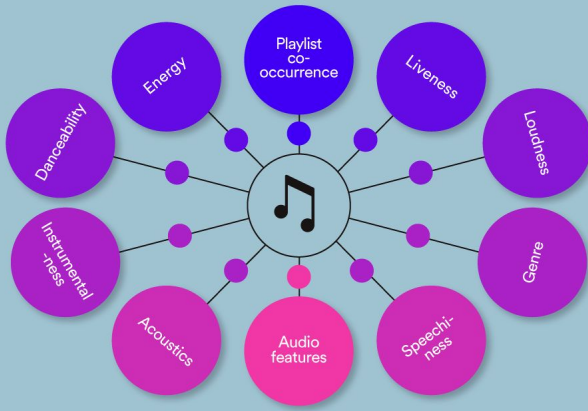# Spotify
Historic Soundscape

Kevin Dong

MGT 3745
Scheller

Utilizing Spotify's Data & spotifyr Package:
- Accessing song metadata via Spotify's API using the spotifyr package.
- Facilitated collection of ~5000 songs across EDM, Latin, Pop, R&B, Rap, & Rock genres.

Audio Features for Genre Analysis:
- Employing key audio features like danceability, energy, loudness, and valence for genre differentiation.
- Leveraging features such as instrumentalness and tempo to distinguish between various music styles.

Project Objective and Impact:
- Exploring music genres at the intersection of data science and music through the Spotify API.
- Focus on classifying genres via data-driven analysis, offering insights into the diversity of musical landscapes.

Research Question:

How do distinct audio features contribute to the **classification and differentiation** of these music genres?
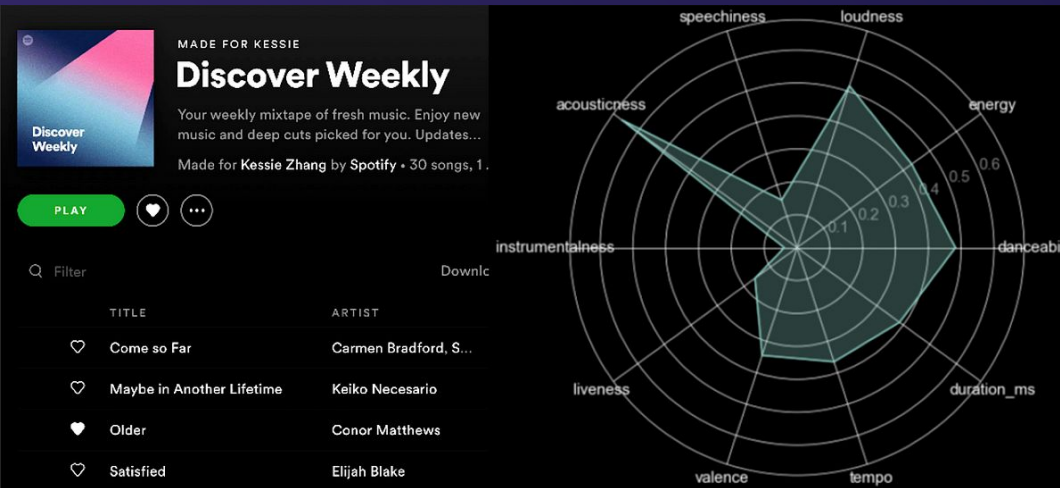
Dependent Variable: danceability, energy, key, loudness, mode, speechiness, acousticness, instrumentalness, liveness, valence, tempo, duration_ms

Target Variables: energy, key, speechiness, acousticness, valence

Independent Variable: playlist_genre

MADE FOR KESSIE

Discover Weekly

Your weekly mixtape of fresh music. Enjoy new music and deep cuts picked for you. Updates...

Made for **Kessie Zhang** by **Spotify** • 30 songs, 1...

PLAY

Filter   Downlc

TITLE	ARTIST
Come so Far	Carmen Bradford, S...
Maybe in Another Lifetime	Keiko Necesario
Older	Conor Matthews
Satisfied	Elijah Blake

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Target Variables:

