COMP 590 173 FINAL

Is Taylor Swift A Serious Musician?

Using data visualization to understand if Taylor Swift only writes songs about her exes

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The main problem we are addressing through this artifact:

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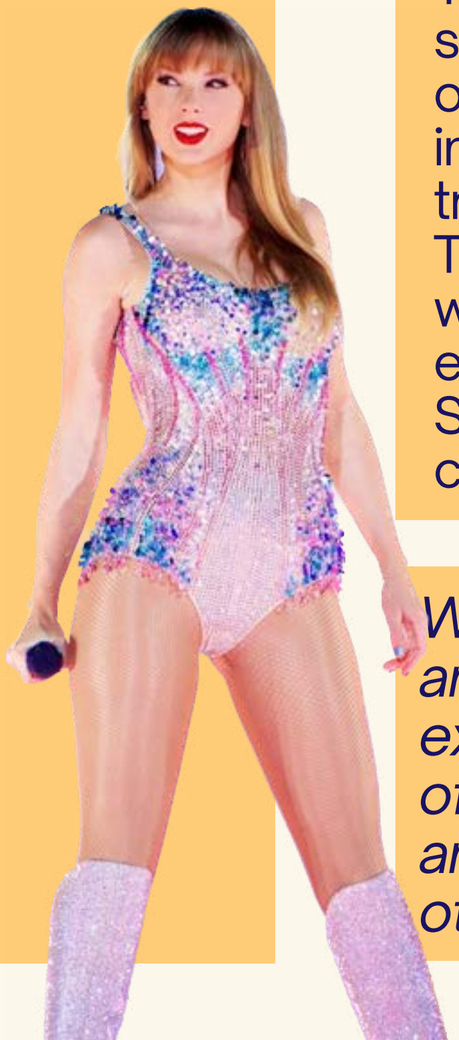
Taylor Swift has been subjected to unfair and sexist criticism throughout her career. Swift has often been criticized for her personal life, her relationships, and her music, with many critics dismissing her as a mere "pop star" who lacks depth and creativity. This criticism is largely due to internalized sexism and misogyny in the music industry, which often devalues and trivializes the work of female artists.



How we are addressing this problem:

To challenge this perception and showcase the emotional depth and power of her music, our project aims to investigate the significance of the fifth track on each of Swift's ten albums. Through data visualizations and analysis, we will demonstrate how these emotionally raw and honest songs reveal Swift's profound musical talent and creativity.

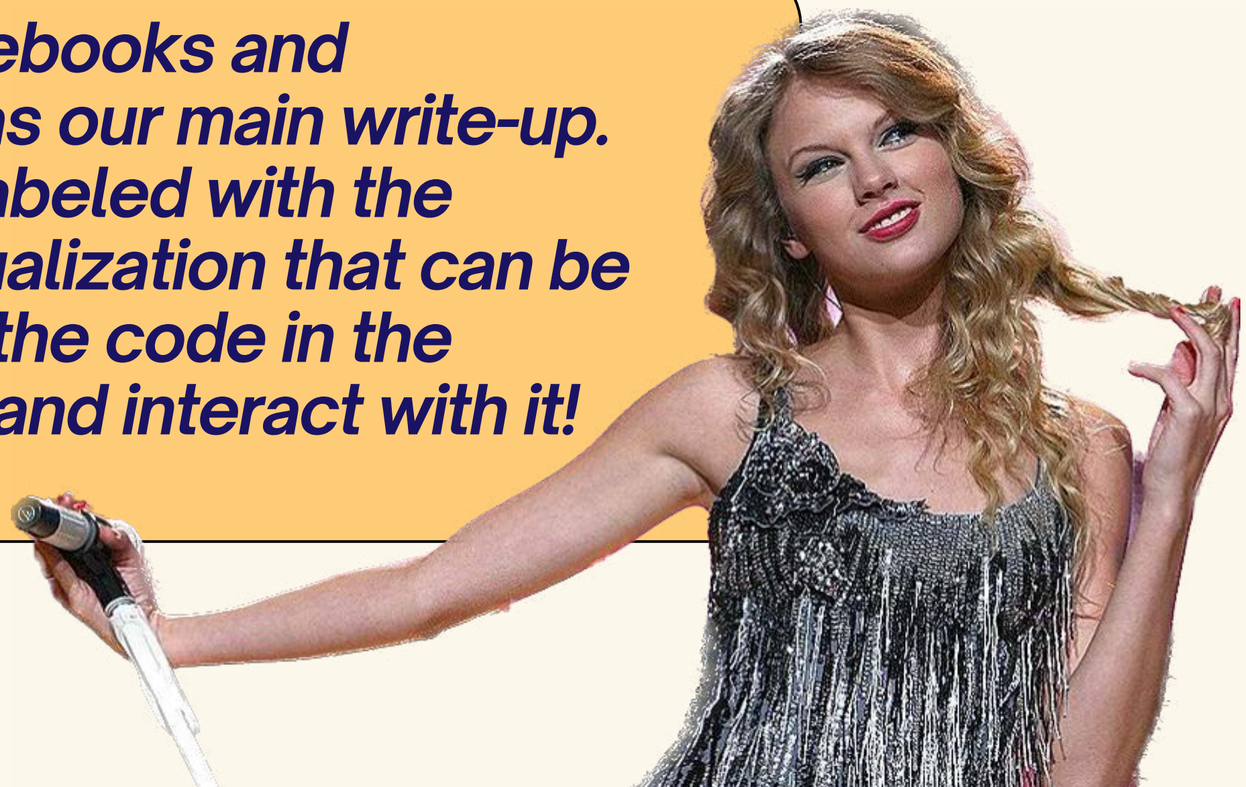
We use a multifaceted approach to analyze Taylor Swift's music, including an examination of her Spotify data, a survey of UNC students, and a comparative analysis of her songs against those of other successful artists.

A little note before we begin....

link to our public GitHub repository:

https://github.com/COMP790-InfoVis/final-project-aayush110

In this repository you will find notebooks and corresponding data files as well as our main write-up. Each notebook has code that is labeled with the number of the corresponding visualization that can be found in this artifact. You can run the code in the notebook to run our visualization and interact with it!



First, we explore Swift's discography....

We wanted to start by exploring some of her songs and their popularity, along with how that correlated to their danceability and energy. This first visualization shows ALL of her songs (which doesn't tell us too much), so let's go ahead and look at specific albums over time using the album dropdown button we have integrated into this graph

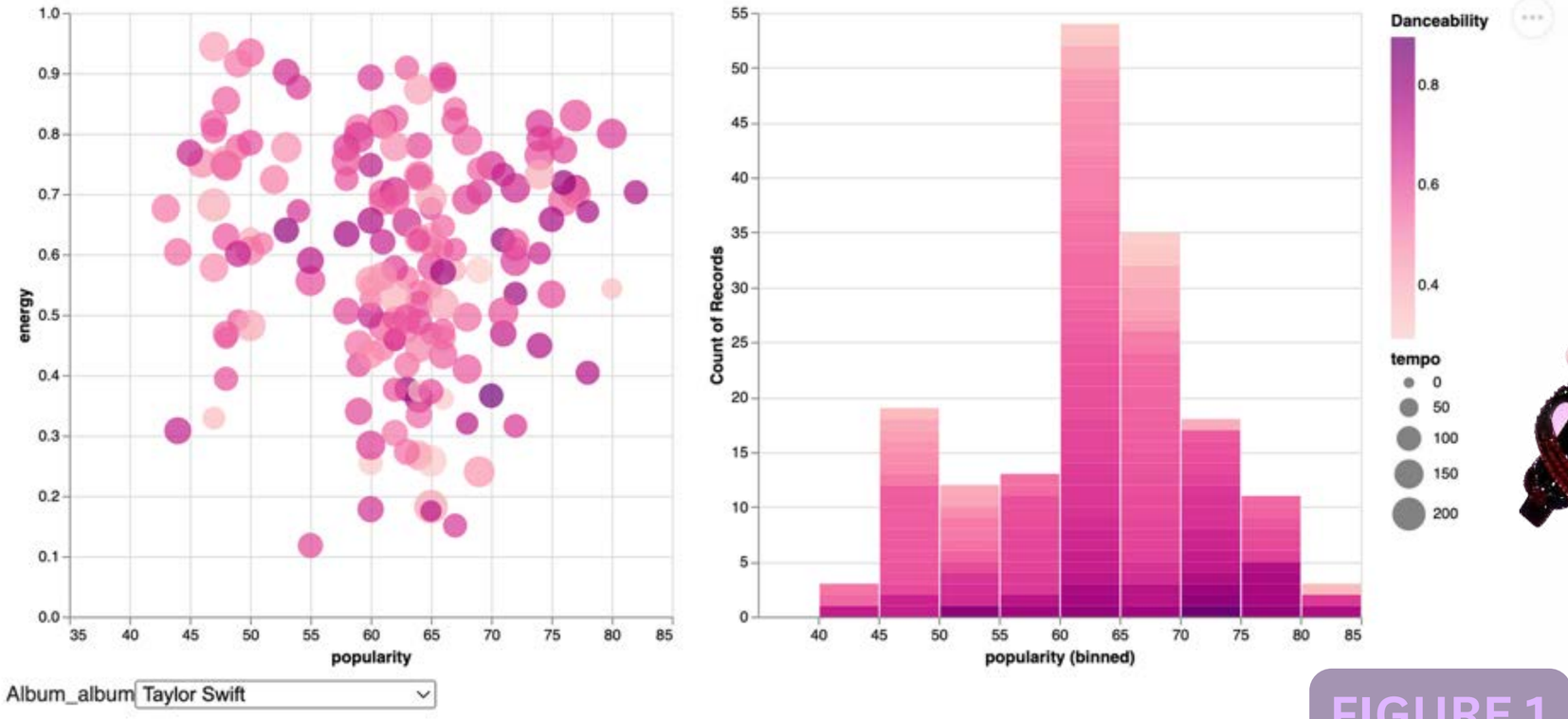
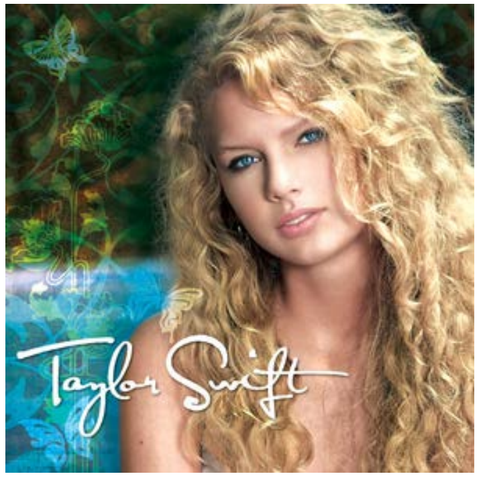
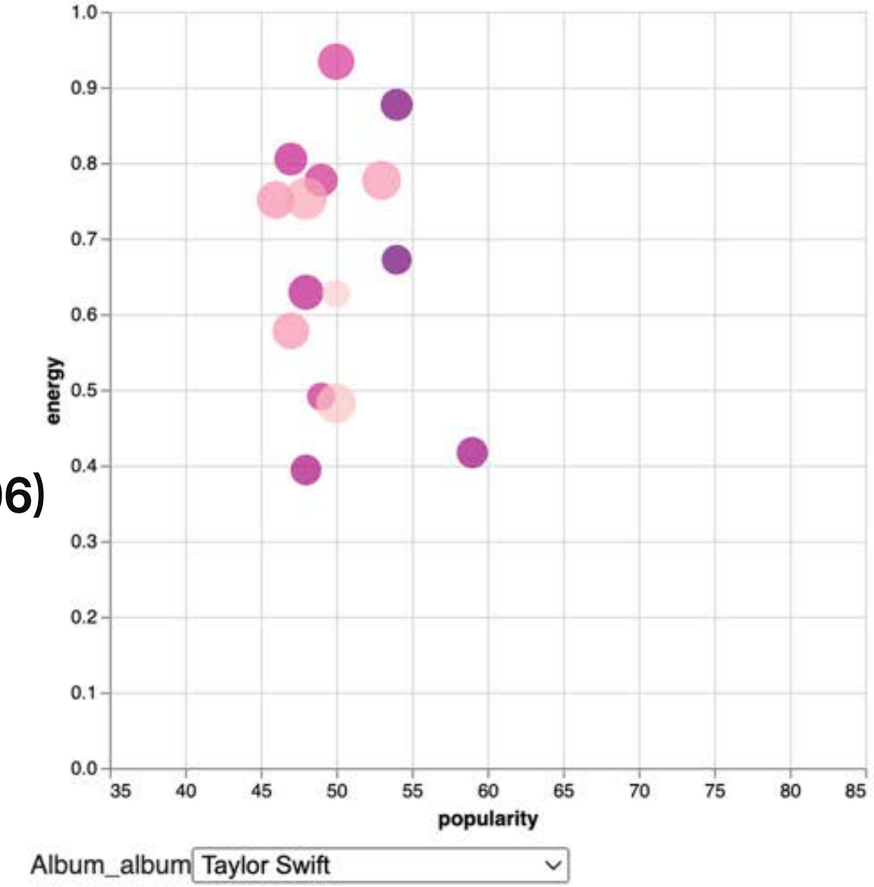


