MSDS 670 Final Project

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Dataset Information

This [dataset from Kaggle](#) includes all songs from Taylor Swift's current discography, scraped from Spotify. Each row represents one song for a total of 582 songs. The variables include:

- Song name
- Album
- Release date
- Track number
- Duration in milliseconds
- Spotify specific numerical categories: acousticness, danceability, energy, instrumentalness, liveness, loudness, speechiness, tempo, valence, and popularity

Project Exploration

This project will explore Taylor's Swift's different releases and albums over time, the number of tracks per album, correlation of numerical Spotify variables, and the popularity of albums and songs.

Throughout the visualizations, I have used custom colors for any information specific to albums. While ordinarily using this many colors would not be a good idea, in this case these colors are meaningful both to Taylor and her fanbase as a shorthand for recognizing each album.

Original releases and Taylor's Version albums of the same name share the same custom color.
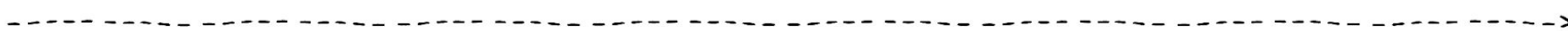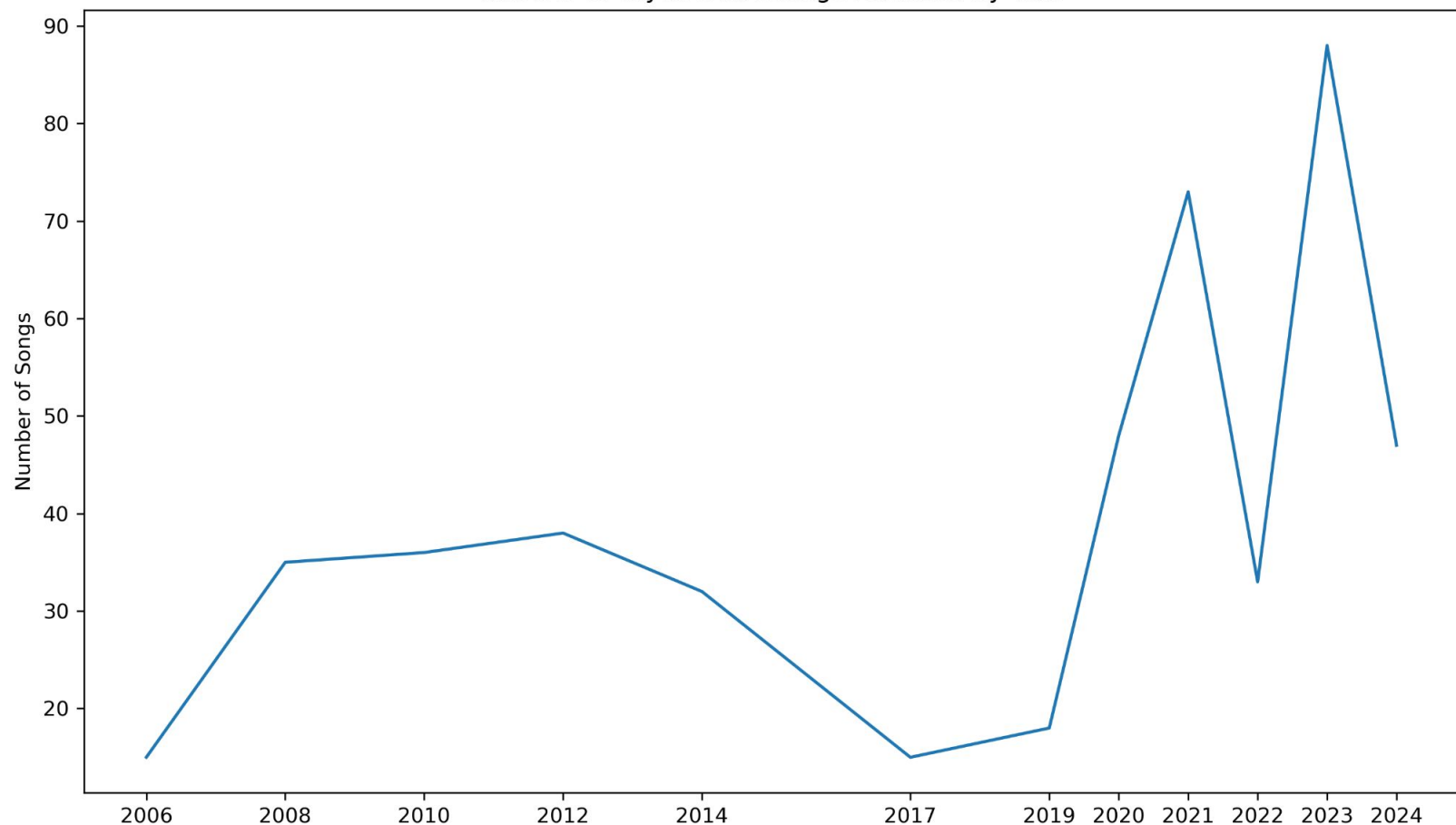
Taylor --------→ Swift

