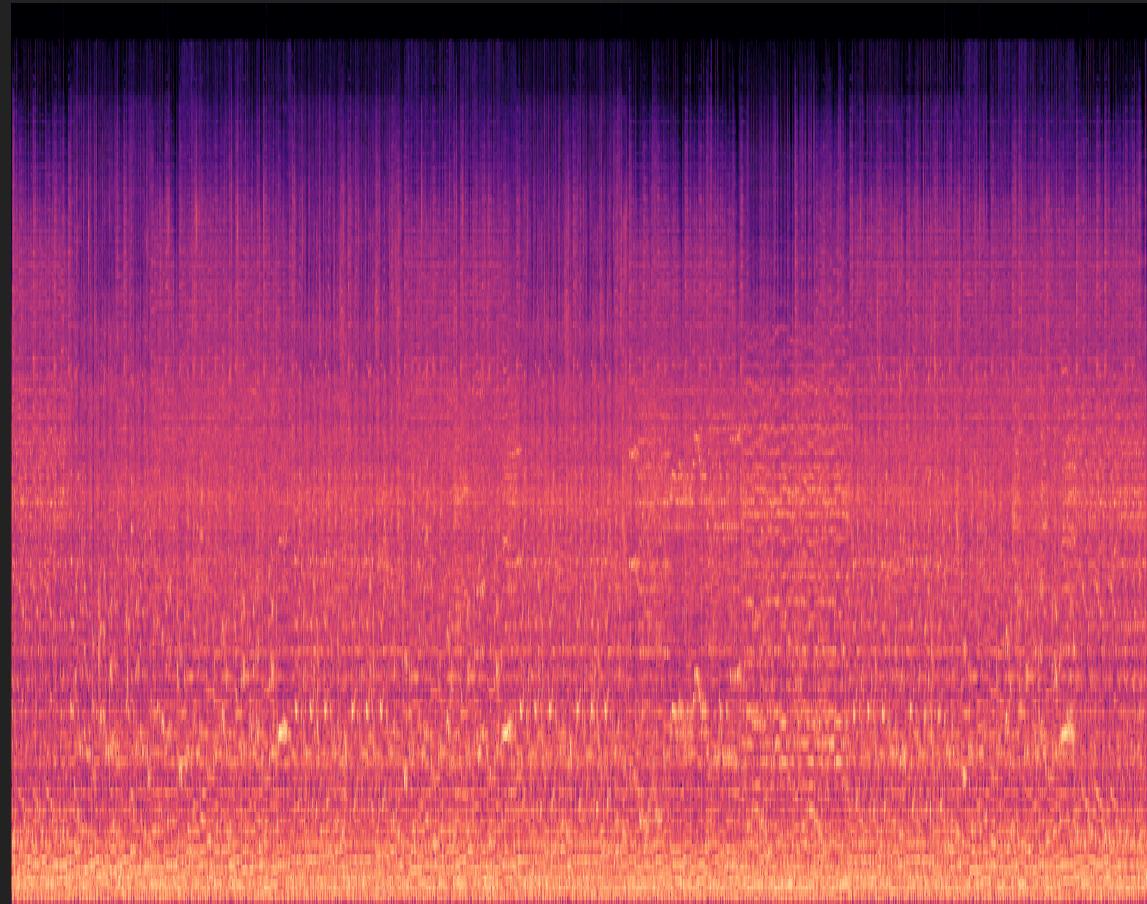
Sade - No Ordinary Love



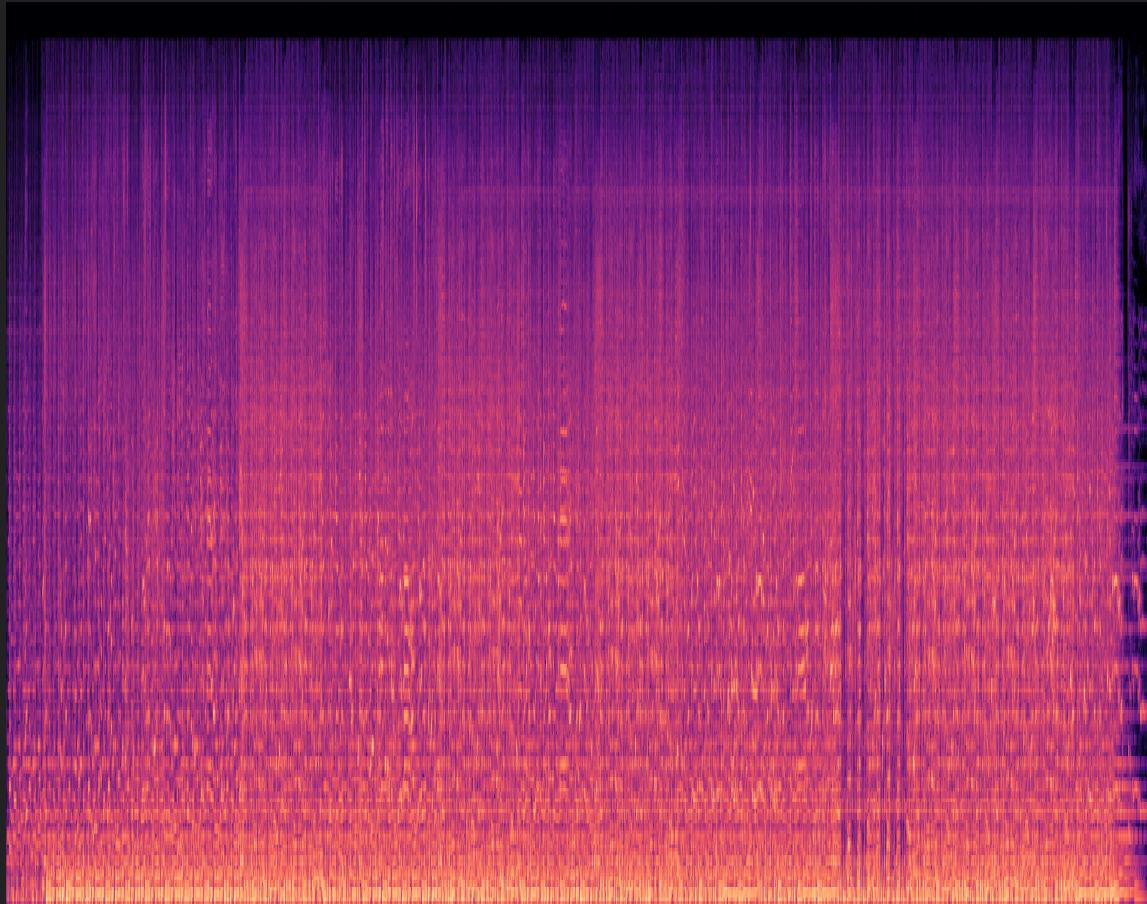
John Denver - Fly Away