FIGURE 1



Album : Taylor Swift (2006)



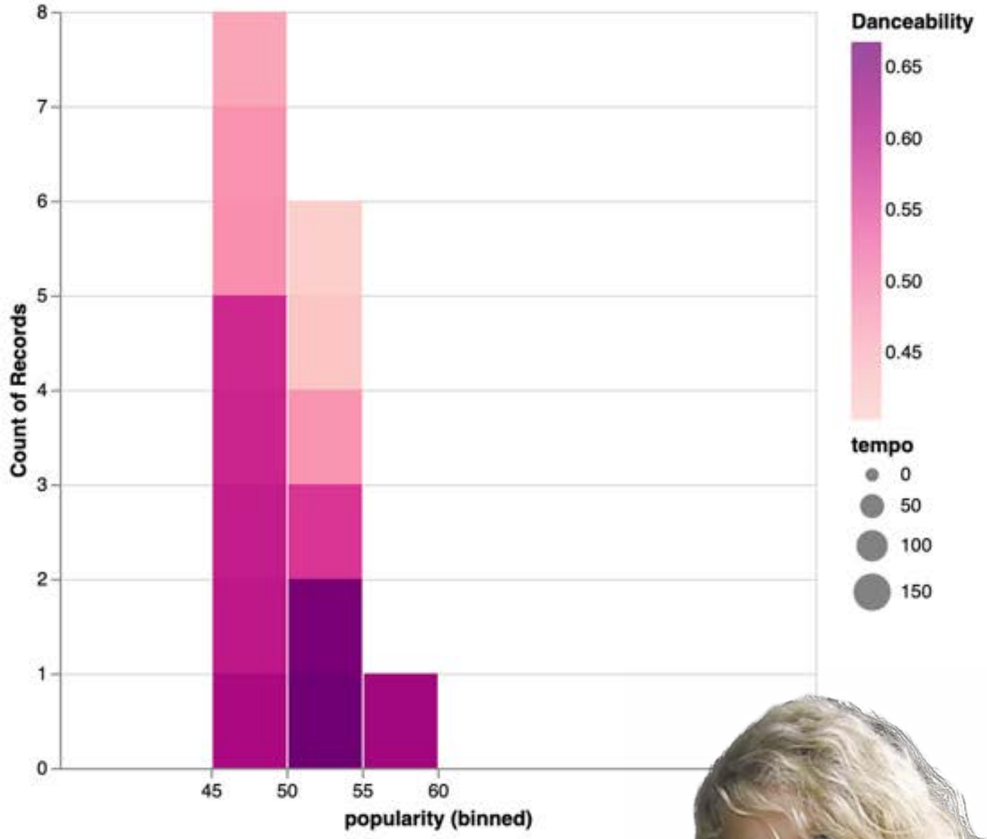
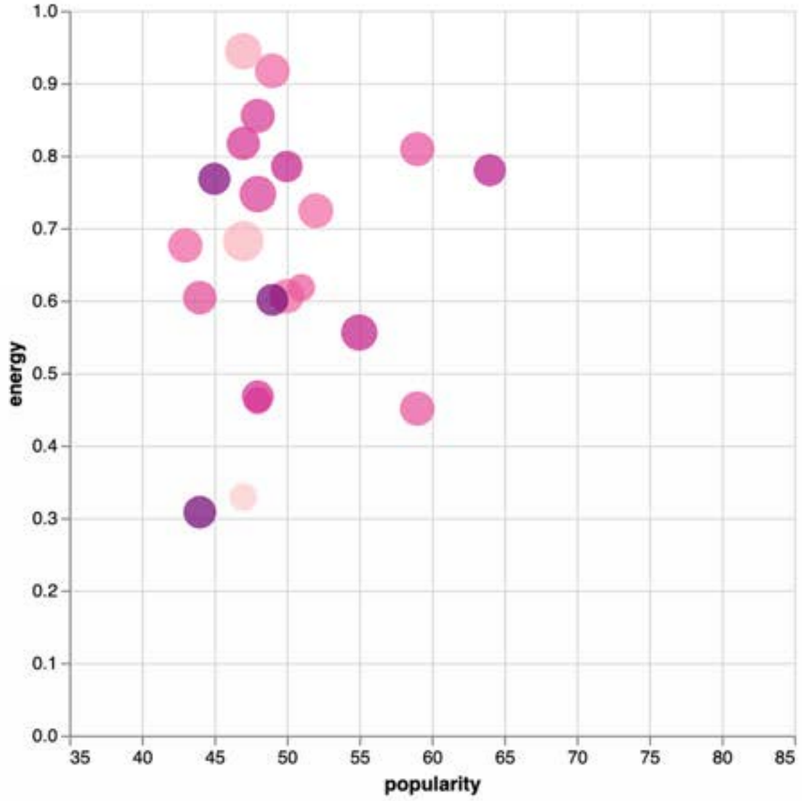


FIGURE 1

Taylor Swift's debut album, self-titled "Taylor Swift," was released in 2006 when she was just 16 years old. The album consisted of 11 tracks, all of which were written or co-written by Swift, and it was primarily a country-pop album. The album did have some success upon its release, debuting at number five on the Billboard 200 chart and selling over two million copies in the United States alone. However, it was not as popular as some of Swift's later albums (as we will see!)