Visualizations

Songs Released by Year

First, I plotted the number of songs that Taylor Swift released by year. I grouped the dataframe by year of release, then counted how many songs were released in that year.

While her number of songs released was pretty steady through 2019, with multiple years between releases, the number of songs released per year increased greatly starting in 2020 when she released two surprise albums.

Subsequently, Taylor started releasing her Taylor's Version re-recordings, so her songs per year stayed much higher than earlier in her career. In 2024, she also released a double album, The Tortured Poets Department (TTPD).


Number of Taylor Swift Songs Released by Year

Albums Released by Year

To get a better look at Taylor's output over time, I also created a line chart of album releases per year. This follows the same general pattern as her number of songs released, since most albums have a similar amount of songs. You can see that for the most part, she either released 1 album or 2 albums if there was a deluxe version.

Once she started releasing Taylor's Version of albums, her albums per year jumped to 3 or 4, with the most albums released in 2023.

Number of Taylor Swift Albums Released by Year
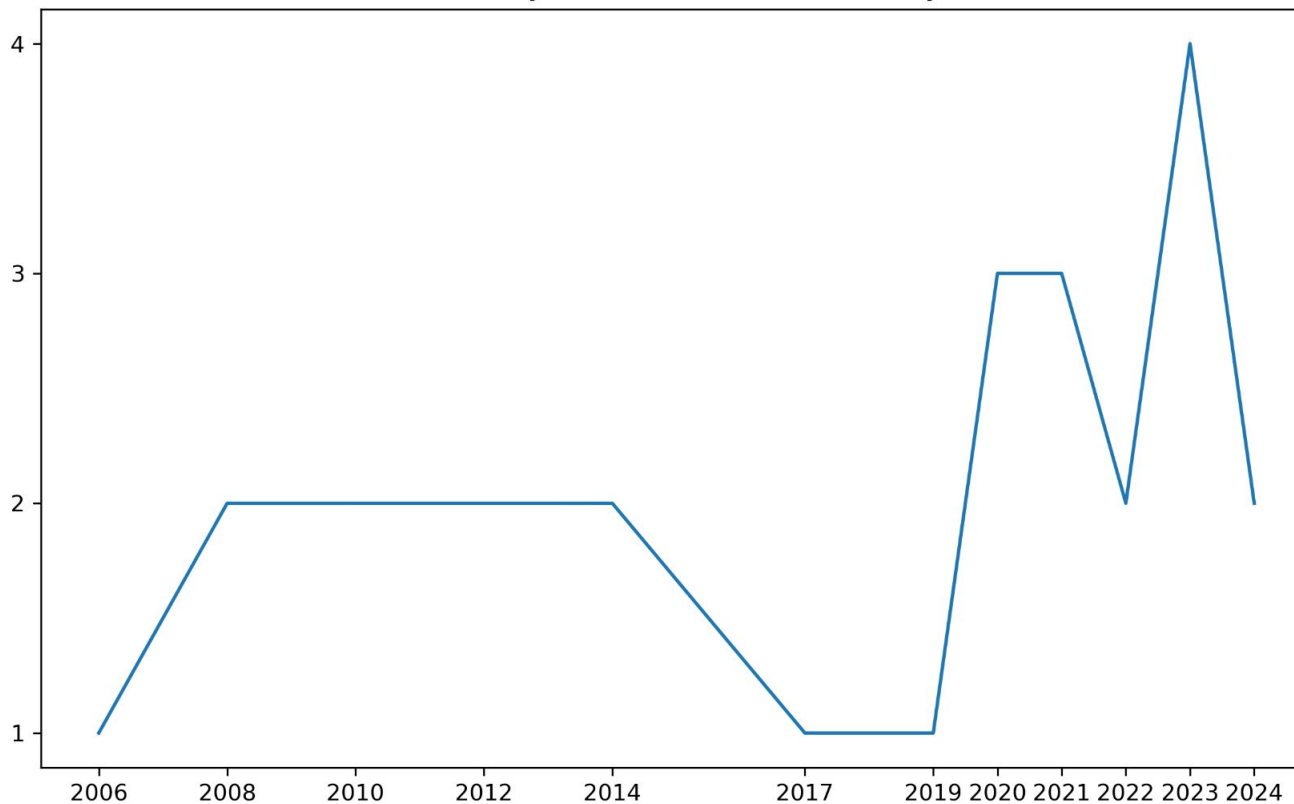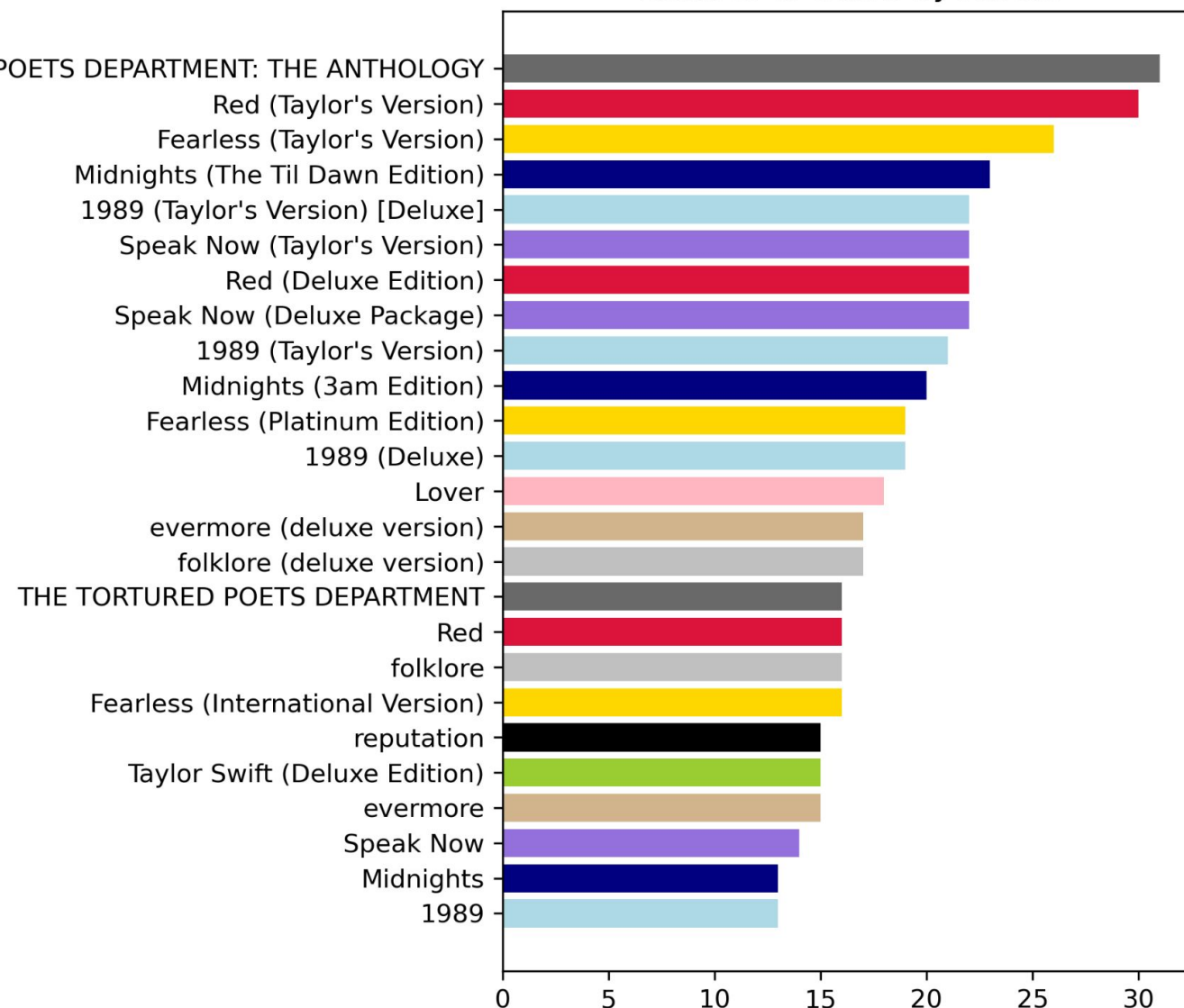
Taylor ----------> Swift

Tracks by Album

Next I was curious to see exactly how many tracks per album that Taylor released. I created this horizontal bar chart first as a normal chart and sorted it by number of tracks so that it would be in order from top to bottom.

Next I created a custom color map to map the album names to the correct colors that represent that album.