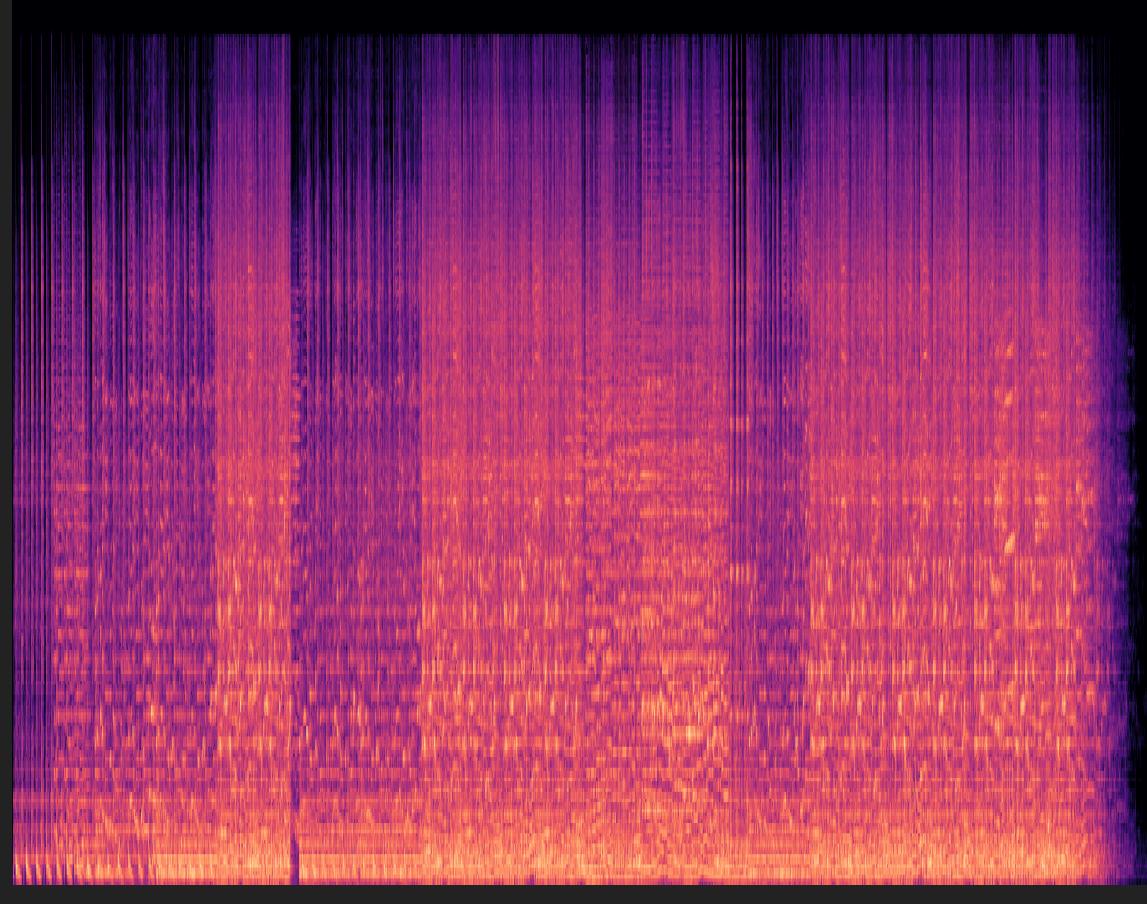
Iron Maiden - Rainmaker



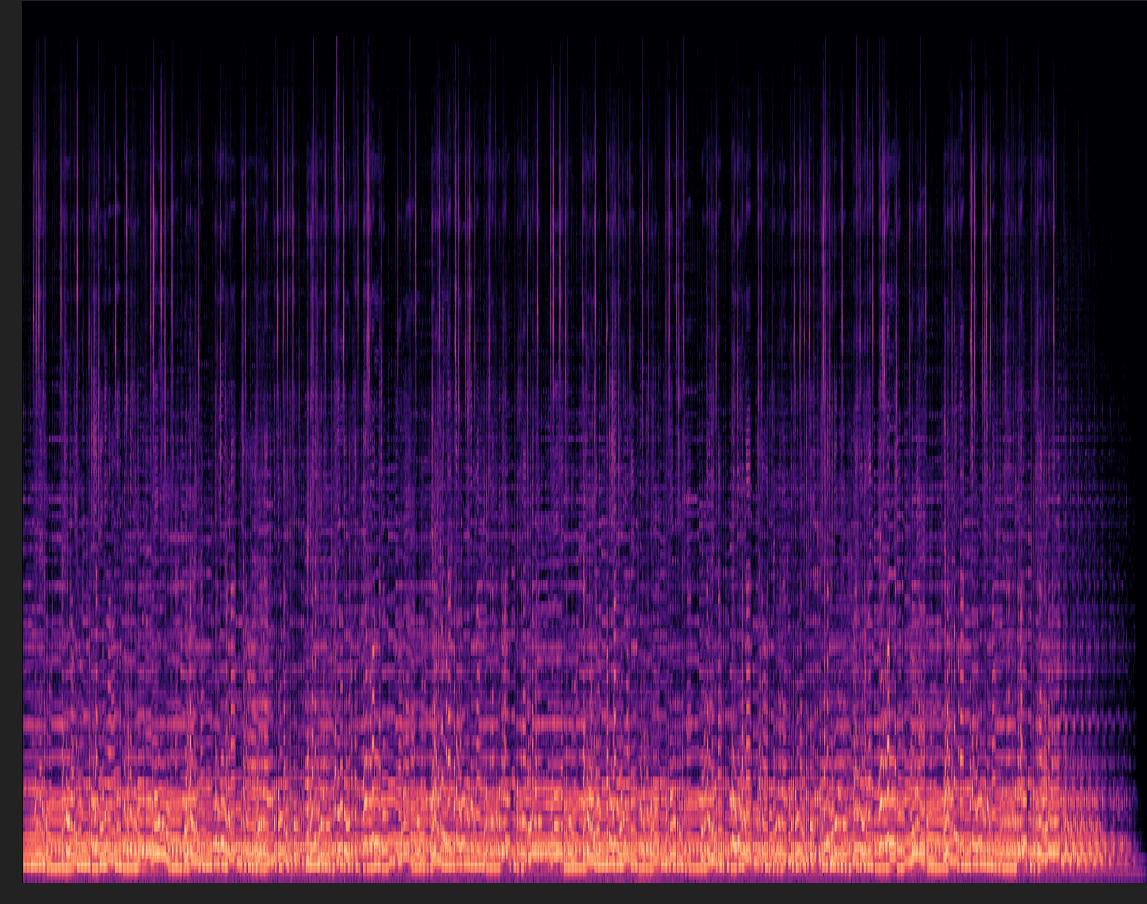
Hanson - MMMBop



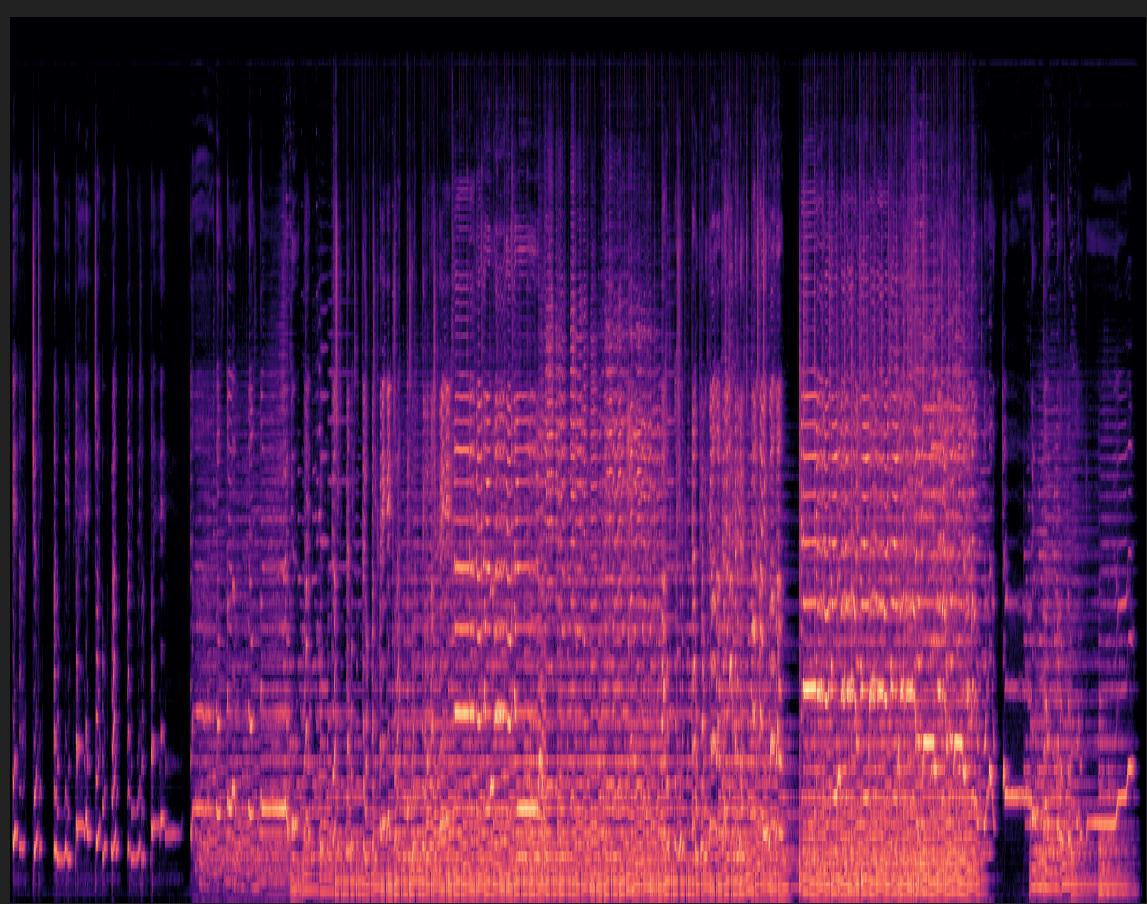
