Music for Creators

Take control of your music recommenders

Pedro Meyer

Pedro Meyer

- 17 years in music
- Multi-instrumentalist
- Songwriter
- Producer

pandora

last.fm

 music

Have you ever heard of...

Spotify

amazonmusic

They all recommend music based on…

- User Ratings
- Similar Artists
- Similar Styles
- Similar Genres
- etc….

But what if we had more control over our recommenders!?

End Goal

The goal is to create a recommender where the user can input lyrics and acoustic data to get more customized song recommendations.

Gives users value in the form of:

- Inspiration
- Insight on their creative process
- Comparison with other artists

Workflow

Raw Database

- 28372 songs

- Features include:
  - Acoustic Features
  - Lyrics

Natural Language Processing

- Sort lyrics into topics using Natural Language Processing (NLP)

- Use topics as features for recommendations

Recommender

- Compare final feature dataset with user input

- Give recommendations

Features

The Data - Acoustic Features

Acousticness   Danceability

Loudness   Valence

Sadness   Speechiness

Tempo   Energy

Instrumentalness   Mode

The Data - Acoustic Features

Acousticness Danceability

Loudness Valence

Sadness Speechiness

Tempo Energy

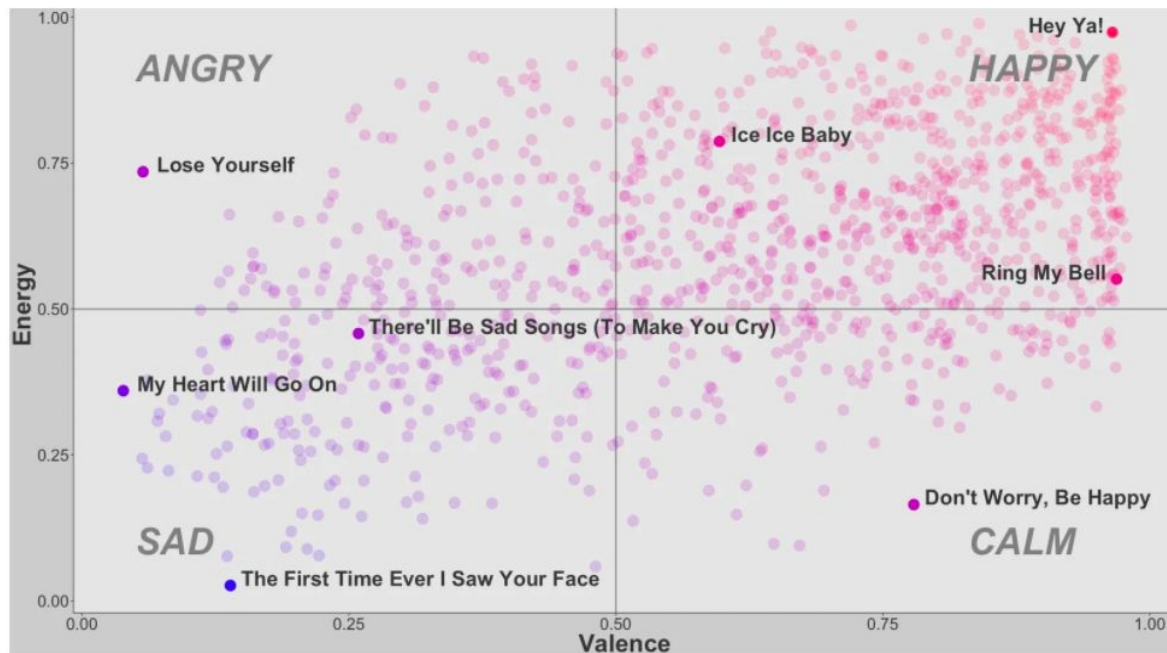Instrumentalness Mode

Sadness Feature

Valence:

Describes the musical positiveness conveyed by a track.

Energy:

Represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy.
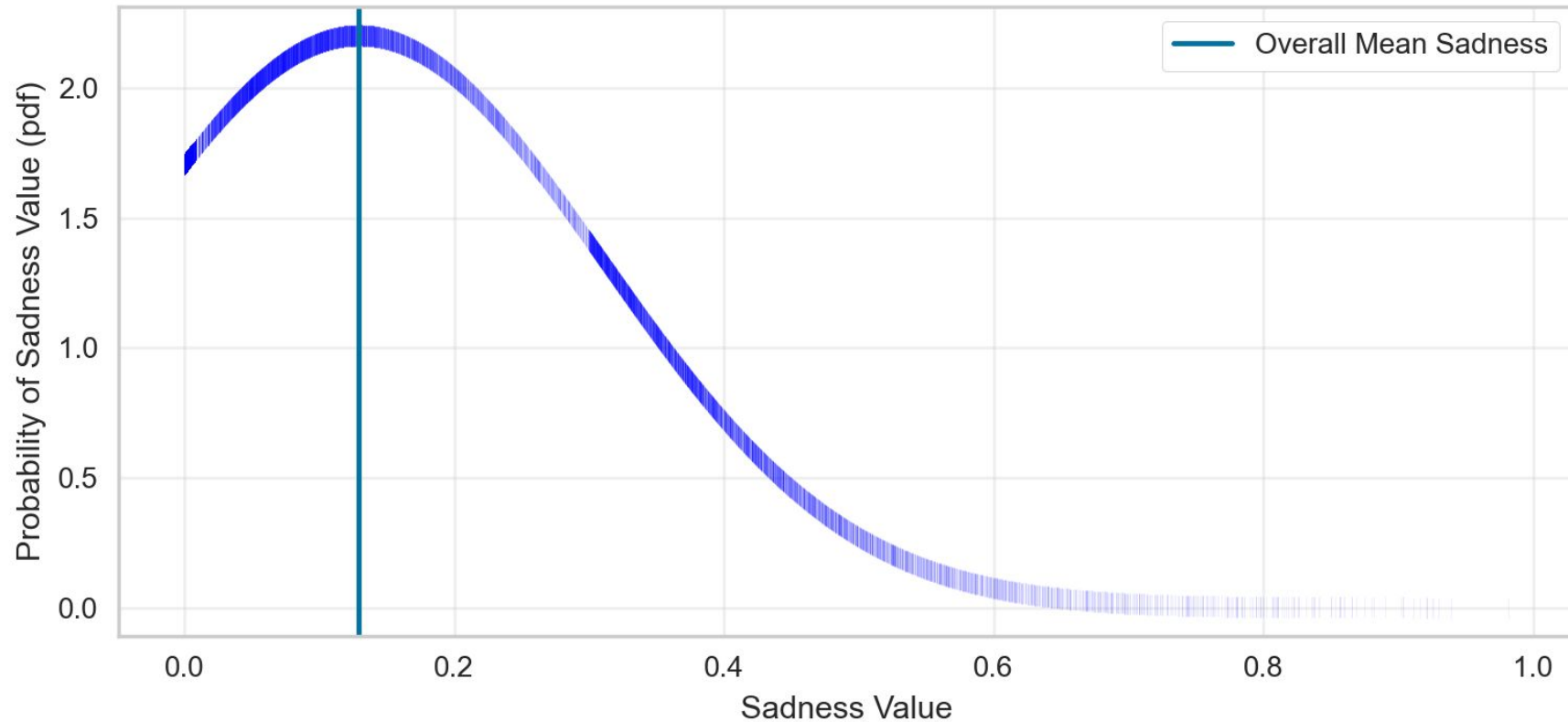