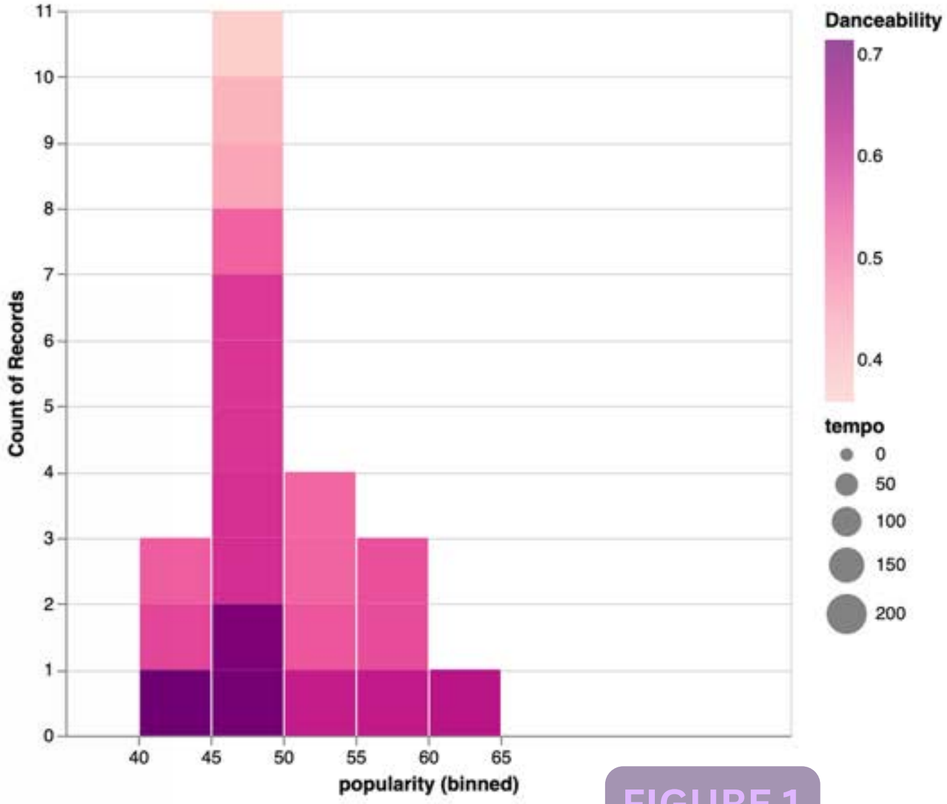


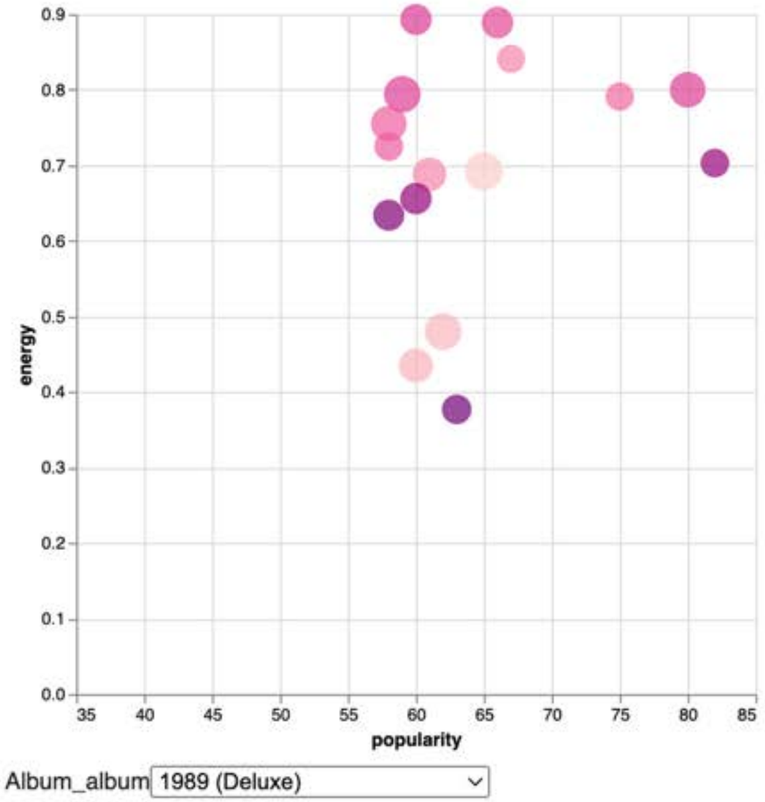
FIGURE 1

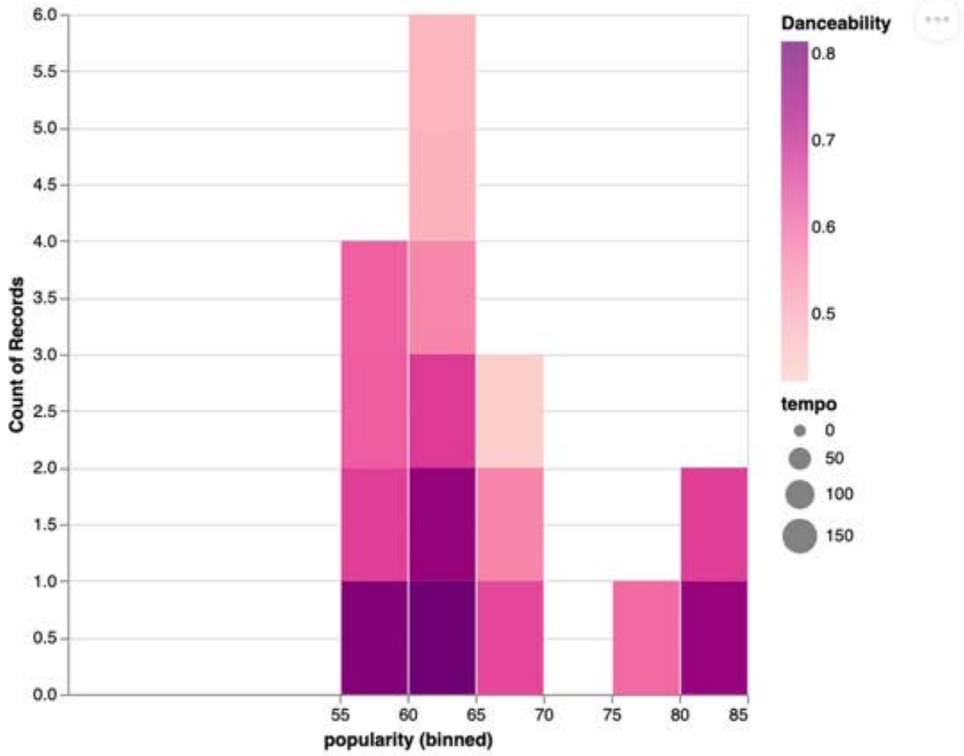
Album : Speak Now (2010)

Despite its success, Speak Now was not as popular as some of Swift's later work. One possible reason for this is that the album's genre-blending approach, while praised by critics, may not have resonated as much with mainstream audiences as some of Swift's more straightforward pop albums.

Taylor Swift's third studio album, "Speak Now," was released in 2010 and was a significant success for the artist. The album featured 14 tracks, all written solely by Swift herself, and incorporated elements of country, pop, and rock. One of the reasons for Speak Now's success was the critical acclaim it received, with many critics noting Swift's growth as a songwriter and her ability to craft catchy, emotionally resonant songs. The album debuted at number one on the Billboard 200 chart, selling over one million copies in its first week alone, and was eventually certified quadruple platinum by the RIAA.

Album : 1989 (2014)





Taylor Swift's fifth studio album, "1989," released in 2014, was a significant departure from her previous country-pop sound and marked her full transition into pop music. The album featured 13 tracks, all co-written by Swift, and was heavily influenced by 1980s synth-pop. "1989" was a massive commercial success and one of the best-selling albums of 2014. It debuted at number one on the Billboard 200 chart, selling over 1.2 million copies in its first week alone. The album was critically acclaimed, with many praising Swift's ability to reinvent herself and her music. One of the main reasons for the album's success was its massive lead single, "Shake It Off," which became a chart-topping hit and helped introduce Swift to a broader audience. Additionally, the album's pop sound and retro aesthetic were popular with younger audiences, who were drawn to its catchy hooks and upbeat energy.

Overall, we observed an upward trend in the popularity of Swift's albums over time!

