Music Sentiment Analysis

By

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Inspiration

- Problem Faced
  - Most of the music apps give recommendations of songs based on artist, songs played, etc
  - It doesn't take into consideration the mood or sentiment of the songs being played by the user
  - This might result in the user manually searching for songs based on his mood

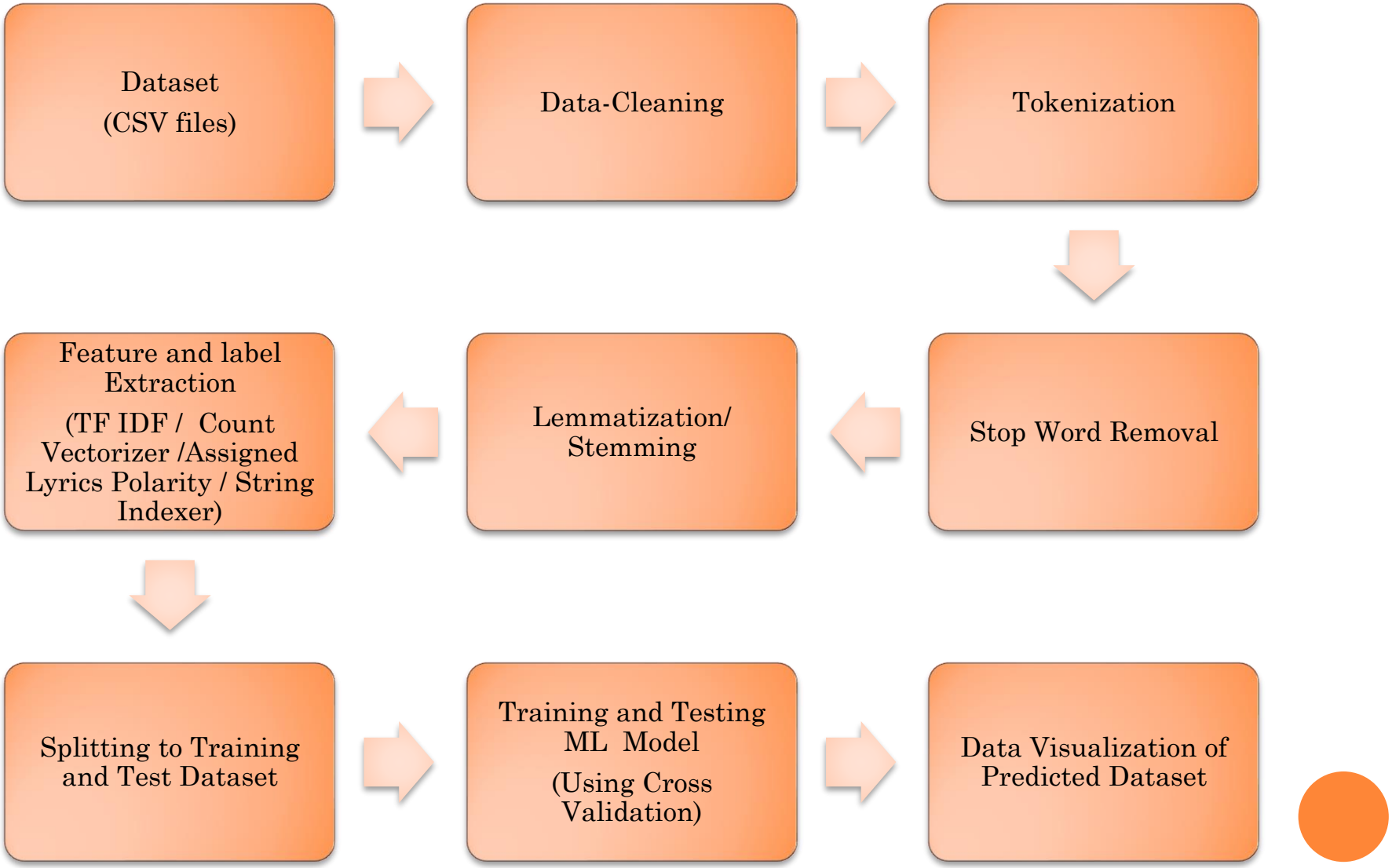
Solution

- Create a mood or sentiment based music recommender system
- Based on the mood of the previously played songs, recommend the user songs of similar sentiment or mood