Energy: a measure from 0.0 to 1.0 and represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy.
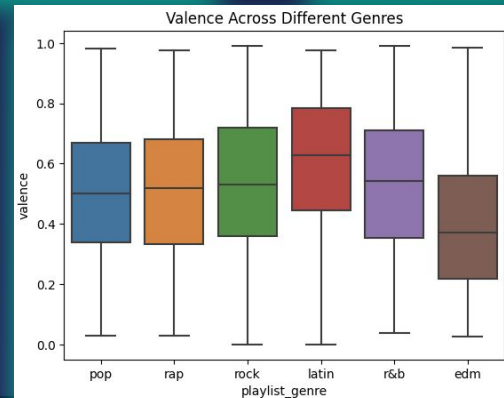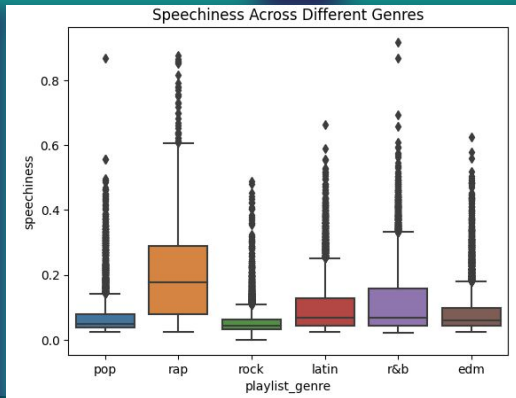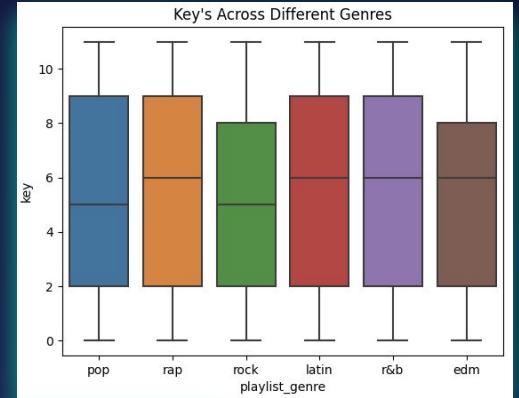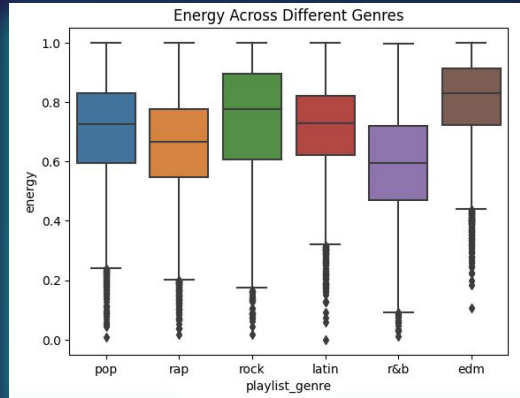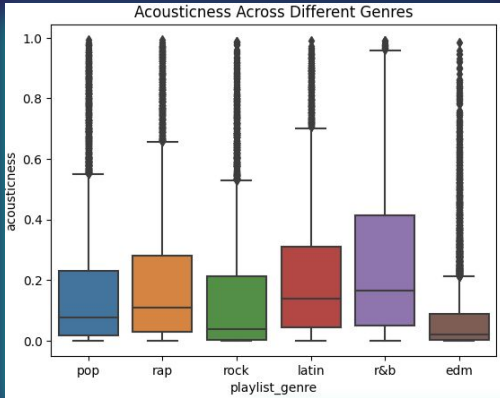
Key: predicted overall key of the track. Integers map to pitches using standard Pitch Class notation. (If no key value is -1)

Speechiness: detects the presence of spoken words in a track. The more exclusively speech-like the recording (e.g. talk show, audio book, poetry), the closer to 1.0 the attribute value.

Acousticness: a measure from 0.0 to 1.0 of whether the track is acoustic. 1.0 represents high confidence the track is acoustic.

Valence: A measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. High valence sound more positive (e.g. happy, cheerful, euphoric), while low valence sound more negative (e.g. sad, depressed, angry)
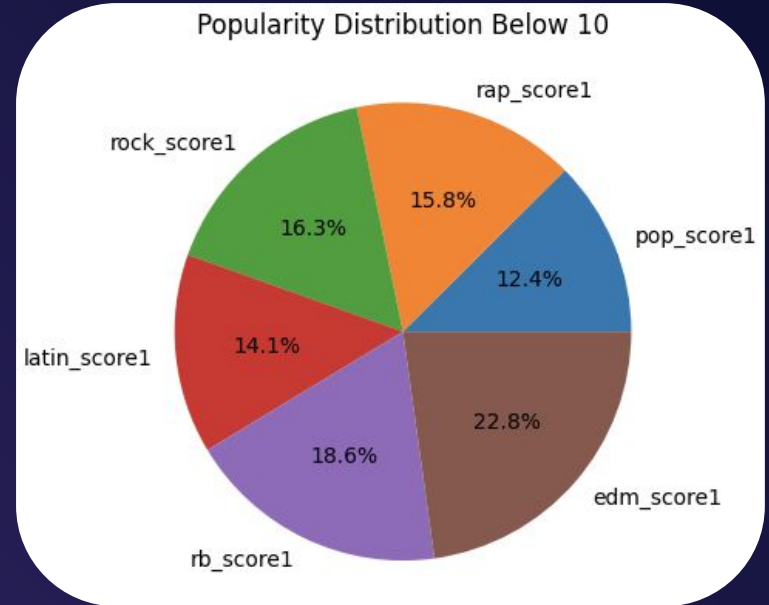
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Acousticness Across Different Genres

Energy Across Different Genres

Key's Across Different Genres

Speechiness Across Different Genres

Valence Across Different Genres

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Distribution of Most Popular Tracks

Graph analysis of the distribution for **most** popular tracks (with a popularity score above 90)