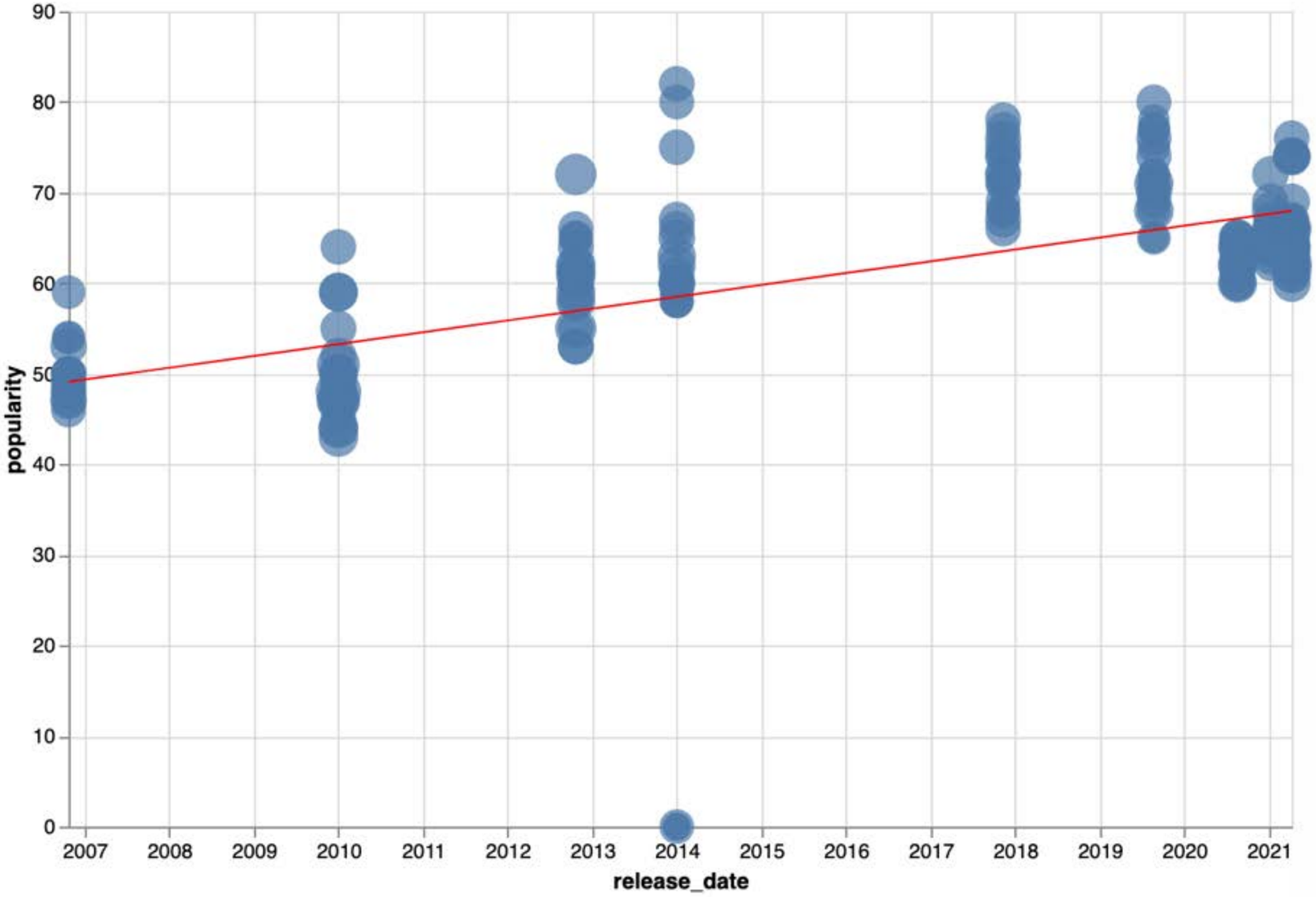
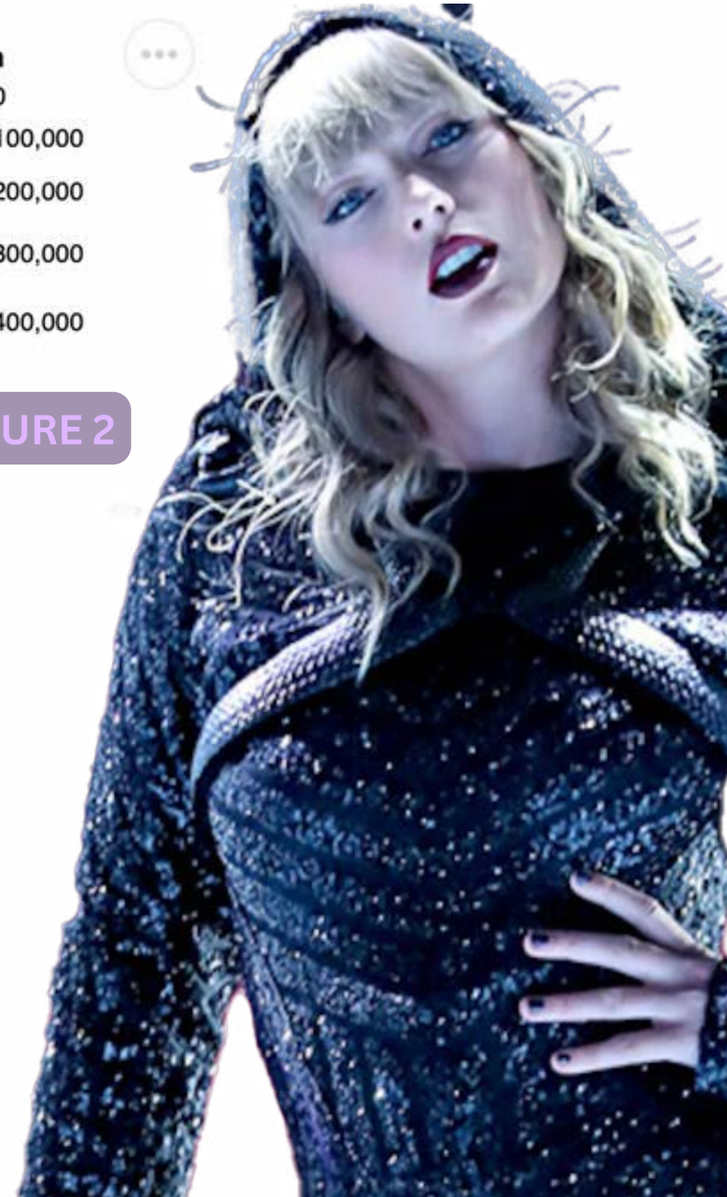


FIGURE 2



Surveying & Random Ratings

Our group conducted a study to compare the perception of Track 5 songs to non-Track 5 songs among our fellow students. We carried out the study on several occasions by setting up a station in the quad/pit where we asked participants to fill out a survey that included Track 5 songs, and spin a wheel to rate a random non-Track 5 song. After spinning the wheel, participants provided a rating for the song that the wheel landed on.

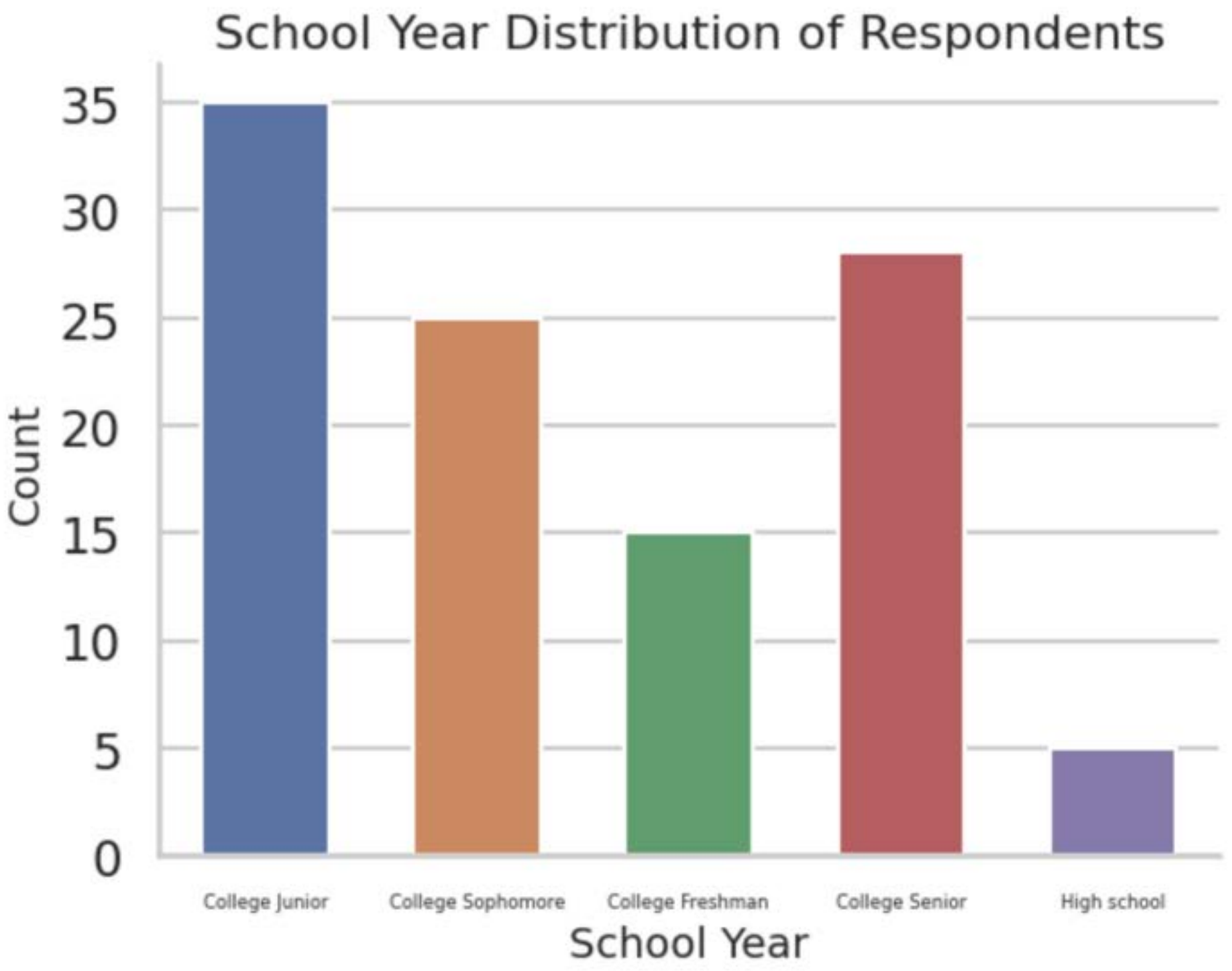
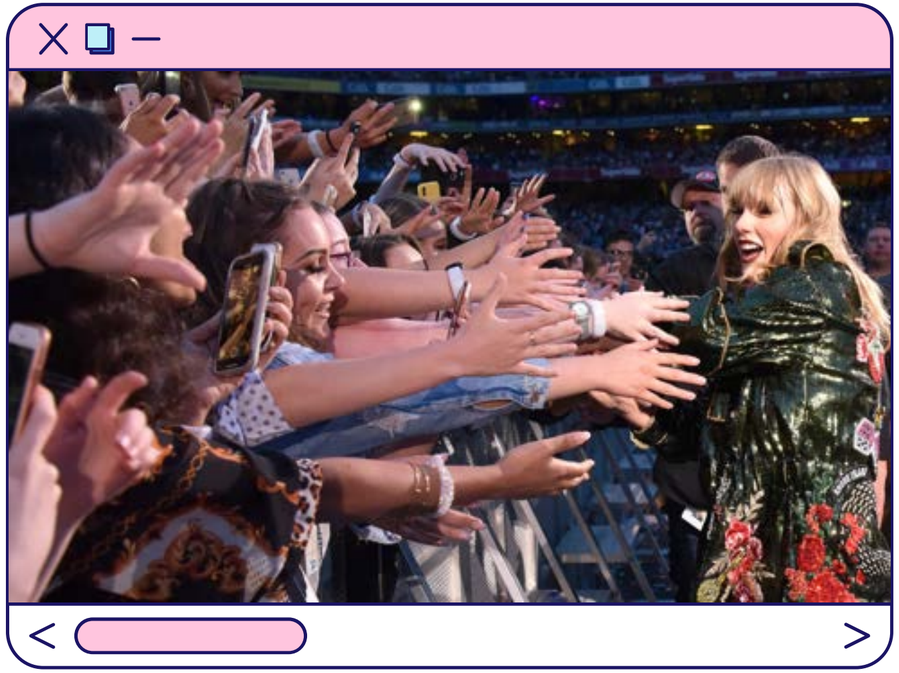


FIGURE 3

To provide a broad understanding of the age distribution among our surveyed population, we would like to present the following data. Based on our survey results, we have gathered information on the age range of respondents, which can help us better understand the overall trends and preferences of our survey participants.