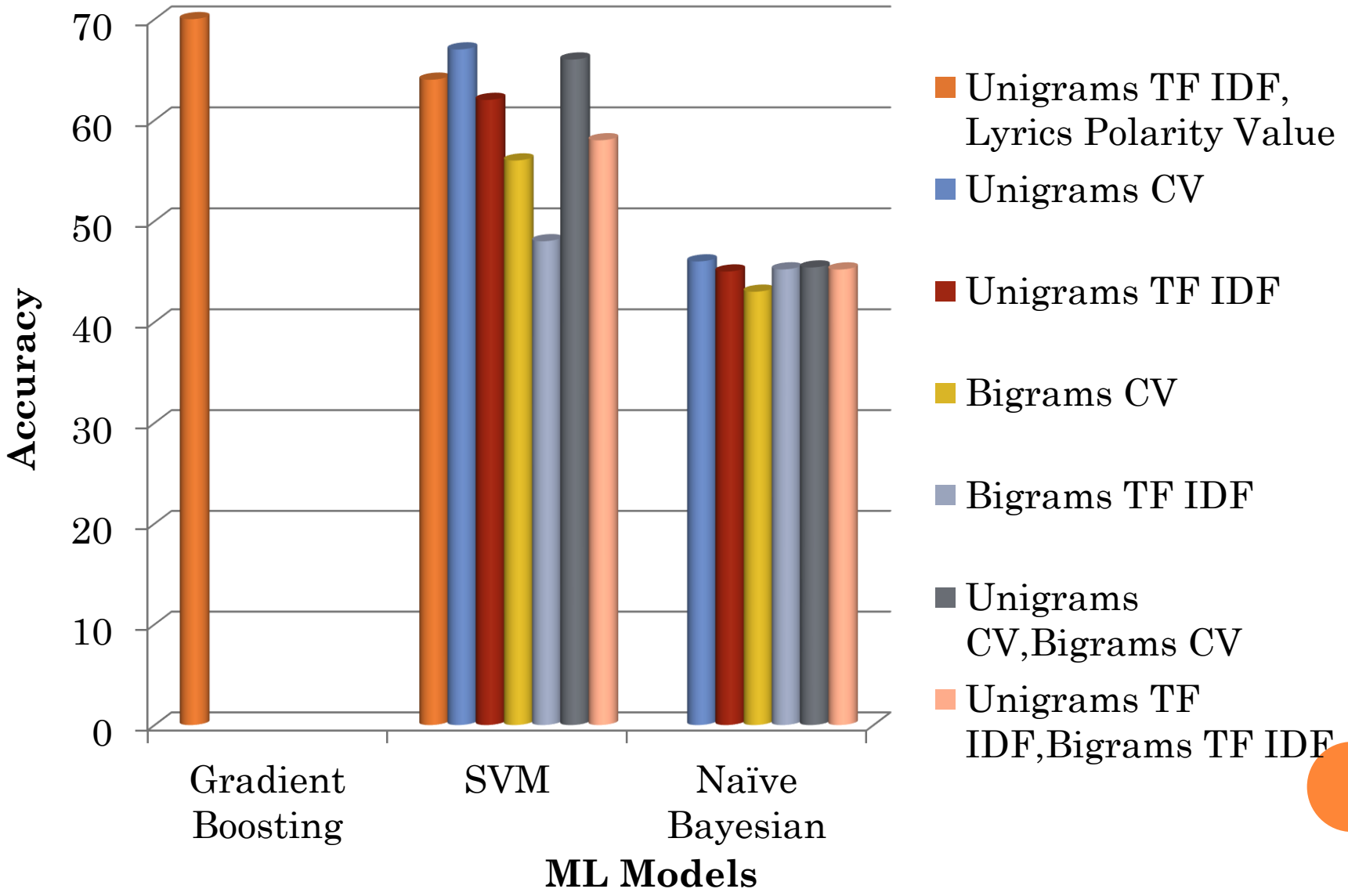
Data Set

- Labelled music dataset with lyrics
  - https://github.com/rasbt/musicmood/tree/master/dataset/training
- SenticNet 4
  - http://sentic.net/senticnet-4.0.zip
- Libraries used:
  - nltk.stem.porter (Stemming)
  - nltk.stem.wordnet (Lemmatization)
  - nltk.sentiment.vader (Lyrics Polarity Assignment)
- Technologies Used:
  - Pyspark , R , Python