All capitalization is kept the same as the original release title.

For the most part, both deluxe versions and Taylor's Versions had more tracks.

Number of Tracks by Album

- THE TORTURED POETS DEPARTMENT: THE ANTHOLOGY
- Red (Taylor's Version)
- Fearless (Taylor's Version)
- Midnights (The Til Dawn Edition)
- 1989 (Taylor's Version) [Deluxe]
- Speak Now (Taylor's Version)
- Red (Deluxe Edition)
- Speak Now (Deluxe Package)
- 1989 (Taylor's Version)
- Midnights (3am Edition)
- Fearless (Platinum Edition)
- 1989 (Deluxe)
- Lover
- evermore (deluxe version)
- folklore (deluxe version)
- THE TORTURED POETS DEPARTMENT
- Red
- folklore
- Fearless (International Version)
- reputation
- Taylor Swift (Deluxe Edition)
- evermore
- Speak Now
- Midnights
- 1989

Correlation Matrix for Spotify Specific Variables

Spotify data includes many different numerical values, so I created a correlation matrix to see if any of them are highly correlated.

I included the new field I made for album_year. The highest positive correlation was loudness and energy, and then popularity and album_year.

I created scatter plots for these variables in the next slides.
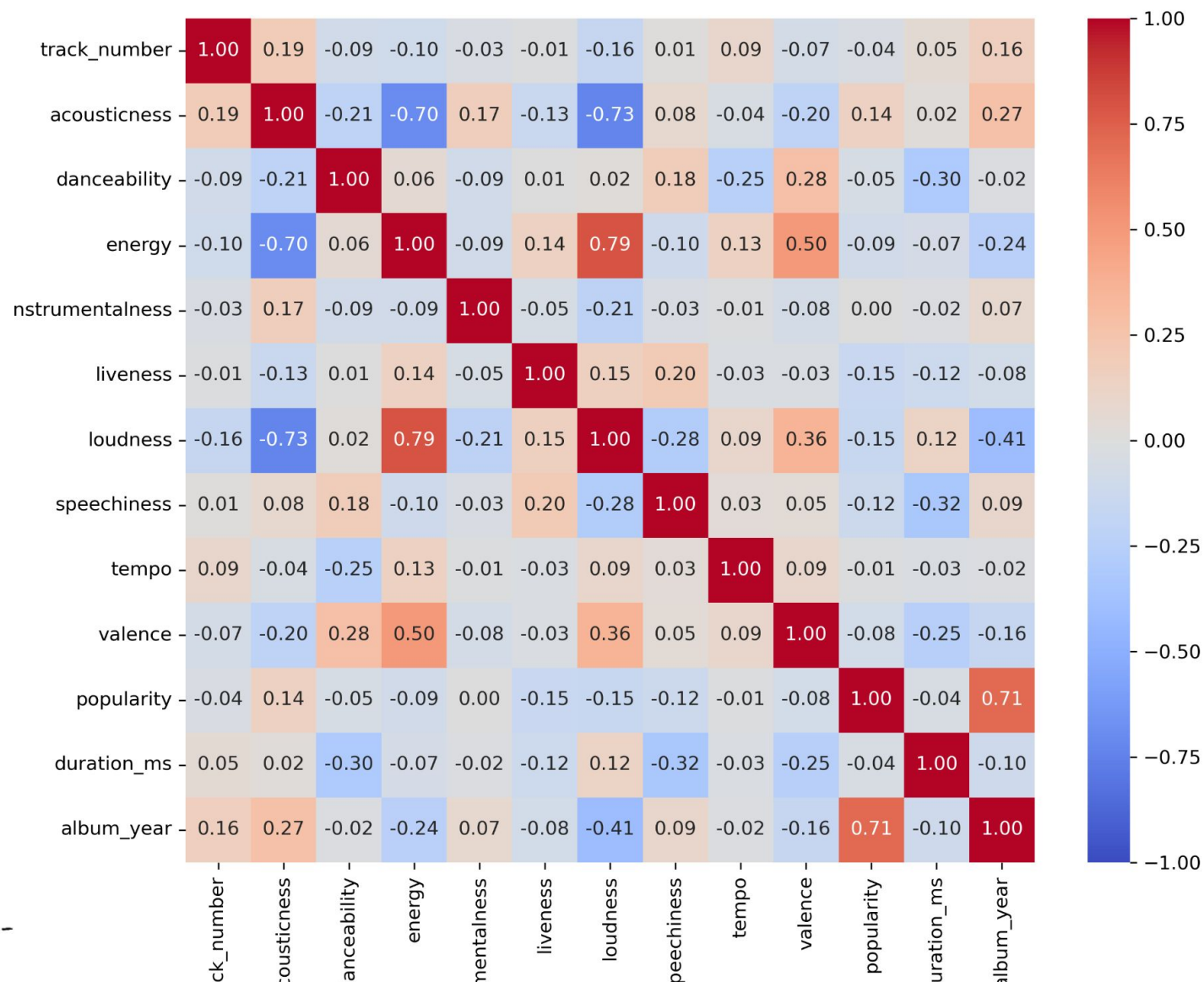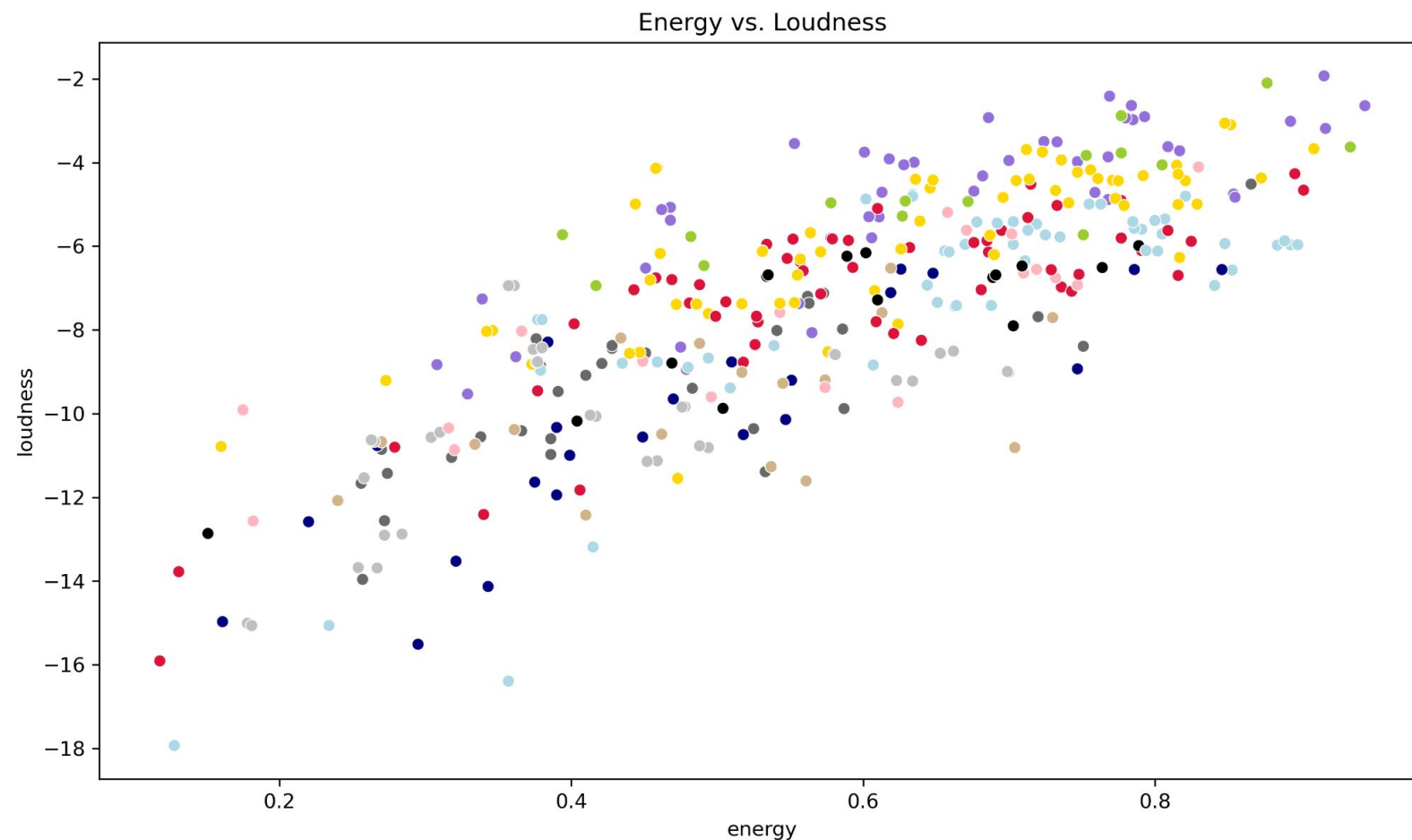

Taylor

Energy vs. Loudness

First I created a scatter plot of energy vs. loudness and saw the positive correlation displayed.