What our survey respondents said about Taylor Swift's music:

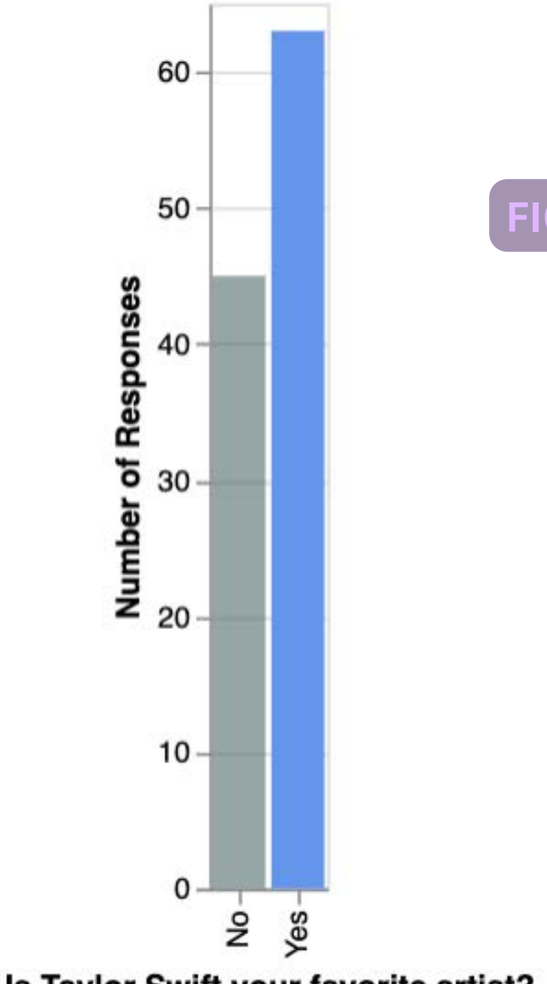


The visualization on the right is a combination of view coordinated graphs. The data that we used to make these graphs is from the survey that we sent to various UNC students and visitors.

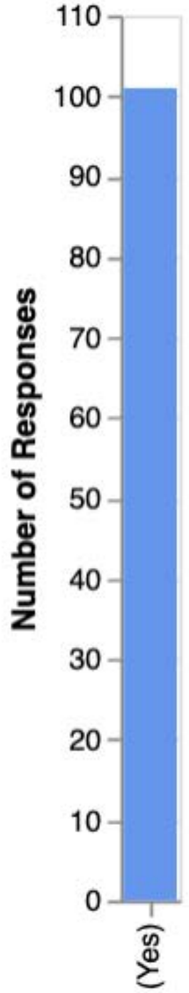
our survey responses are linked here:

https://docs.google.com/forms/d/1f6ZNUUcSK07CRoUzbzRKkZkaesRm6LRquXPAb2XU60s/edit#responses

FIGURE 4

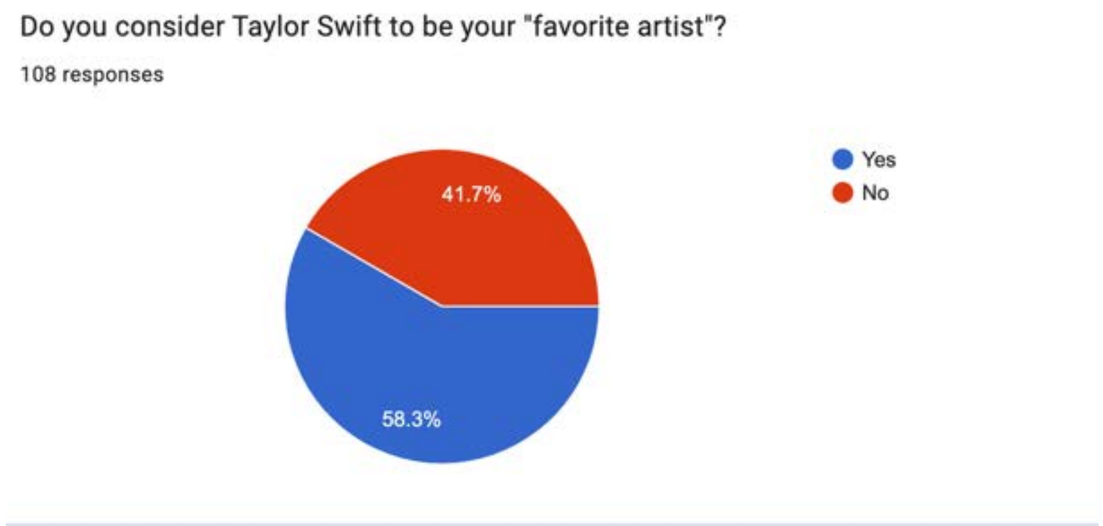


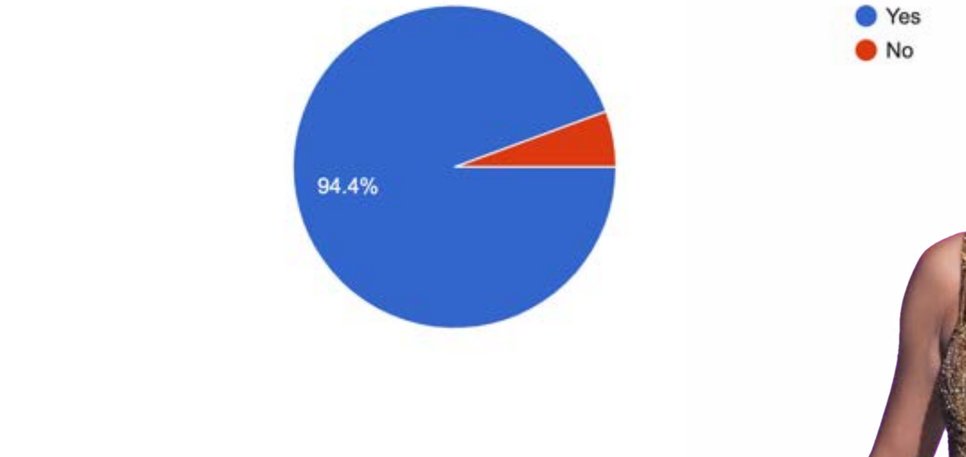
Is Taylor Swift your favorite artist?



Do you think she is more successful than other artists?

What our survey respondents said about Taylor Swift's music:





The graphs on the left are from two questions on our respondent survey. These two questions are also represented in the histograms above. These graphs depict that the majority of respondents consider Taylor Swift to be their favorite artist, and the majority of respondents also consider her to be more successful than other musical artists.

The visualization that is represented by the combination of view-coordinated histograms in the slide before this one, represents the same information as the two pie charts on the left. Since the two histograms in visualization are view-coordinated, once you select a bar on the histogram on the left, another corresponding bar appears on the graph on the right.

