OVERVIEW

Project iMuse provides the unique ability to view the most used words in popular music over the past 50+ years in conjunction with how they were used in songs through sentiment analysis.

Project iMuse further provides the ability to look at subsets of popular words by allowing a user to change the range of years considered or to look at only a subset of word types which includes: names, foods, colors, and swear words.

Research Questions

- What types of words are commonly used in popular songs with positive versus negative sentiment and how do they change over time?
- How does the language used in popular songs differ between different time periods or musical eras?
- Is there a correlation between the use of certain words in popular songs and their commercial success?

Dataset

- We used Python, Genius, and Spotify's API to gather lyrics and publication dates for popular songs from the Billboard Hot 100 between 1958 and 2021.
- We collected lyrics for 23,195 out of the 29,680 unique songs in the dataset.
- The resulting dataset had two columns: publication year and lyrics, and was further processed for visualization.

Methods

- Lyrics Cleaning:
  - Remove Punctuations
  - Expand Contractions
  - Remove Stopwords (NLTK)
  - Lemmatize Words (NLTK)
- Sentiment Analysis were performed using VADER tool, assigning a compound sentiment score ranging from -1 to 1.
- A weighted average sentiment score was calculated for every word each year.

Example Finding

- Various assumptions can be concluded depending on one's usage of the webpage. Potential findings can be:
  - There is a discernible negative trend in the lyrical content of songs over the years.
  - A comparative analysis reveals that the sentiment polarity of language in older music exhibits greater contrast in comparison to that of more recent music.
  - The color "Blue" is the most popular color in lyrics throughout years.

Reflection & Conclusion

- Potential improvements includes:
  - Remove more general words and only leave ones with contextual meaning
  - Add ability to search individual words
  - Facilitate a smoother transition in the visualization of the variation in bubble size when scrolling through timeline.
- Overall, iMuse allows users to customize their experience by exploring subsets of popular words based on various criteria, and has the potential to offer insights into the evolution of language and cultural trends in popular music.