[Credit: Miriam Quick. Data source: Spotify, extracted using spotifyr. 1,080 tracks that reached number one on Billboard Hot 100, July 1958 to April 2018, incl double A sides]
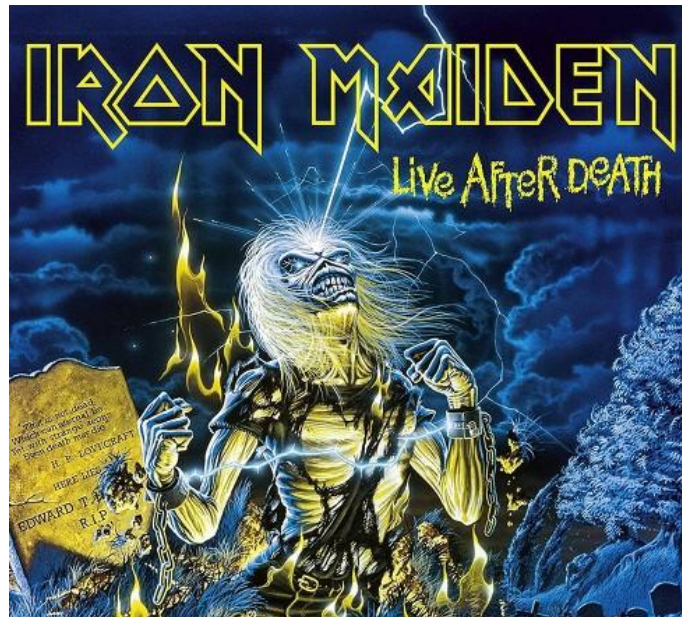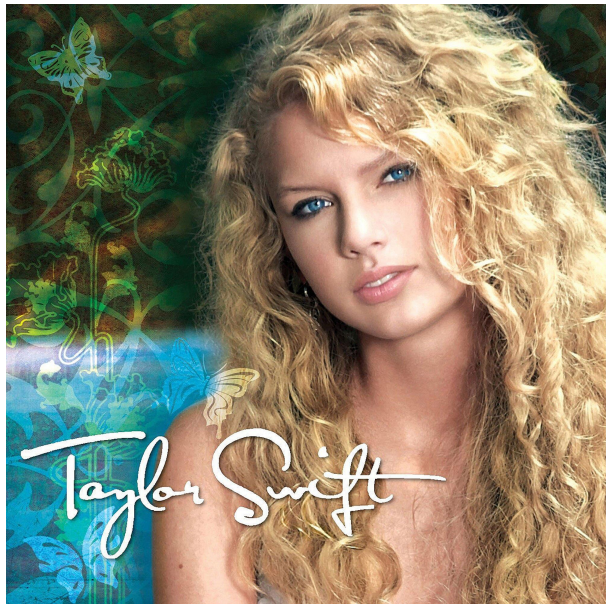
https://www.bbc.com/culture/article/20180821-can-data-reveal-the-saddest-song-ever