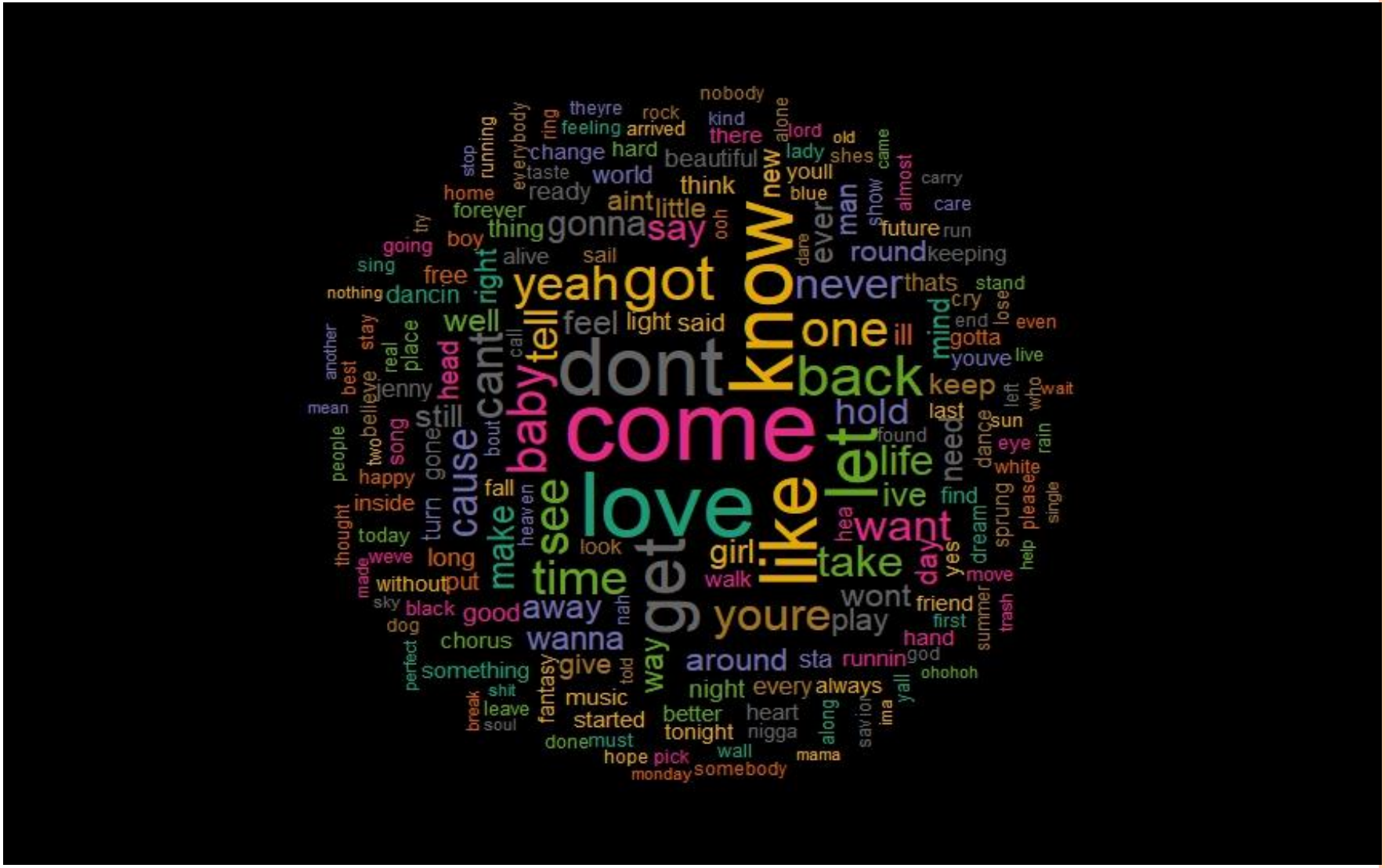
ARCHITECTURE



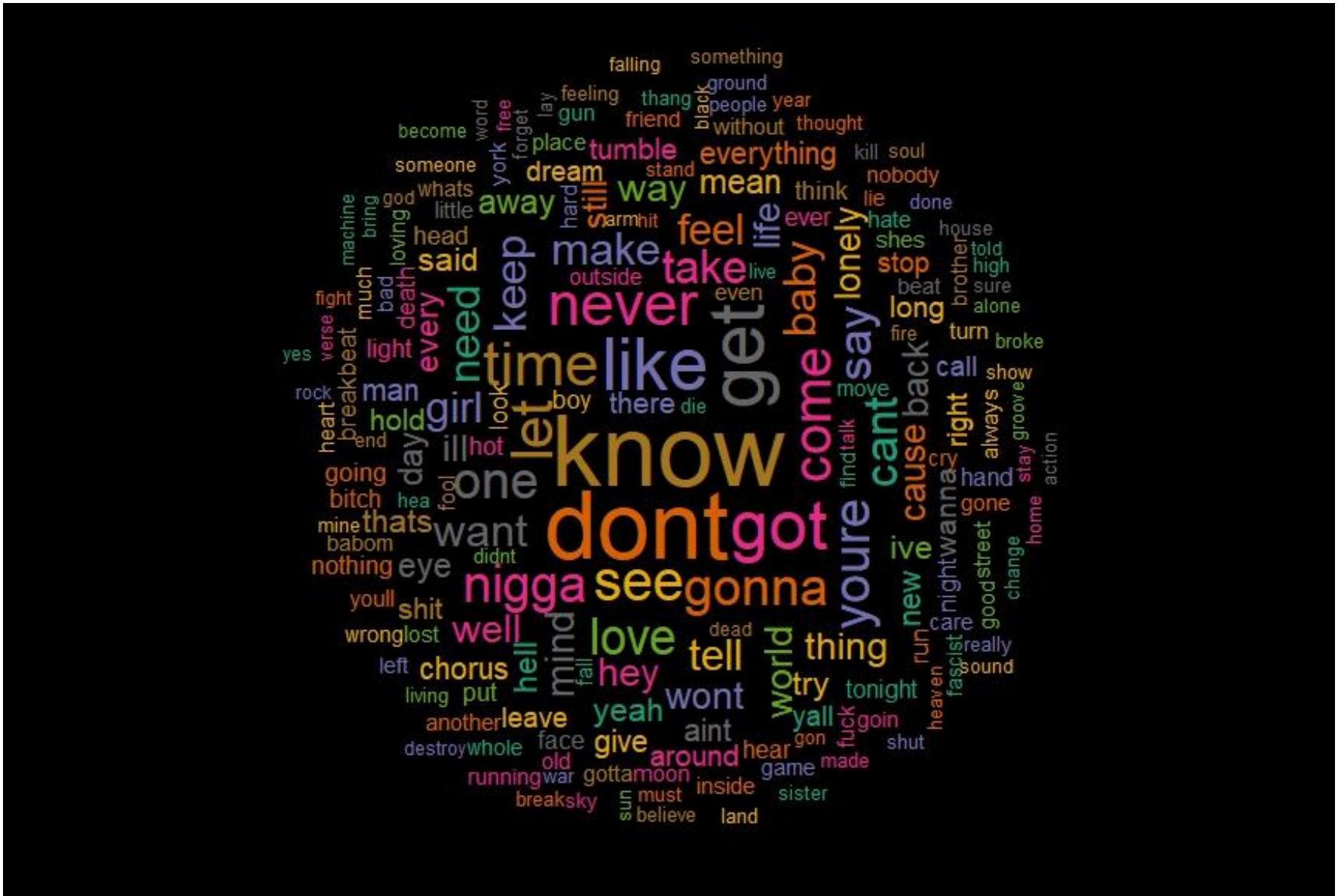
Comparing ML Models



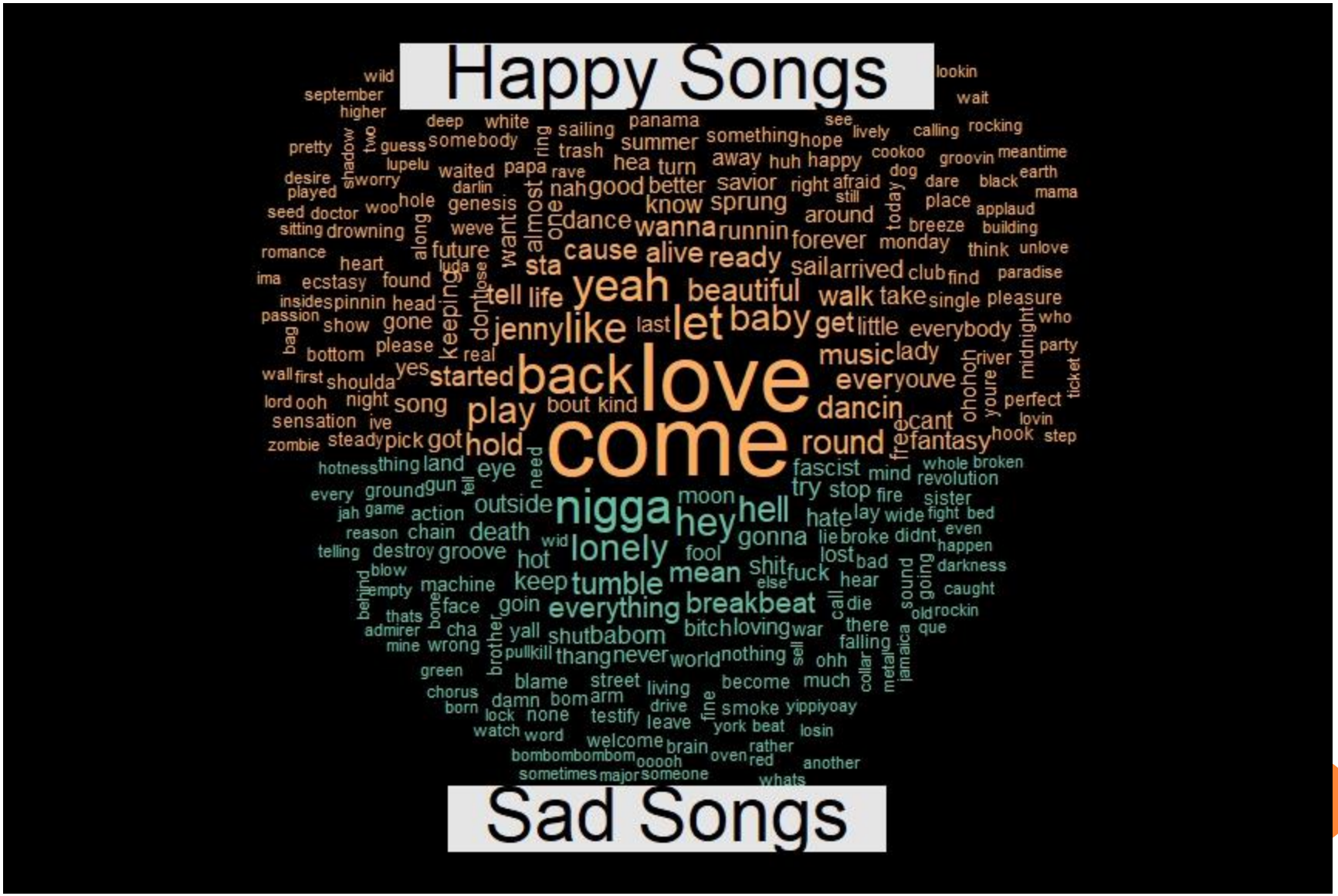
Word Cloud of Happy Words



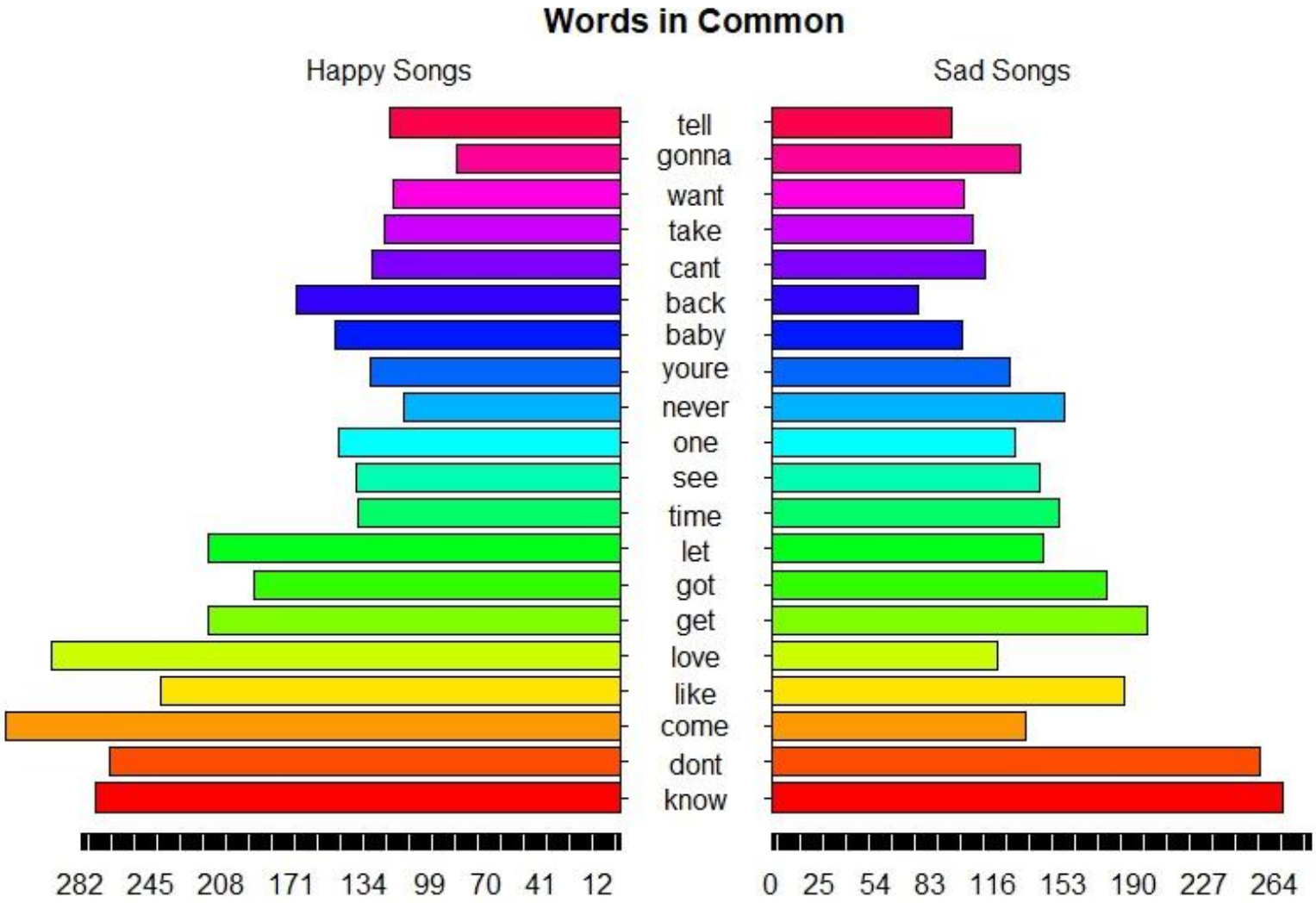
Word Cloud of Sad WORDS



Comparison CLOUD



Pyramid Plot



Challenges faced

- One of the major challenge was finding an already labelled dataset of songs by sentiment
- We managed to find a training dataset, but it was limited to 1000 songs
- PySpark ML models did not directly support PMML format for saving. So, it was difficult to integrate it in a music application

Future Work (Scope of the project)

- Merge the ML model with an existing music application to provide better recommendation of songs to users.
- To provide different tabs for recommendation of songs like by mood, genre, artist, etc
- To add more types of sentiments/ labels like romantic, motivational etc.

References

- E. Cambria, S. Poria, R. Bajpai, and B. Schuller. SenticNet 4: *A semantic resource for sentiment analysis based on conceptual primitives. In: COLING*, pp. 2666-2677 (2016)
- Sebastian Raschka : MusicMood. https://github.com/rasbt/musicmood


danke
謝謝
ngiyabonga
teşekkür ederim
спасибо
dank je
thank you
gracias
tapadh leat
mauruuru
hvala
bedankt
dziękuję
mochchakkeram
go raibh maith agat
obrigado
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