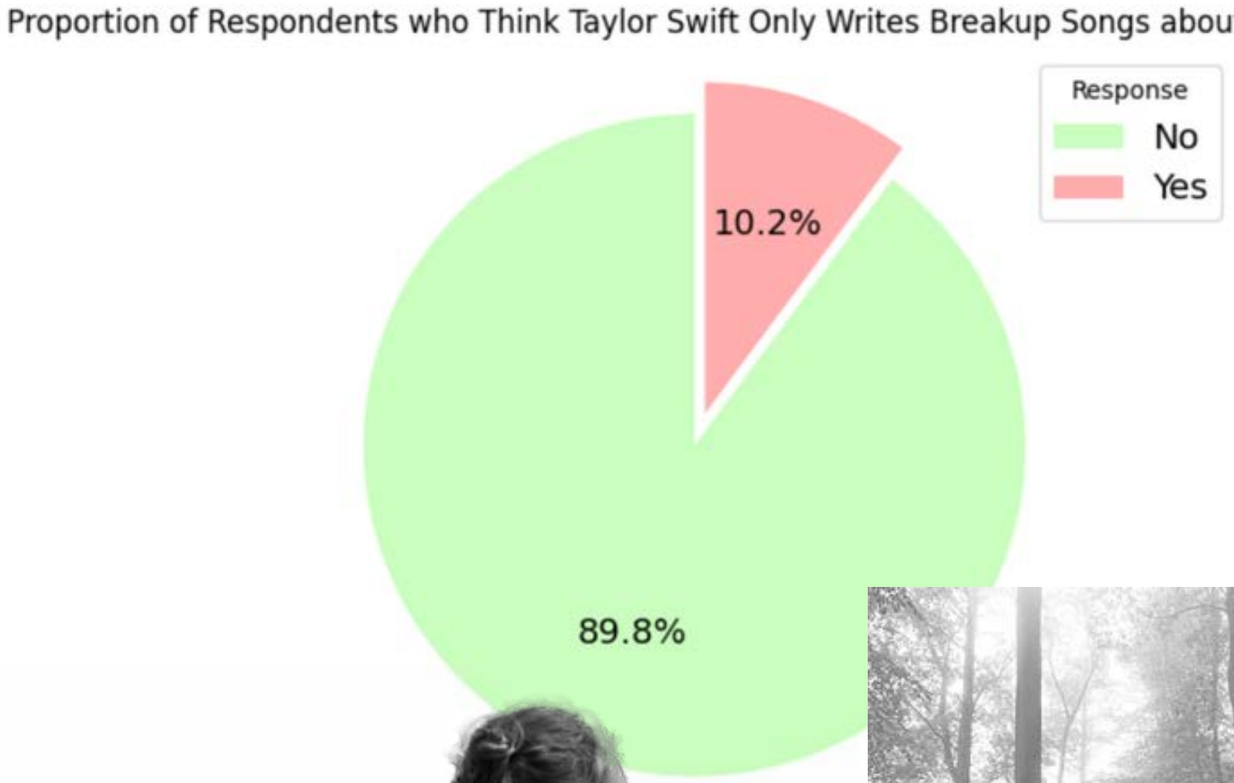
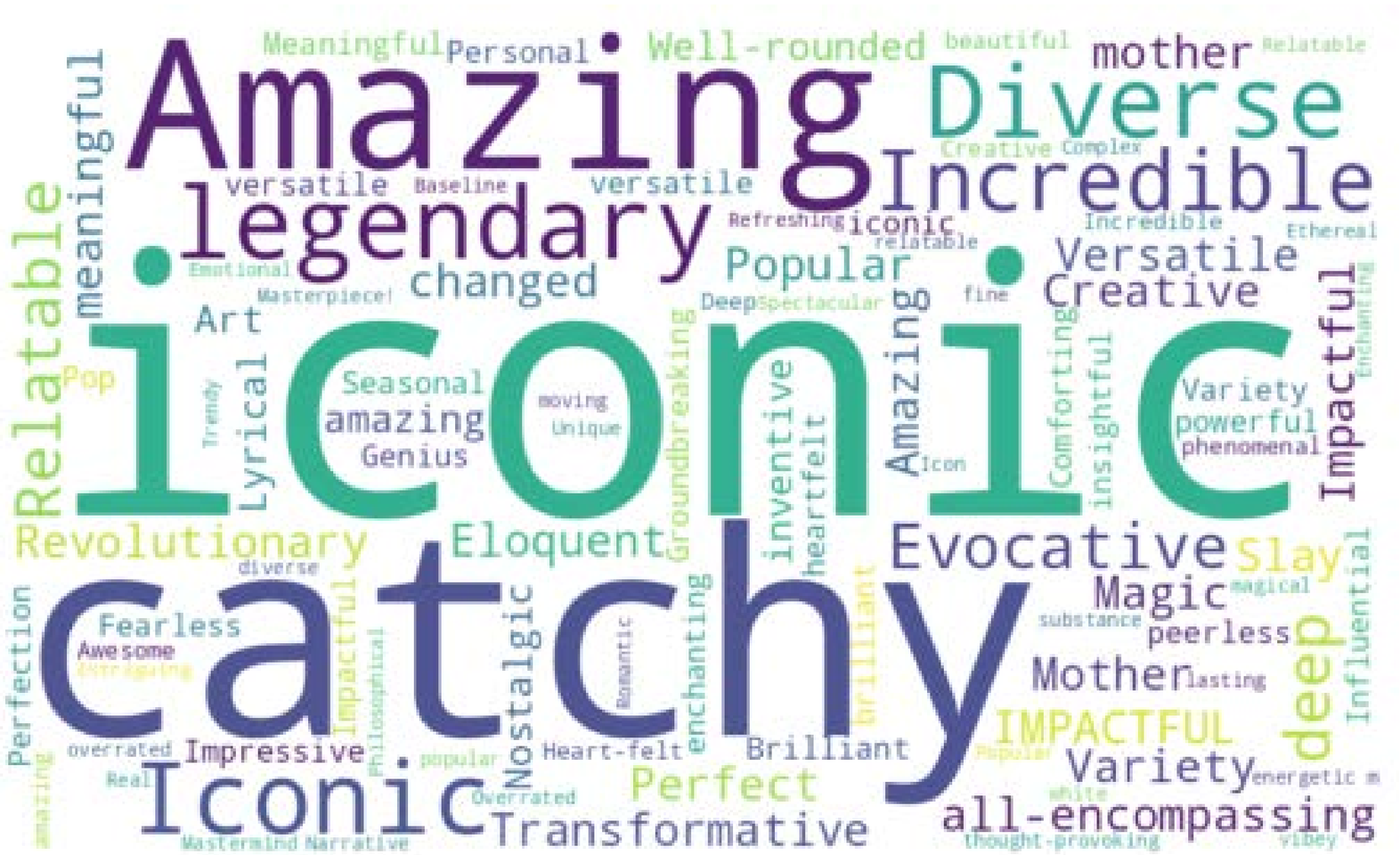


FIGURE 6

Based on the results of our survey, which asked the question "Does Taylor Swift only write songs about her exes?", it appears that the majority of respondents answered "no". This suggests that the perception that Taylor Swift exclusively writes songs about her past relationships may not be accurate.

It is true that Taylor Swift has been known to write songs about her personal experiences and relationships, which has led to speculation and scrutiny about her romantic life. However, it is important to note that she has also written many songs that are not explicitly about her past romantic relationships. For example, her album "Folklore" features songs that are more introspective and contemplative, exploring themes of identity, self-reflection, and personal growth.

"Choose one word to describe Taylor's music"

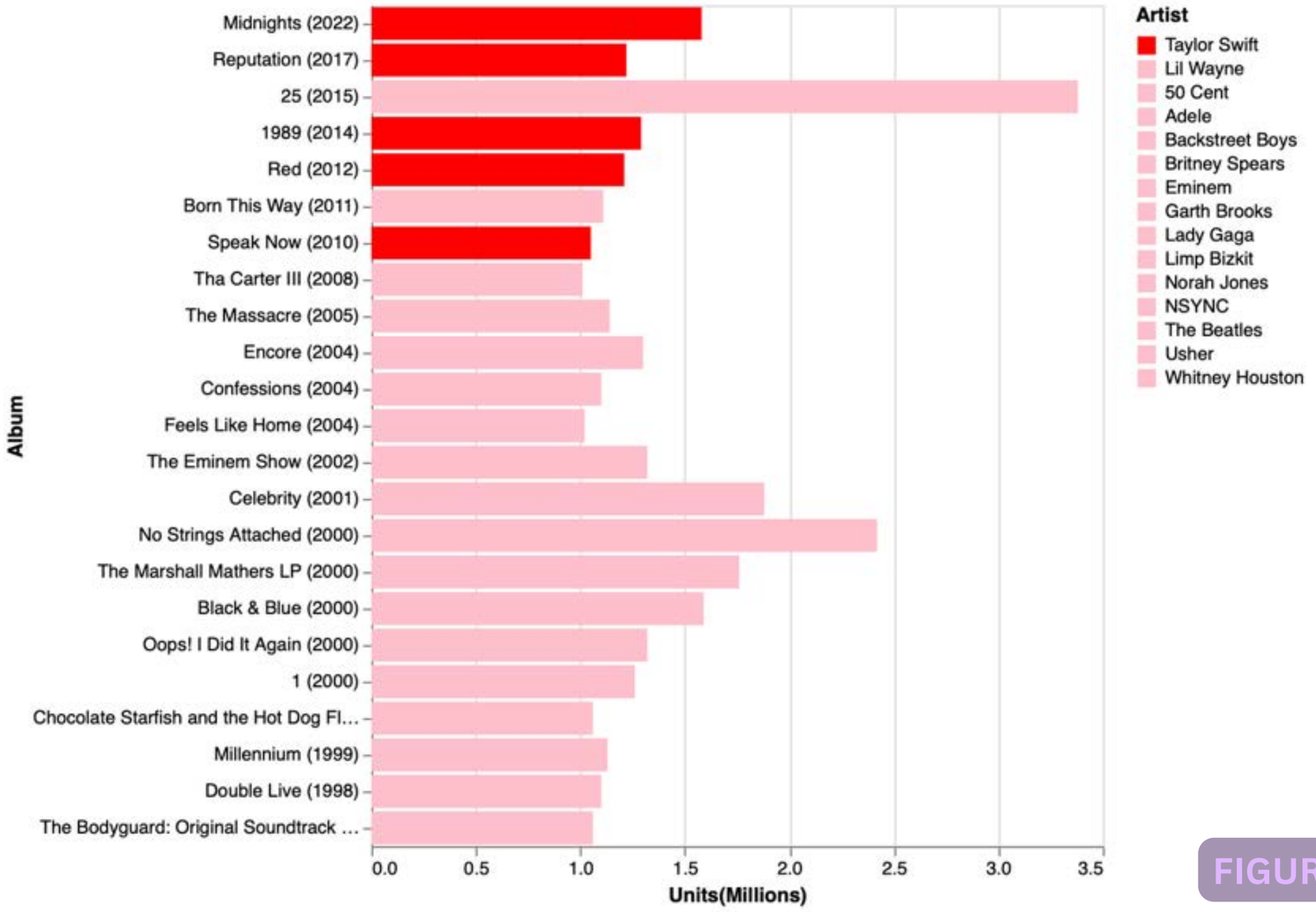


As part of our survey, we asked respondents to choose one word to describe Taylor Swift's music, and we used the data collected to create a word cloud. A word cloud is a visual representation of the most commonly used words in a given text or dataset, where the size of each word corresponds to its frequency. Our word cloud provides insight into how respondents perceive Taylor Swift's music, highlighting the qualities that are most commonly associated with her work. The results suggest that Taylor Swift's music is valued for many qualities.

FIGURE 7

Why Taylor Swift should not be taken lightly...

The below visualization shows albums that sold a million copies in a week



Midnights enjoyed the biggest sales week since Adele's "25" seven years ago. That albumb still holds the most first week sales, with 3.38 million.

With her latest album, Taylor Swift has achieved her greatest debut to date, selling 1.58 million copies across various formats in its initial week. She has become the first artist to sell a minimum of a million copies in a single week for five distinct albums. "Midnights" has also had the biggest sales week since Adele's "25."