Sadness Feature

Distribution of Sadness Values

Acoustic Features - Quantifying Sound

✖

Acoustic Features - Quantifying Sound

Distribution of Sadness Values

The Data - Topic Feature

Raw Lyrics → Count-Vectorizer → Term Frequency Matrix → LDA Model → Song Topics

Parameter Tuning
- Stopwords
- N-grams
- Tokenization
- Max Features

- Clusters words into topics

Parameter Tuning
- Number of Clusters
- Learning Method

The Data - Topic Feature

The 5 Topics

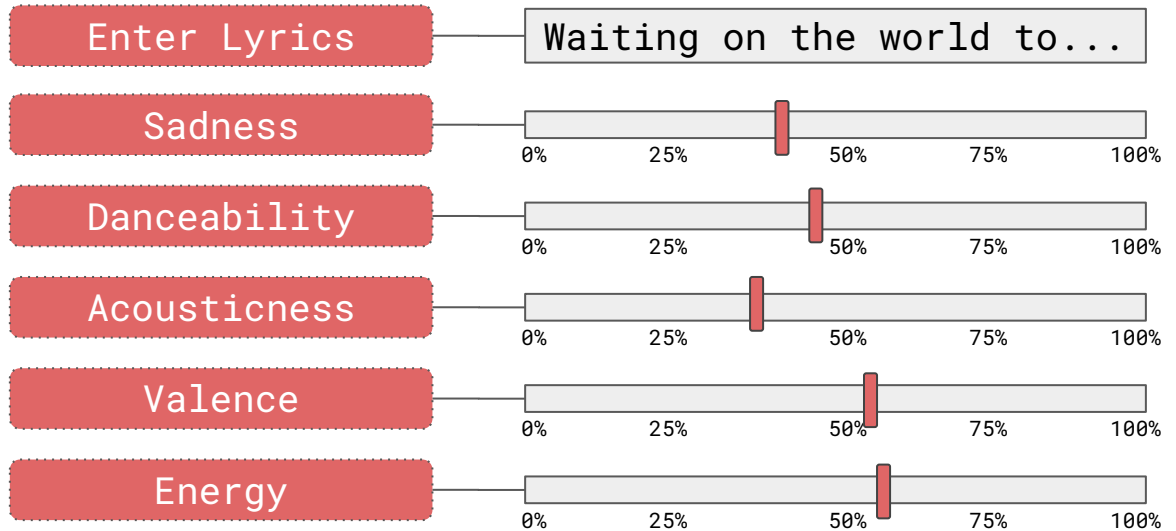|	
Religious:	**morning - christmas - lord - holiday**
Human Struggle:	**life - heart - feel - world - change - dream - soul**
Party/Fun:	**money - party - play - girl - smoke - drink**
Senses:	**sing - kiss - cold - dream - desire - thrill - freedom**
Dissent/Anger:	**kill - dead - fight - blood - death - fear - shame - grave**

The Recommender Blueprint

The Recommender

https://imgur.com/gallery/LZt3K

User Profile: John Mayer

| Enter Lyrics | Waiting on the world to... |

Sadness

Danceability

Acousticness

Valence

Energy
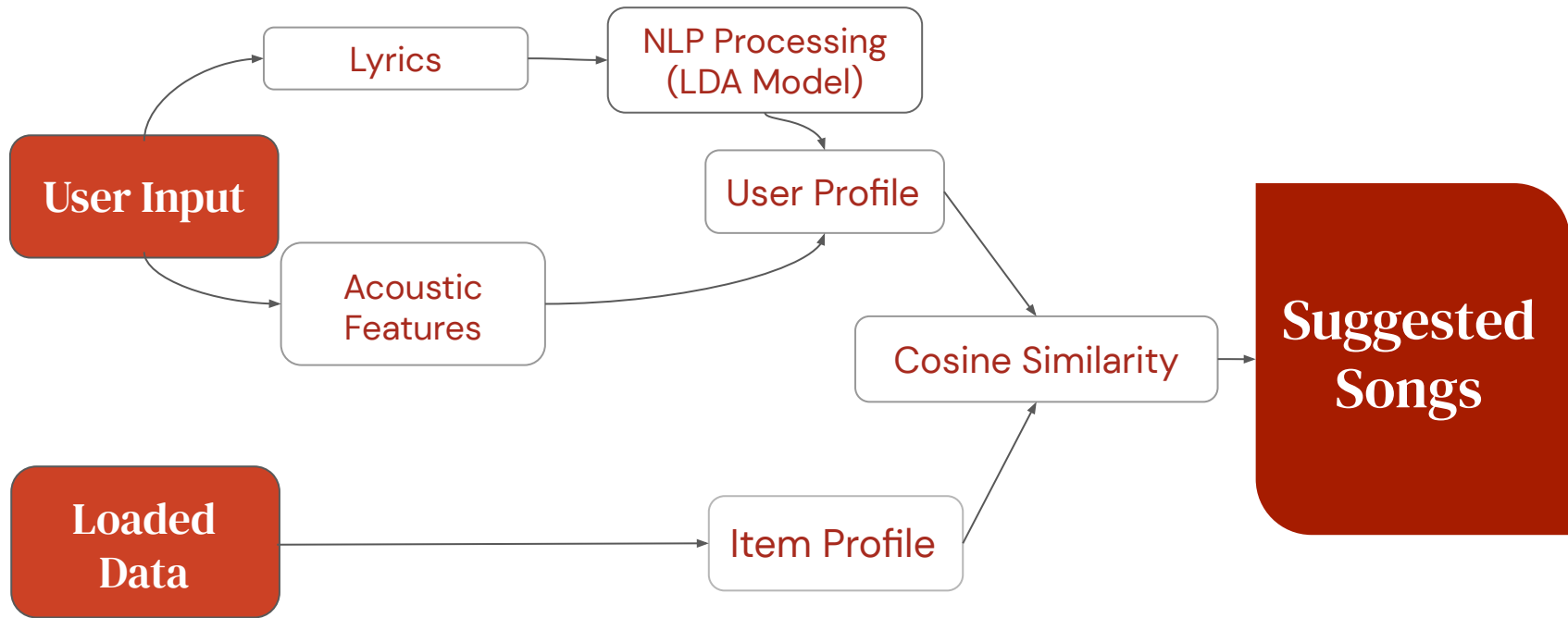
*This beta version gives user an idea of what to input.