I used the custom color map I had made before to make the dots the colors of the albums. I chose not to include the legend, as the colors are listed in previous charts and the legend is more cluttered than helpful for this many albums.


Energy vs. Loudness

Popularity by Album Year

I wanted to see if song popularity across albums would increase or decrease over time. Here I plotted popularity vs. the album release year and again used the custom colors.

You can see how the original releases are less popular than the Taylor's Version releases that came later, likely due to Taylor's attempt to buy back her masters by creating the re-recordings.


Popularity vs. Album Year
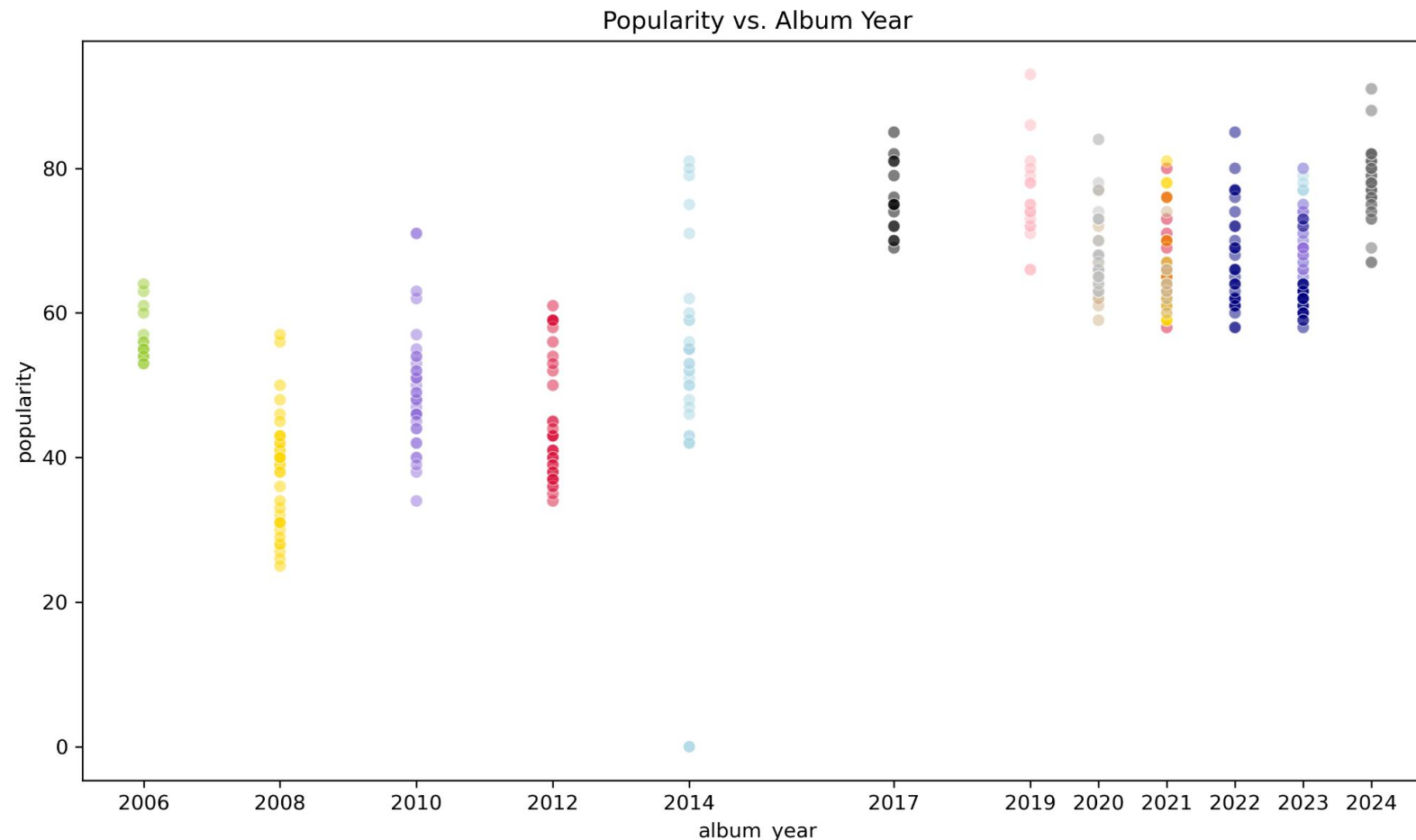
Popularity by Album

Looking deeper into popularity, I made a horizontal bar chart of the albums and their average popularity score of all songs.

As indicated by the colors, more of her recent albums had higher popularity scores, with the top two being the most recent release.