FIGURE 8

Total Number of Songs vs Total Number of Streams

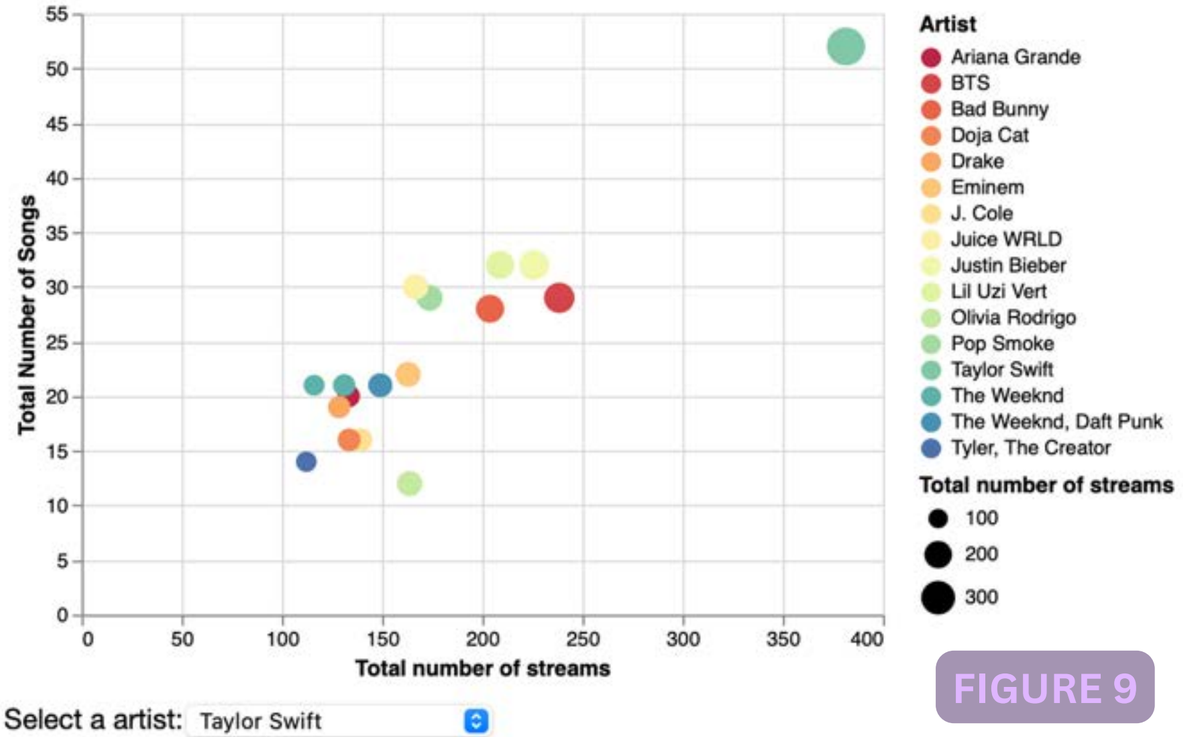


FIGURE 9

Taylor Swift

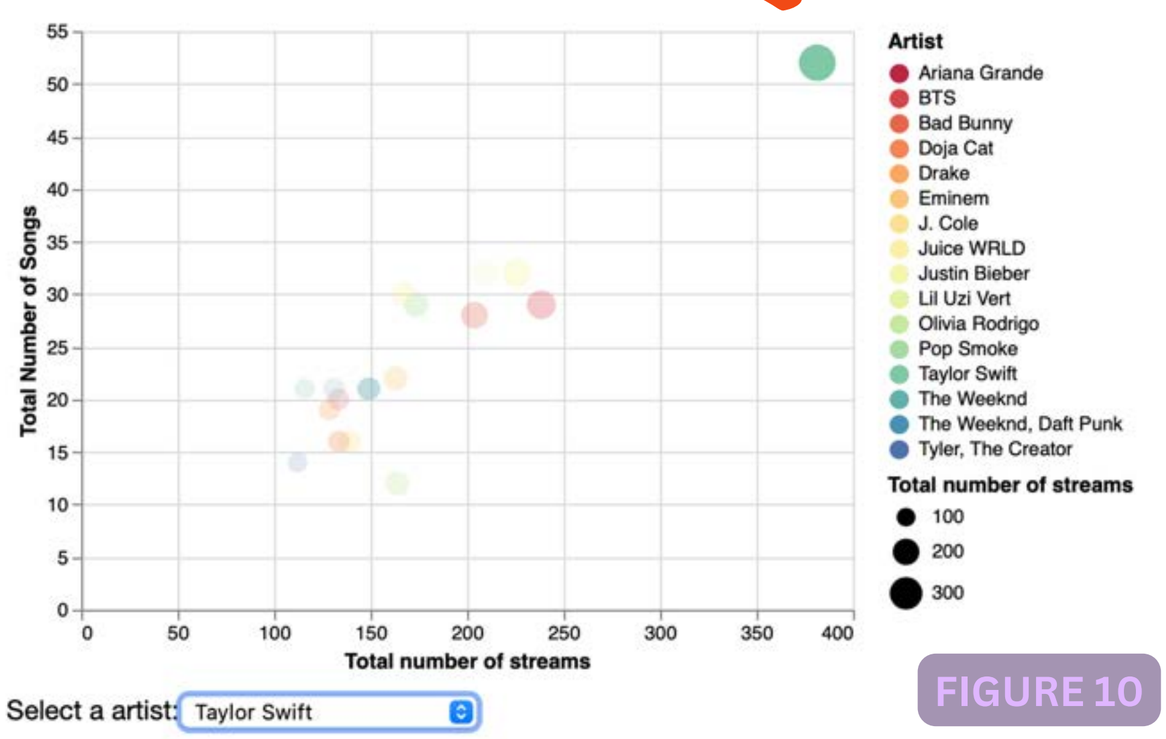


FIGURE 10

This graph shows the relationship between total number of songs and total number of streams across various popular artists. When one selects Taylor Swift, one can see how her total number of songs released in one year (52) is much higher compared to other artists. With all streams combined, one can see that her number of streams is significantly higher than any other artist.

Streaming and Publishing Sales Years 2019-2021

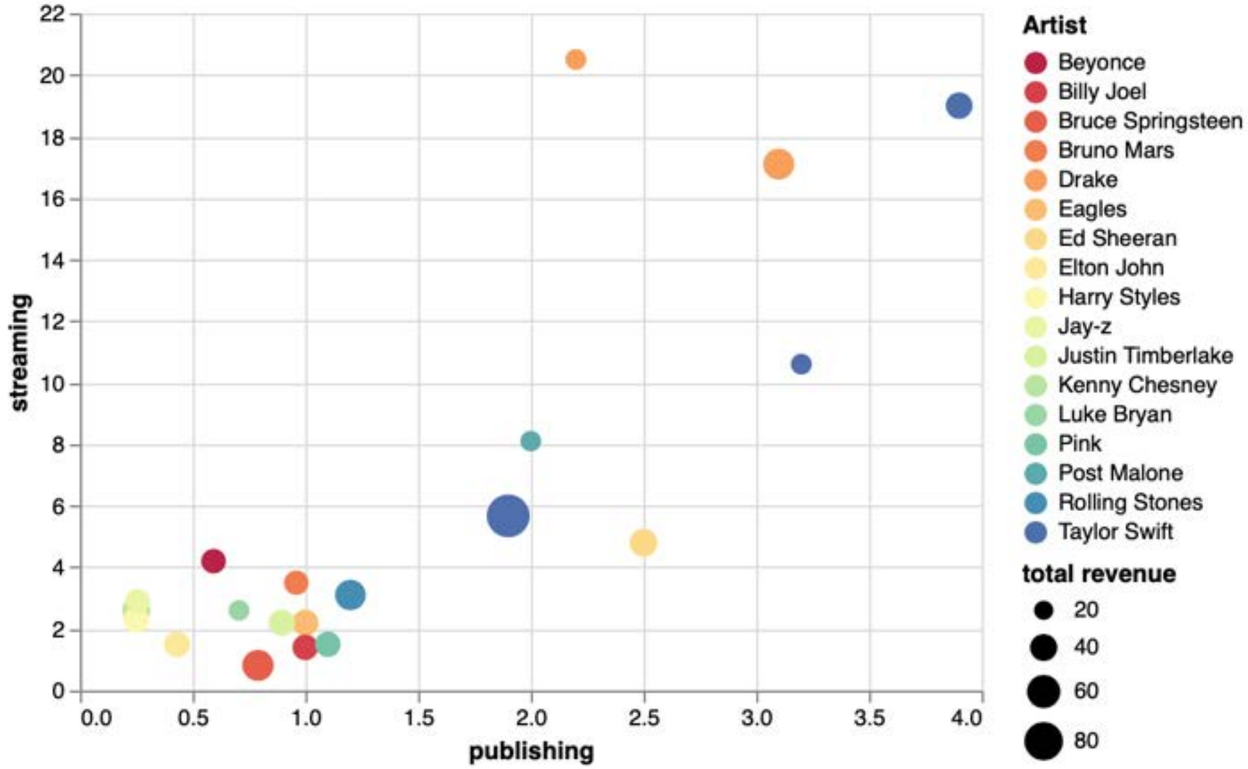
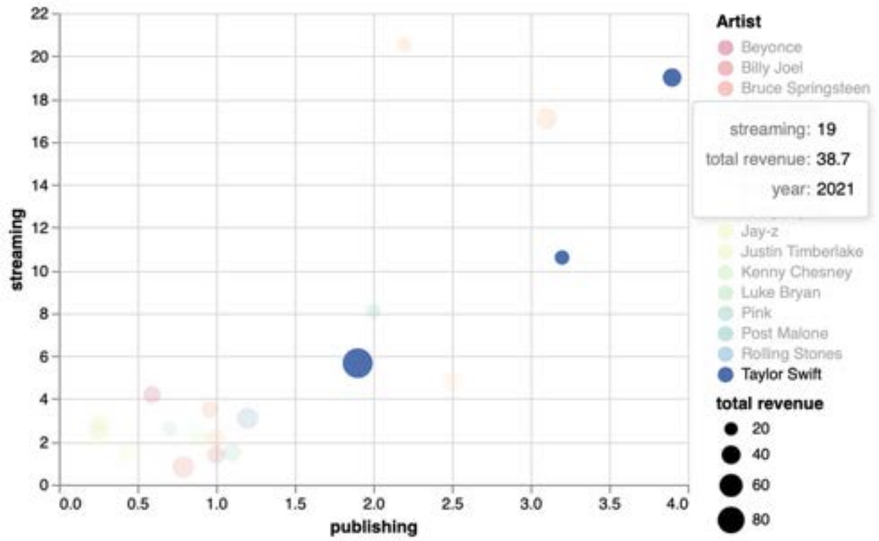
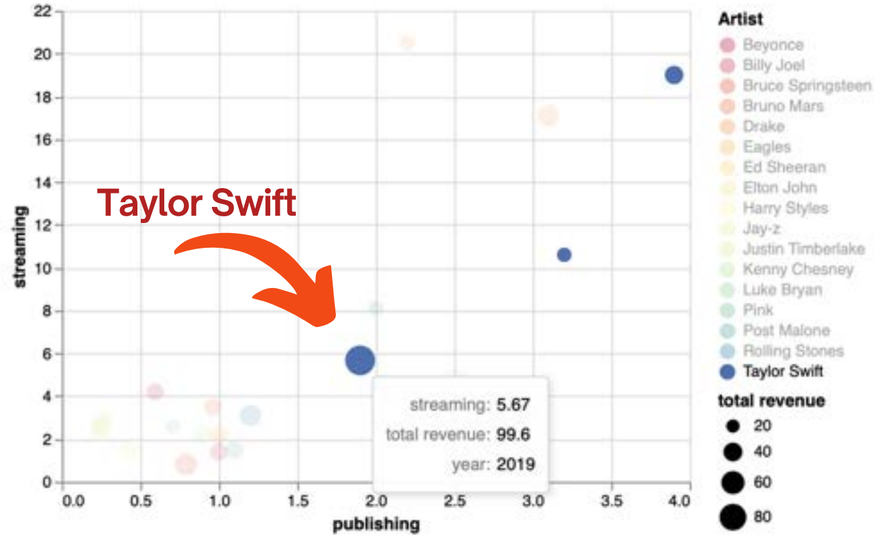