Kansas - Power



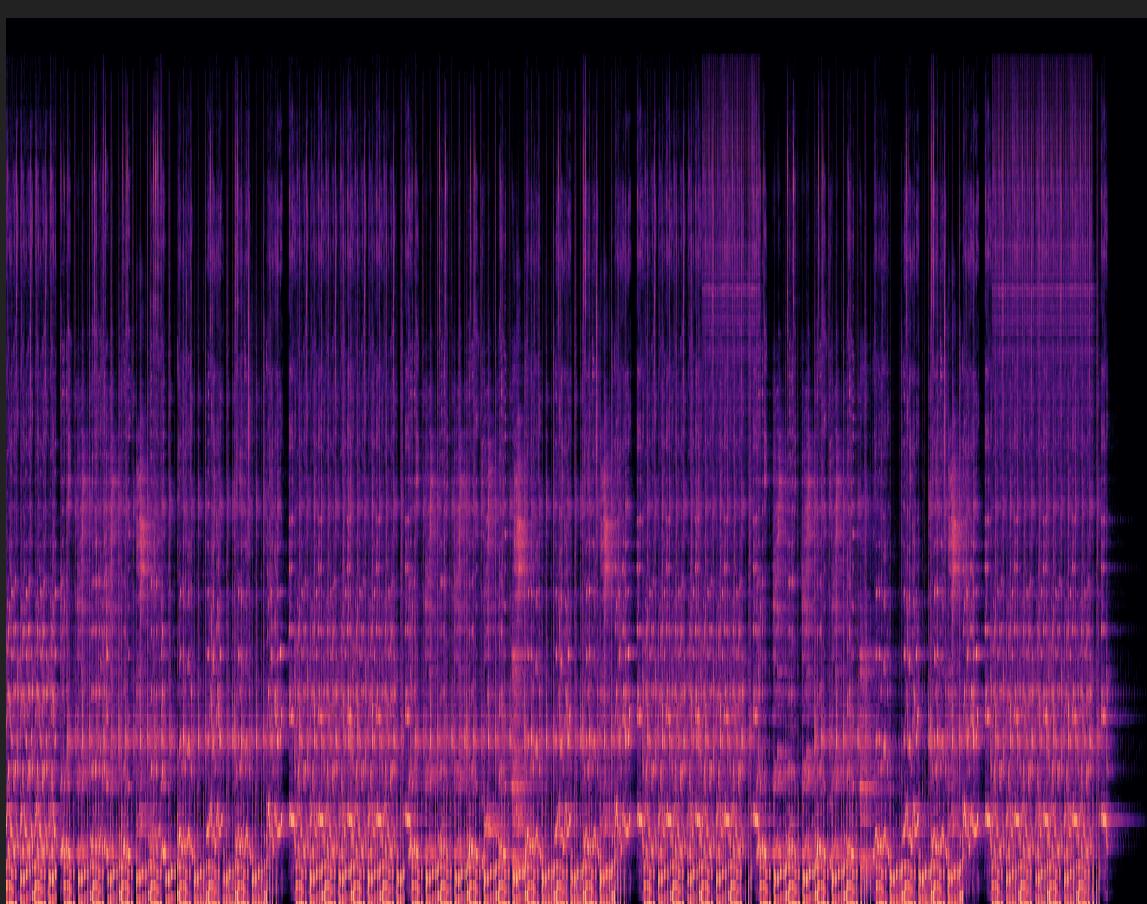
João Gilberto - Desafinado



Whitney Houston - I Will Always Love You