Recommender Output

Thickfreakness
By The Black Keys

2003 - Blues

'Here I am darling And I'll care for you, hey that's all I want to do / hold me, love me, in your heart / and I'll hold you near and I'll whisper in your ear / I'll take your hand and I'll make you understand / hold me, love me in your heart'
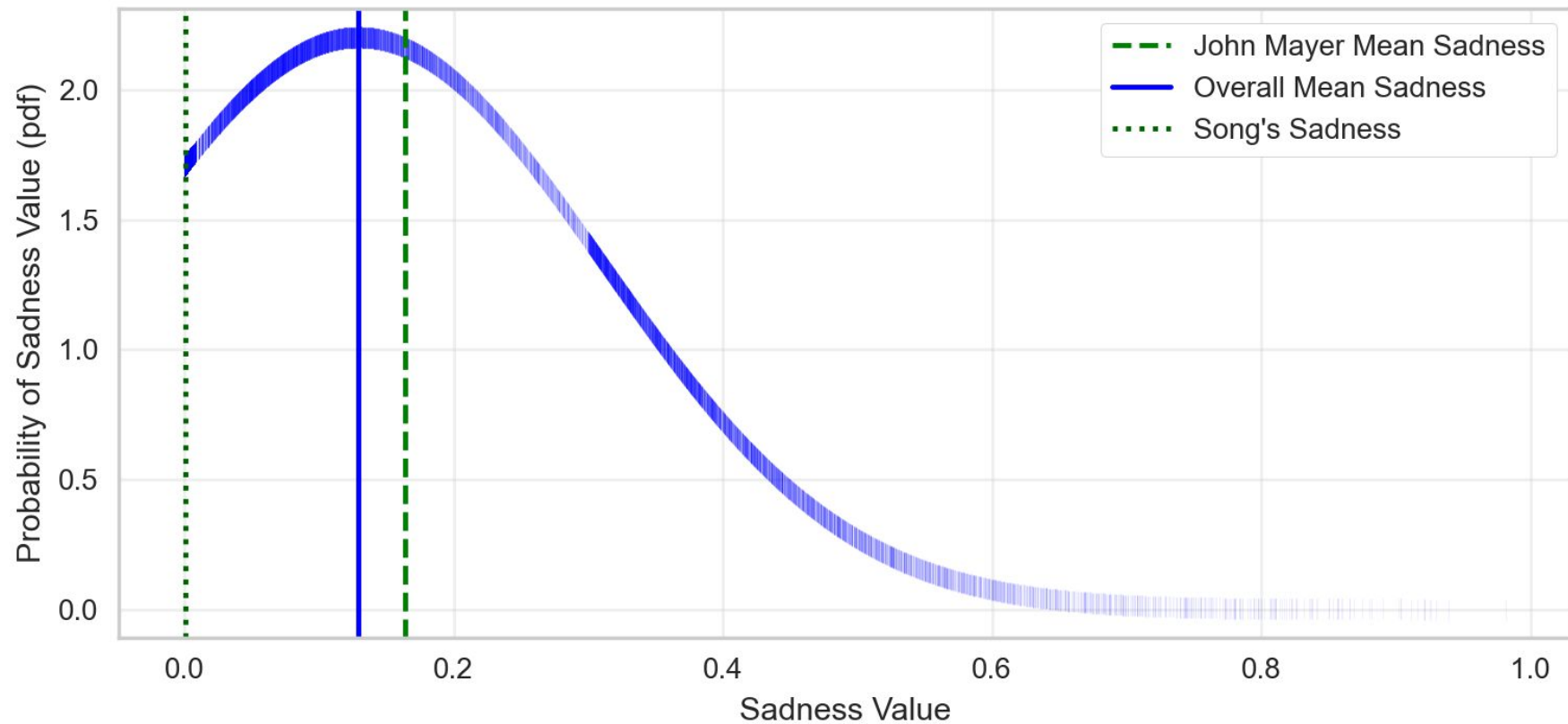
When Love Has Grown
By George Benson

1973 - Jazz

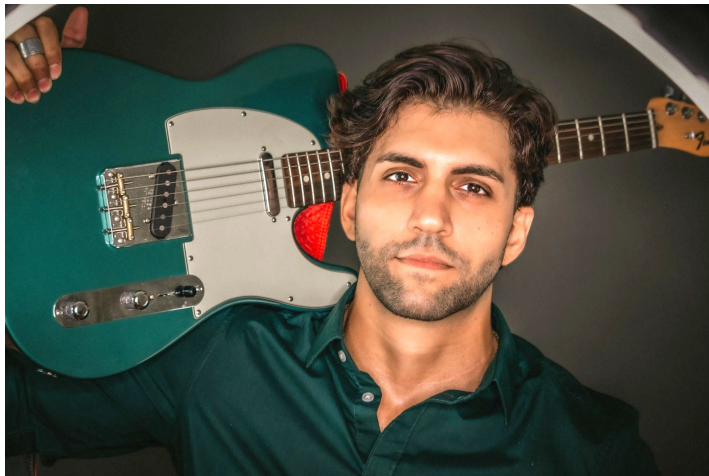## Ram On
By Paul McCartney

1971 - Rock

Distribution of Sadness Values

Future Work

- **Make the recommender more customizable**
- **Add features to the predictions**
- **Create an "Explicit" filter**
- **Create a user interface**