Popularity of her older albums was lower, with deluxe versions of Fearless and Red bringing up the bottom of the popularity scale.
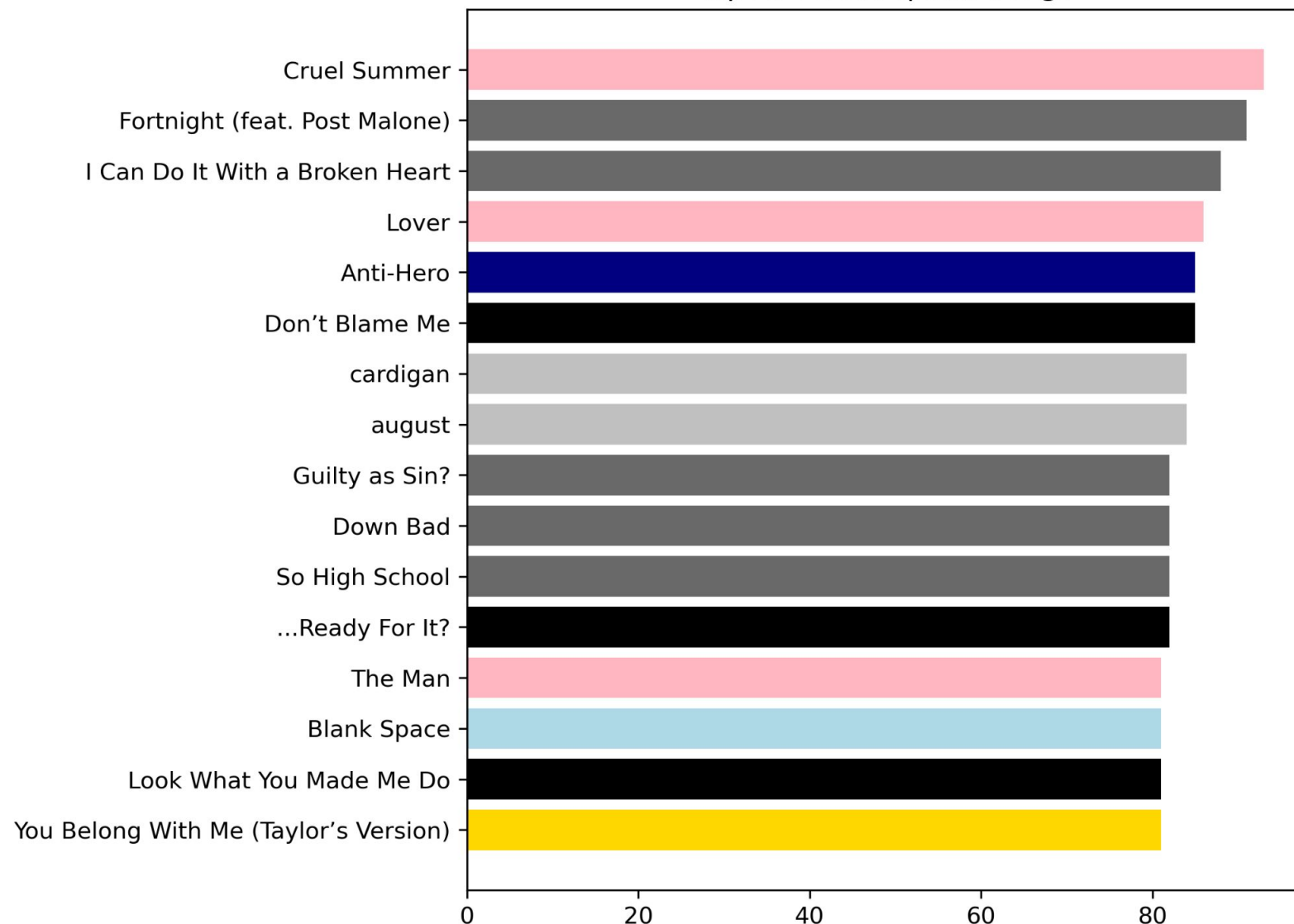