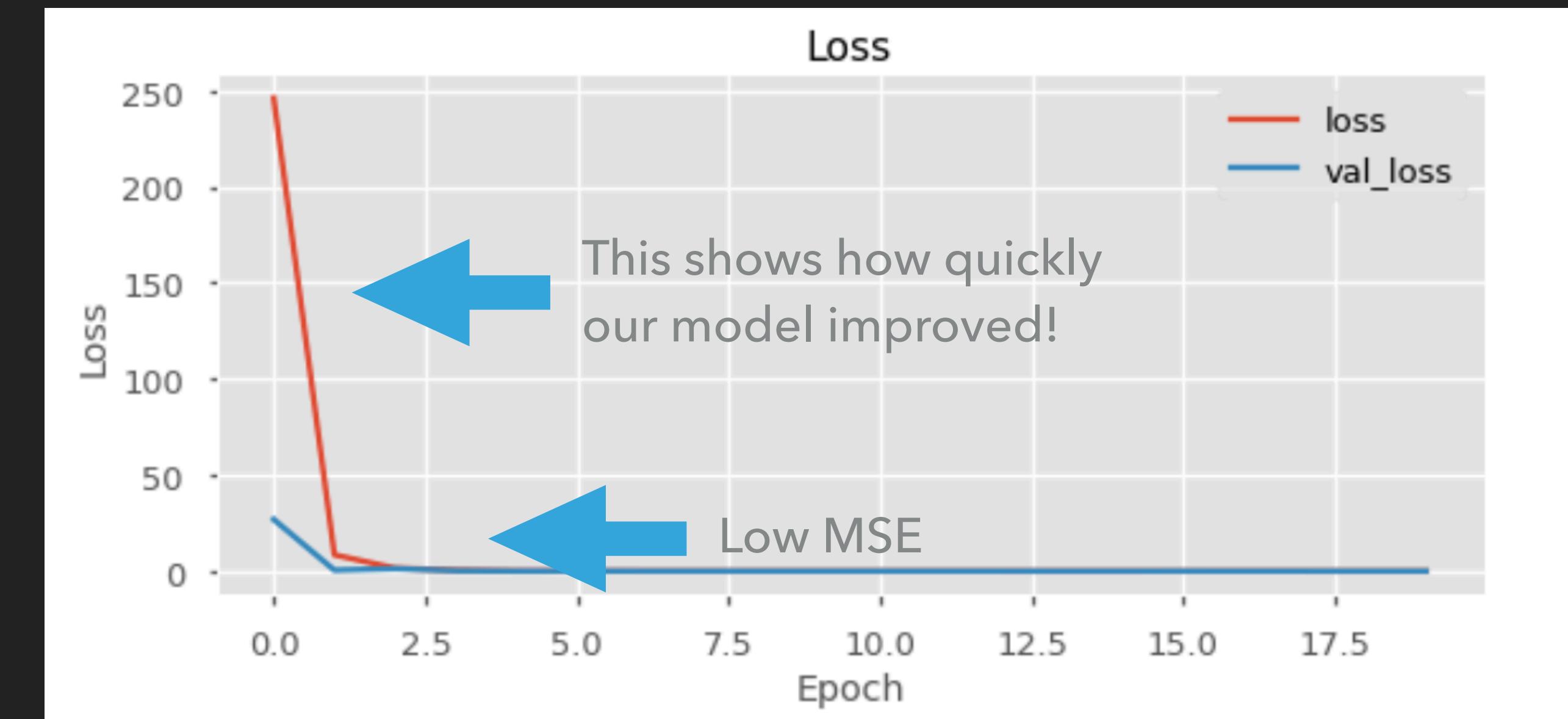


Kiiara - Gold



ALL MODELS PERFORMED WELL, BUT THE BEST WAS EXCEPTIONAL

- ▶ Our final model's MSE (Mean Squared Error) shows it will be a strong predictor of "danceability" of songs
 - ▶ The loss function (Mean Squared Error) is used to indicate how far our predictions deviate from the target values
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- ▶ loss (MSE): 0.0191
 - ▶ val_loss: 0.0183 (validation MSE)