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/pedro-meyer
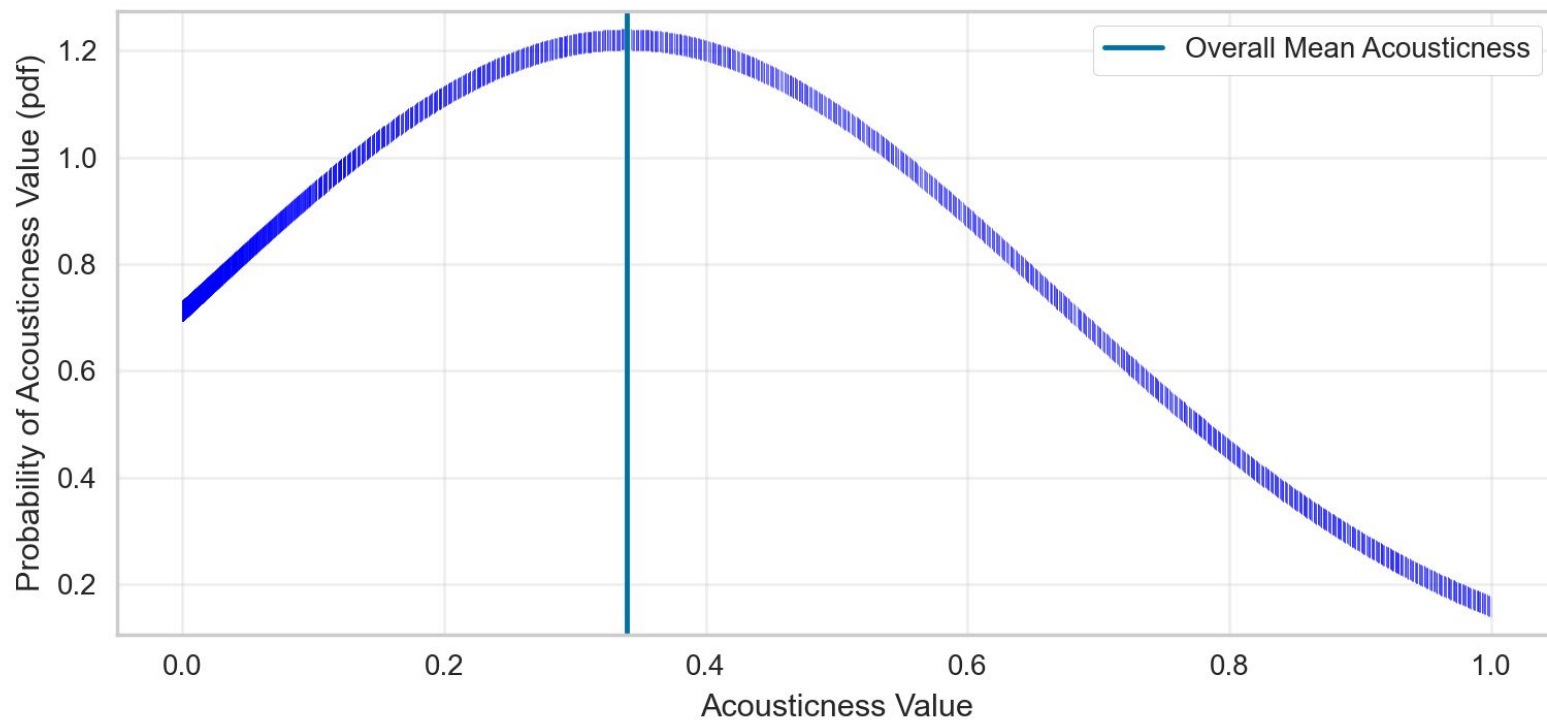