Popularity Distribution Above 90

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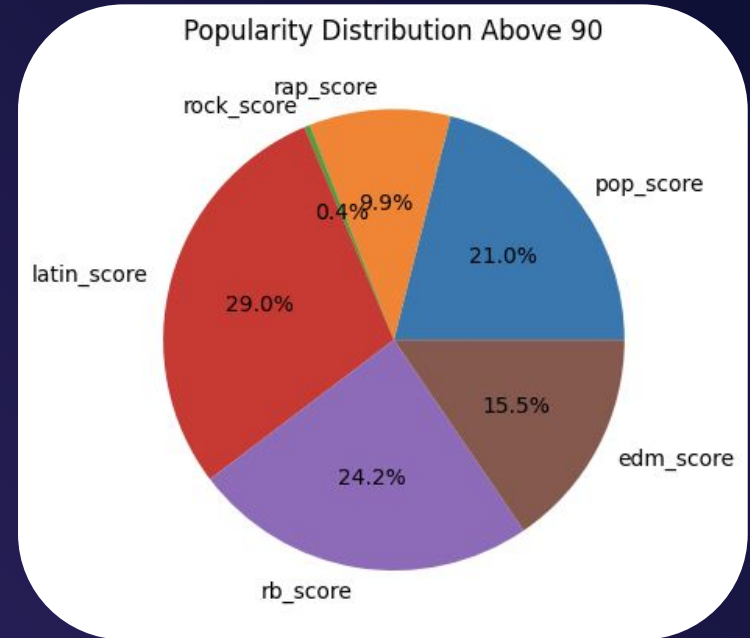
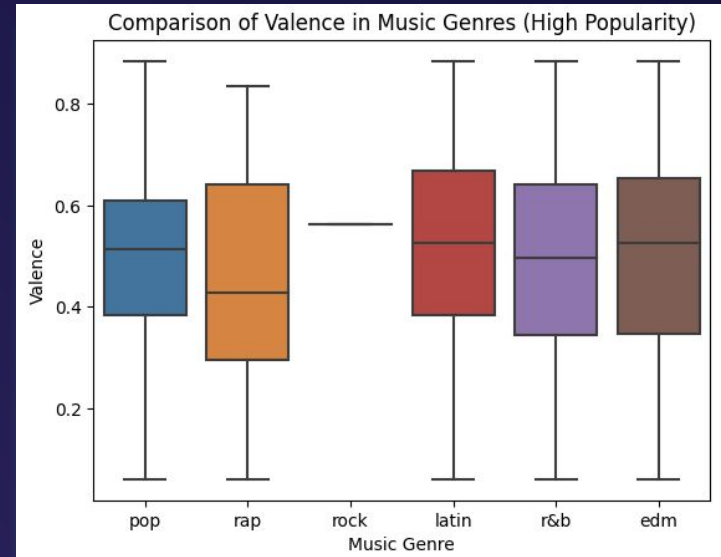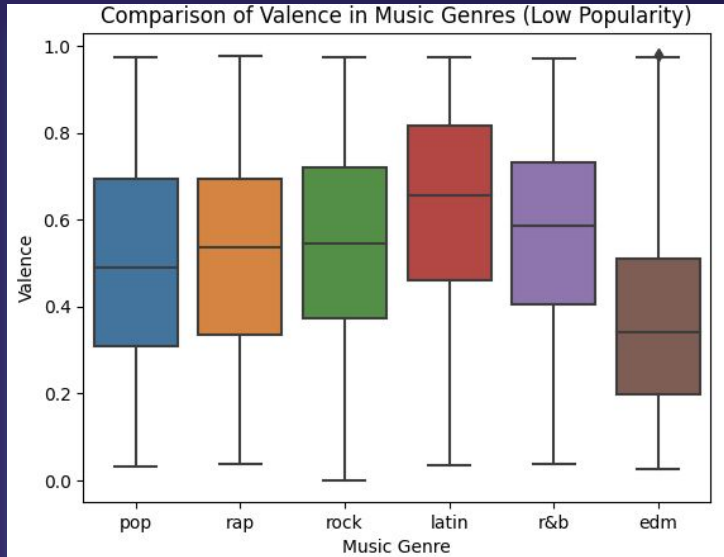# Distribution of Least Popular Tracks

Graph analysis of the distribution for **least** popular tracks (with a popularity score below 10)

Popularity Distribution Below 10

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Valence Comparison for Different Popularity

Comparison of Valence in Music Genres (Low Popularity)

Comparison of Valence in Music Genres (High Popularity)

Why is This Important?

In the business sense, accurately understanding genre classification based on audio features can carry substantial financial implications by directly impacting **revenue streams, marketing strategies, user engagement, and industry insights**.

Moreover, it plays a vital role in enhancing the **user's satisfaction and platform competitiveness** against things like Apple Music, and cultural enrichment, making it an important problem to solve from both a financial and an operational standpoint.

References:

- [tidytuesday/data/2020/2020-01-21/readme.md at master](#)

Thank you!

Any Questions?