Mean Popularity by Album
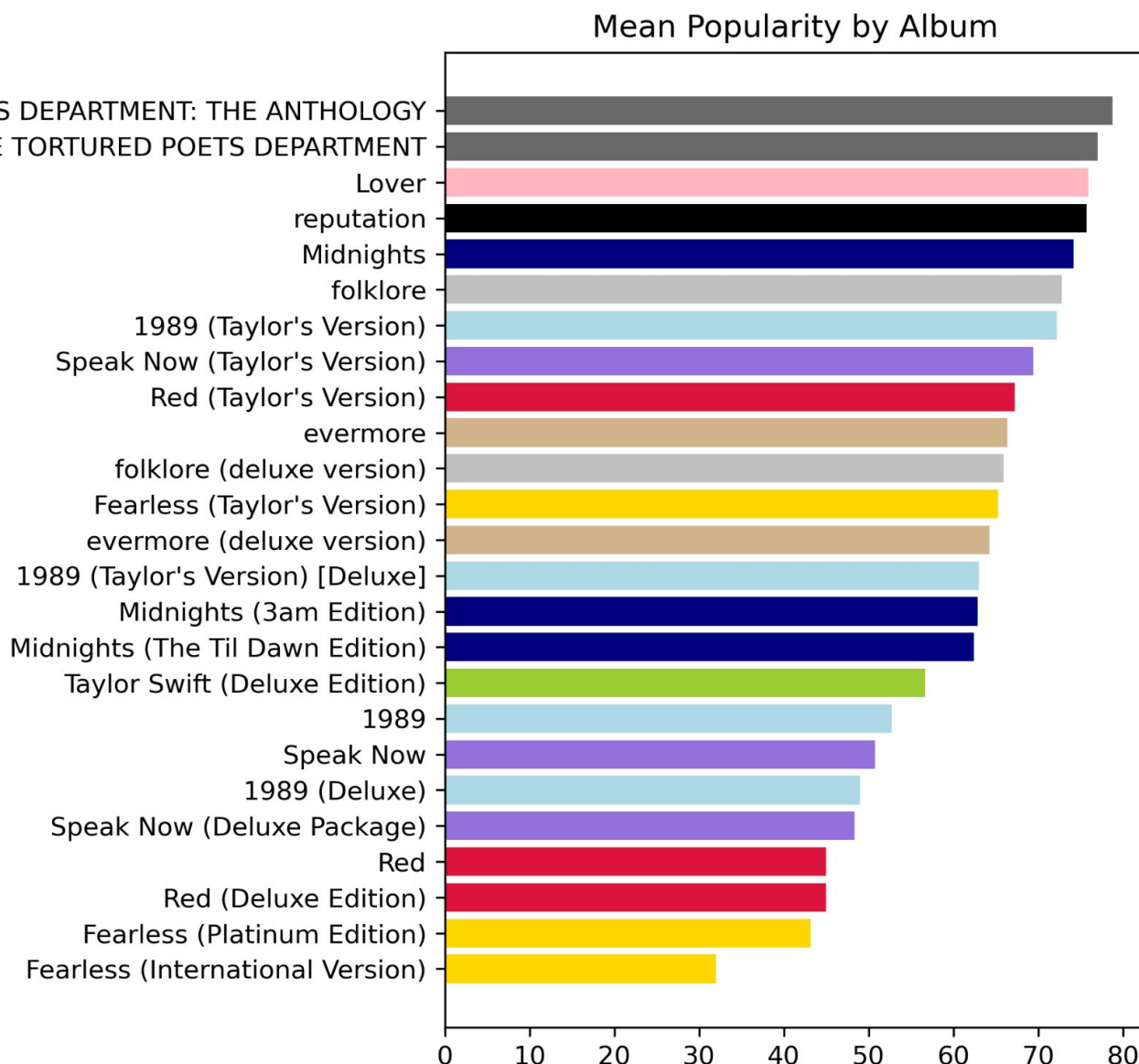
Most Popular Songs

Finally, I looked at the top 20 most popular Taylor Swift songs overall. I color coded them for the album they come from. Again, the most popular songs overall come from her most recent albums. Perhaps this is recency bias, or that her fame has reached a level that more new fans are interacting with her music and pushing up the popularity of newer songs.

Top 20 Most Popular Songs

- Cruel Summer
- Fortnight (feat. Post Malone)
- I Can Do It With a Broken Heart
- Lover
- Anti-Hero
- Don't Blame Me
- cardigan
- august
- Guilty as Sin?
- Down Bad
- So High School
- ...Ready For It?
- The Man
- Blank Space
- Look What You Made Me Do
- You Belong With Me (Taylor's Version)

Conclusions

Conclusions

01

Taylor Swift has released more albums over time and more albums per year in the second half of her career

02

The number of tracks released per album ranges from 13 to 31, increasing over time with newer albums, deluxe versions, and re-recordings

03

There is a positive correlation between energy and loudness, and between popularity and the album release year

04

The popularity scores of both her albums and songs have increased with later releases

05

If this continues, her new album coming out later this year may also increase in popularity scores

Taylor -------- > Swift

Thanks!

Taylor ---> Swift