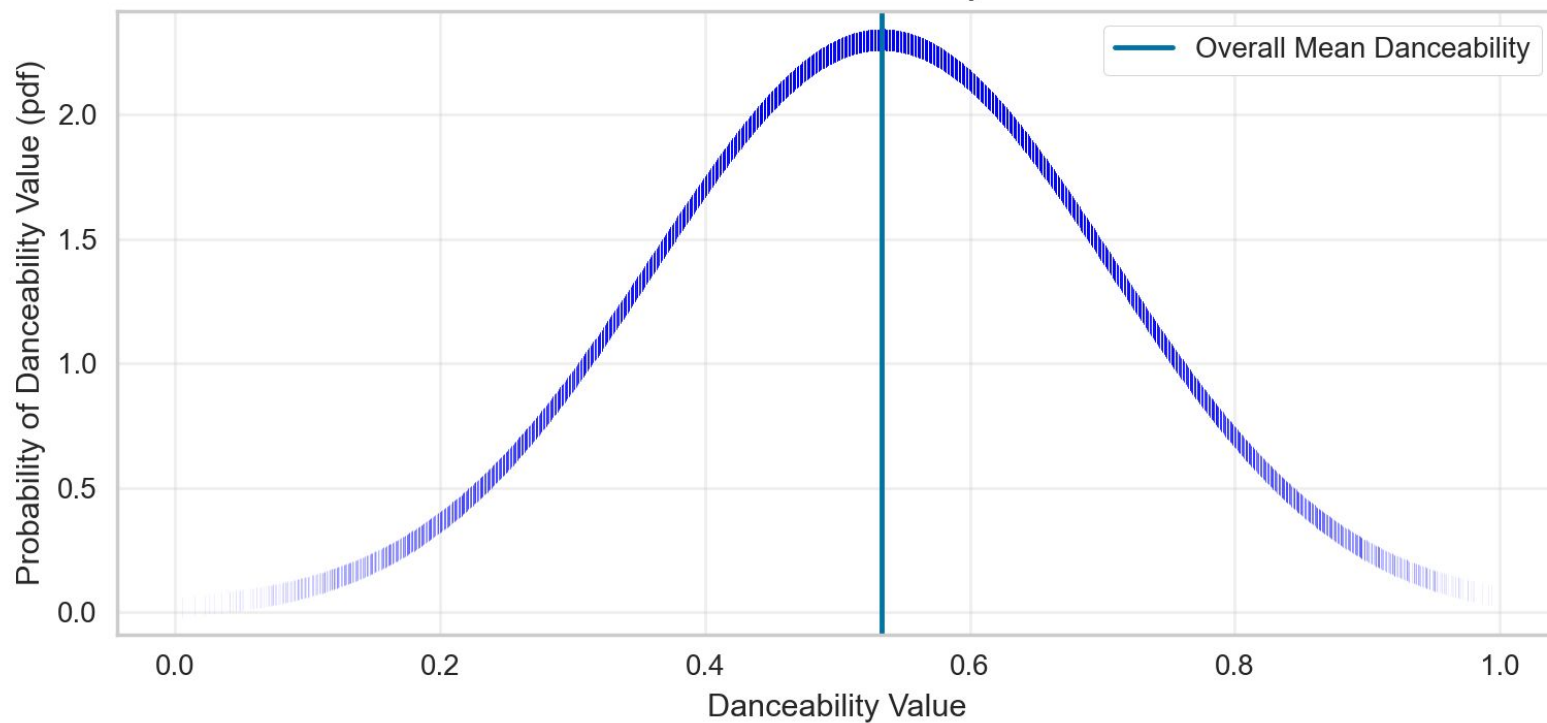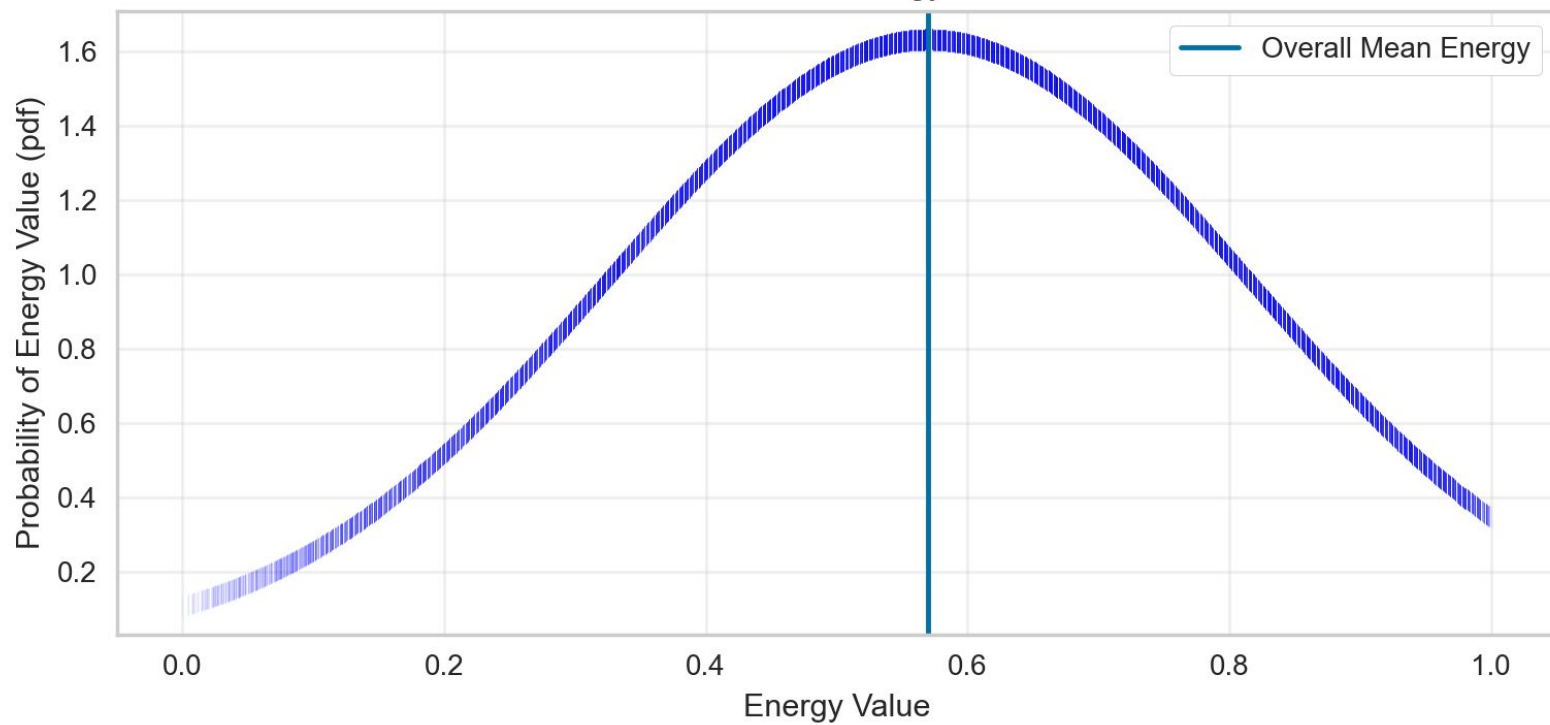
/meyerpedro