BUILD MODELS FOR REMAINING METRICS AND APPLY TO DISCO DUO

- ▶ Train and test models for remaining metrics to add dimensionality to our final output/application:
 1. Energy
 2. Speechiness
 3. Acousticness
 4. Instrumentalness
 5. Liveness
 6. Valence

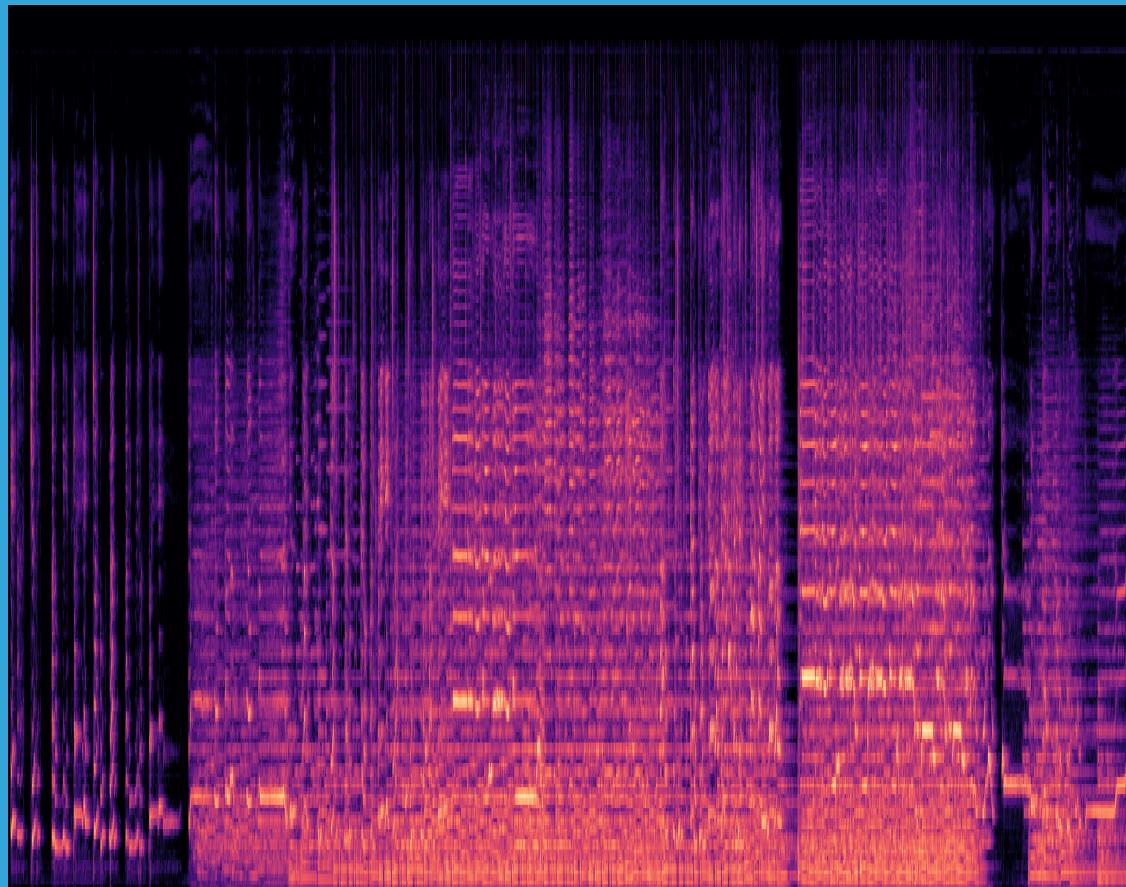
EXPAND ON WAYS TO USE DISCO DUO

- ▶ Reframe “dating” with “Disco Dates”
 - Example: “How did you meet?” “On a ‘disco date’” - does not need to be romantic, but will be fun
- ▶ Silent Disco Games
 - Silent Disco concept where pairs guess what their partners are listening to or predict what the next song will be based on a few metric levers

GRATITUDE

THANK YOU.
WE LOVE YOU, ALWAYS
LIKE WHITNEY.

Whitney Houston - I Will Always Love You



Disco Duo Team