Appendix
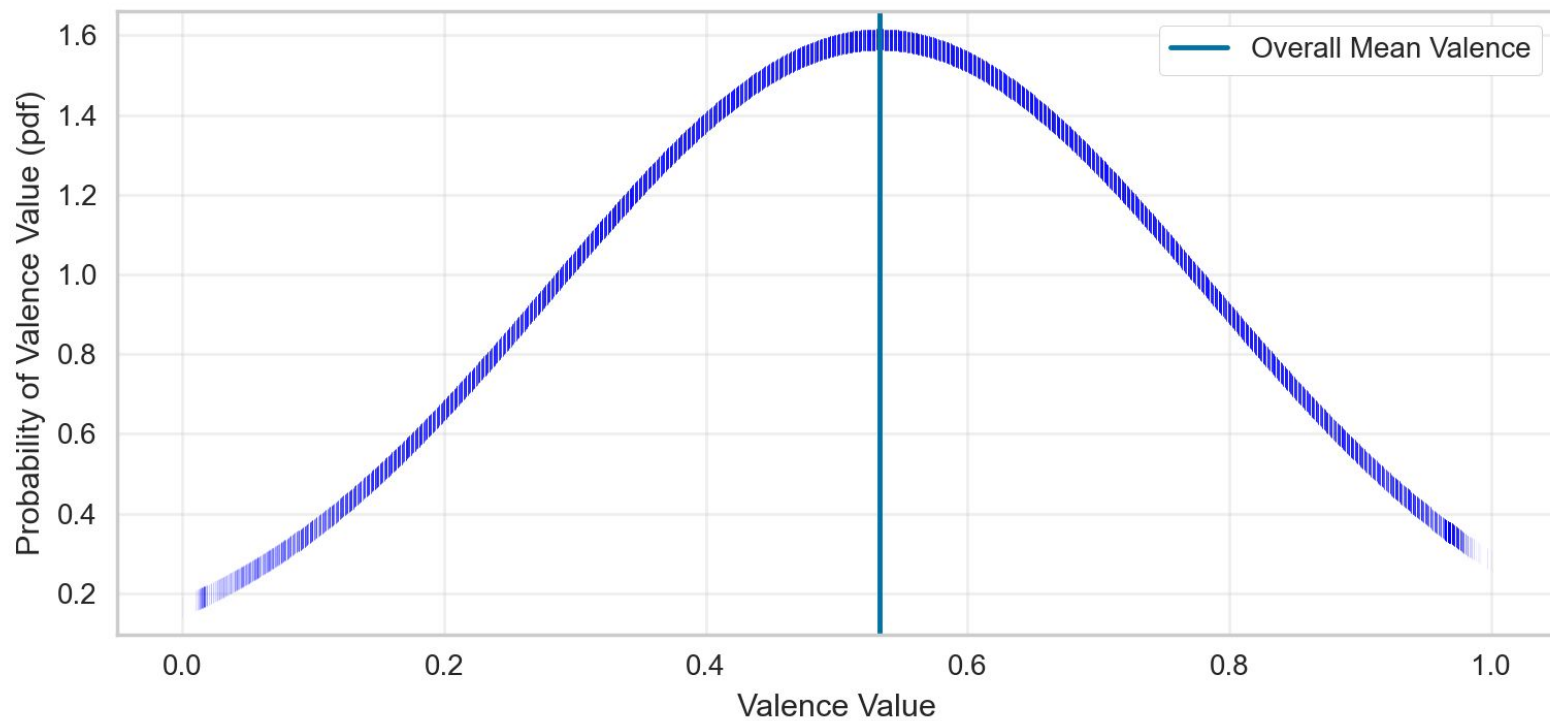
Distribution of Acousticness Values
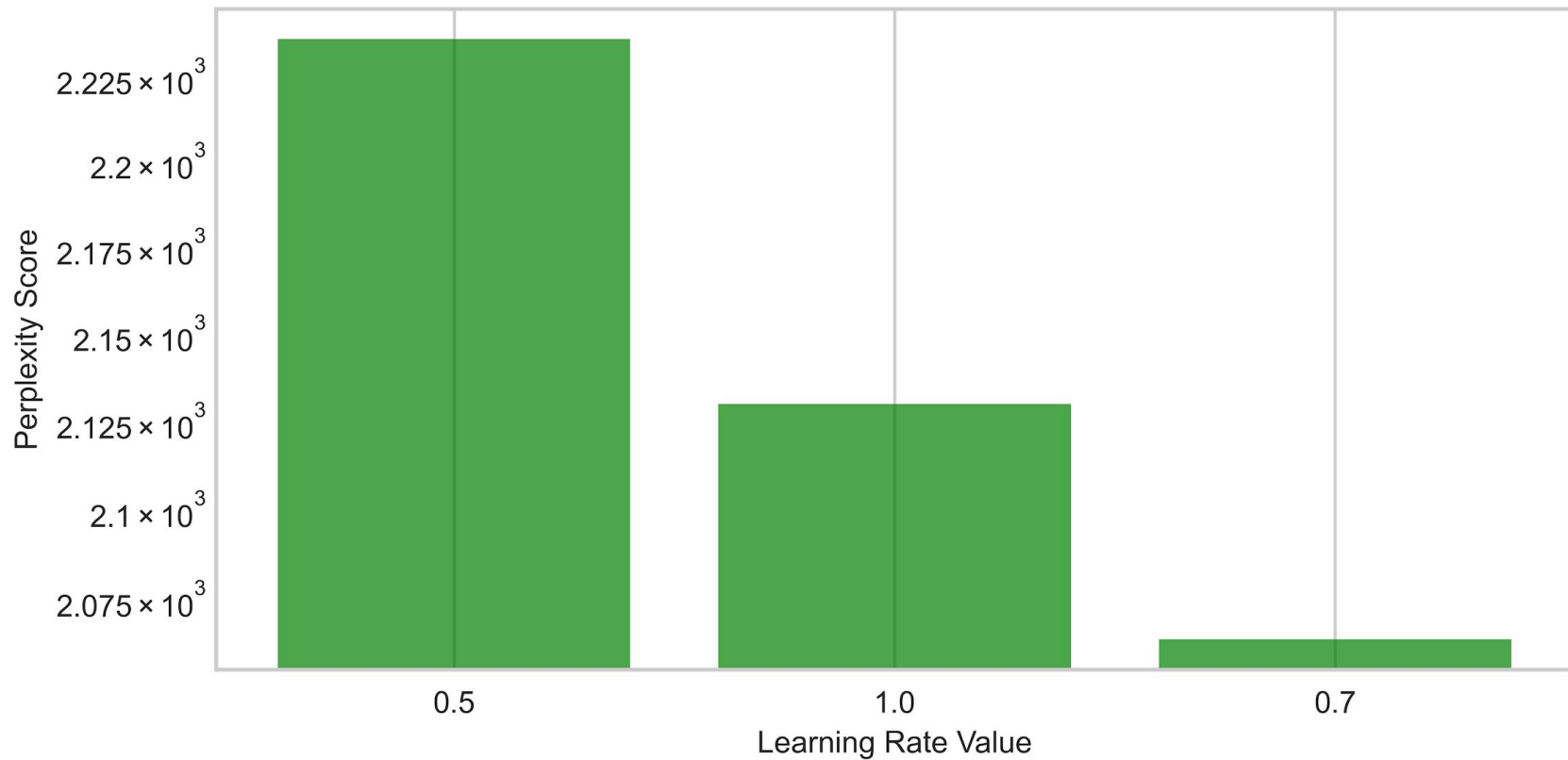
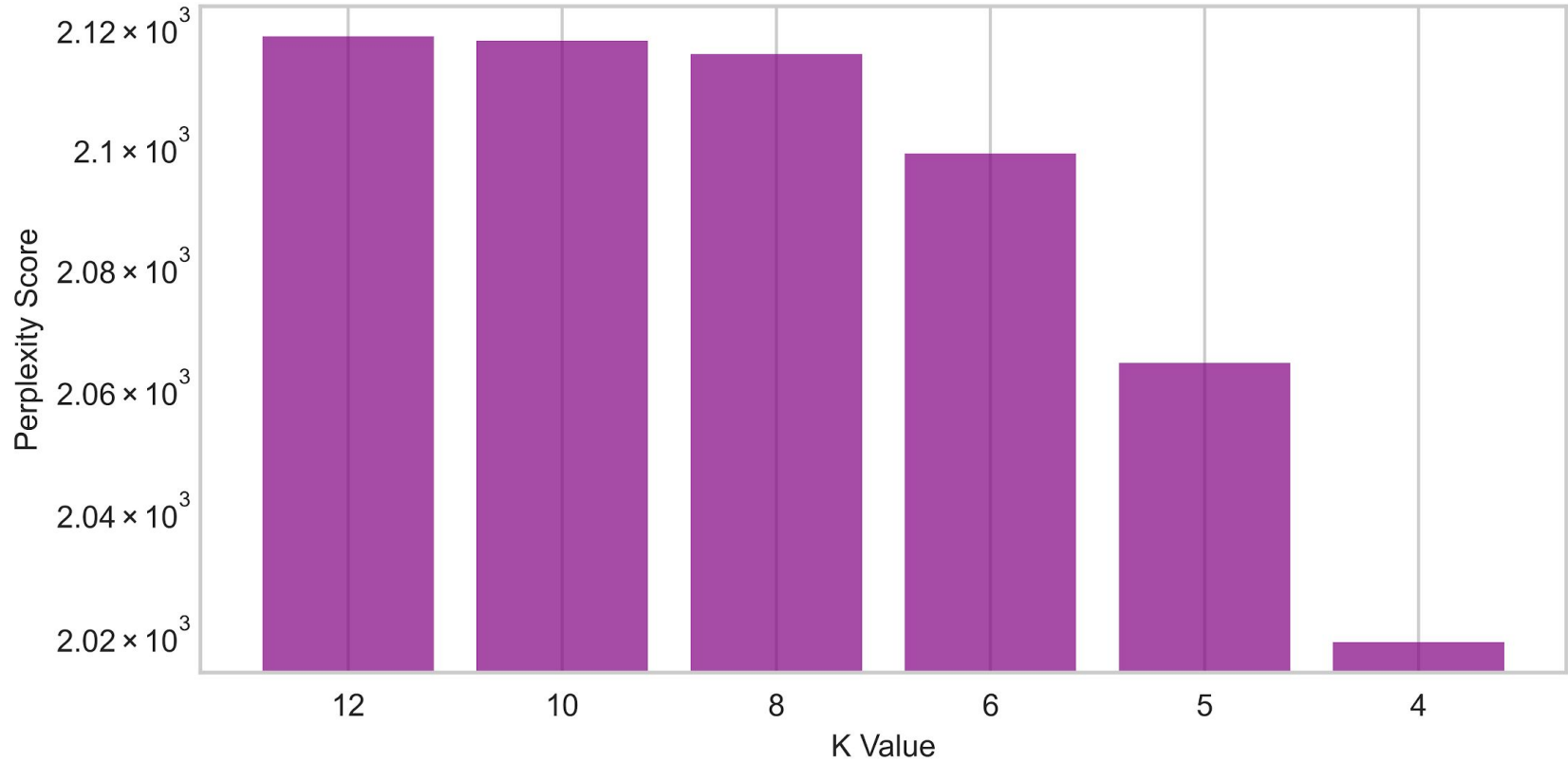Distribution of Danceability Values

Distribution of Energy Values

Distribution of Valence Values

LDA Perplexity Score vs Learning Rate Value

LDA Perplexity Score vs K Value

Reference

Data:

- **Mendeley Data**

Acoustic Features:

Get Audio Features for a Track
Can data reveal the saddest number one song ever?

Audio:

Waiting On The World To Change (Karaoke) - John Mayer

Images:

Slide 1: https://www.quora.com/Is-it-possible-to-learn-the-art-of-songwriting

Slide 5: http://getwallpapers.com/collection/john-mayer-wallpaper

Slide 11: https://www.target.com/p/iron-maiden-life-after-death-cd/-/A-80178481

Slide 11: https://people.com/music/taylor-swift-album-covers-roundup/

Slide 15: https://imgur.com/gallery/LZt3K

Slide 18: https://www.oiart.org/five-things-you-need-to-know-before-becoming-a-music-producer/