FIGURE 11





This graph shows different streams of revenue across different artists through the years 2019 to 2021. One can see that when selecting Taylor Swift, her publishing and streaming revenues has grown consistently through the years.

This graph shows the revenues of popular music artists compared to Taylor Swift. Though her achievements and impact on the music world are still being undermined by many people, her revenue and growth in music industry continue to be on par with if not greater than many of the best music artists around the world.

Comparing Taylor's revenue growth compared to other artists...

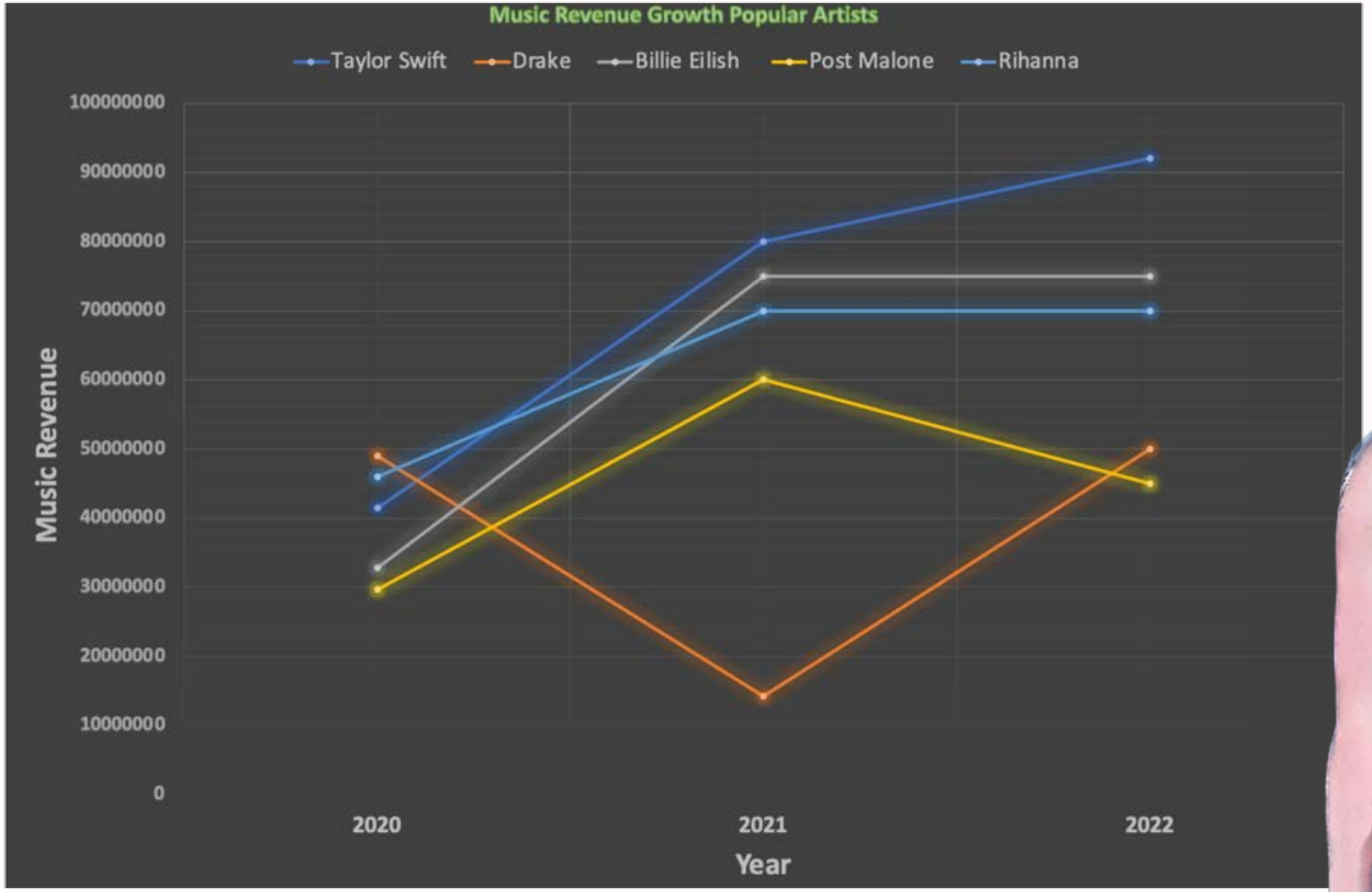
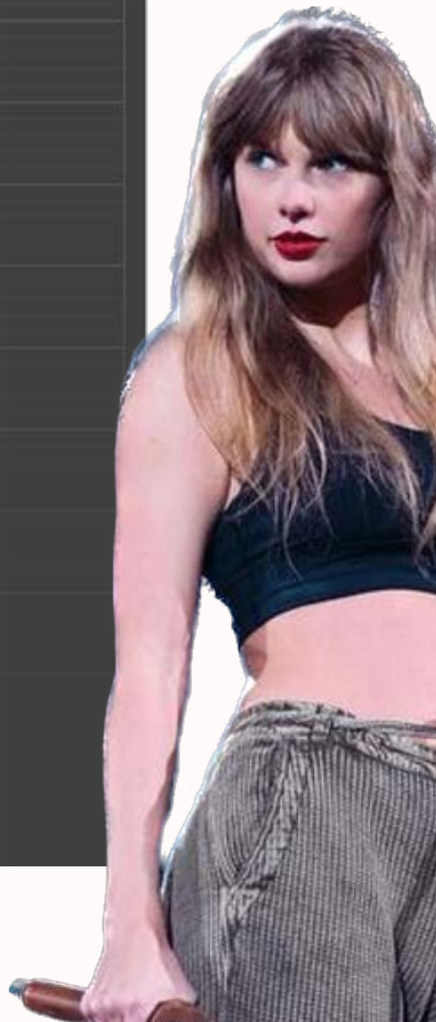


FIGURE 27



Comparing the streams of Taylor Swift's break-up songs versus her non break-up songs

We were wondering about the difference between the number of streams between the "break up songs" on Swift's albums, versus the "non break -up" songs on each of her ten albums. As highlighted in an article by Washington Post titled, **"If you think Taylor Swift sings only about her exes, then you don't get Taylor Swift"**, for far too long people have assumed that Taylor only writes about her past relationships.

We used ten different data visualizations to put this idea to the test. We created one visualization for every album that Taylor has a released to date, as a bar graph (using Altair). Each graph shows that for every "break up" song on her albums, there is a non break up song which has a higher number of streams on Spotify. By identifying the lyrical nature of each song we chose songs that deal with the idea of moving on from a relationship and songs that do not pertain to that topic.

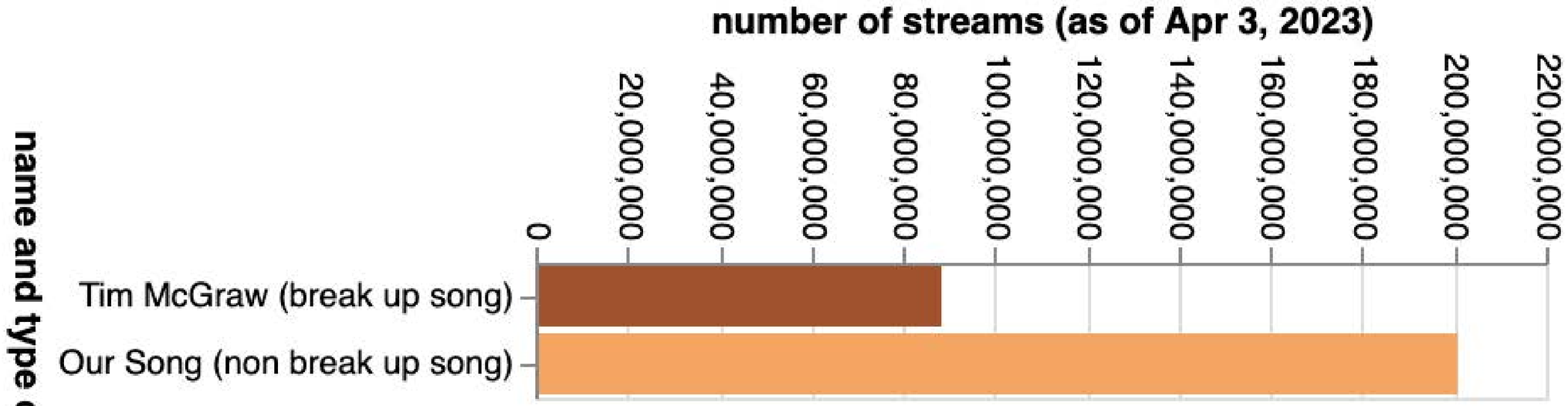


FIGURE 14

Tim McGraw (break up song)

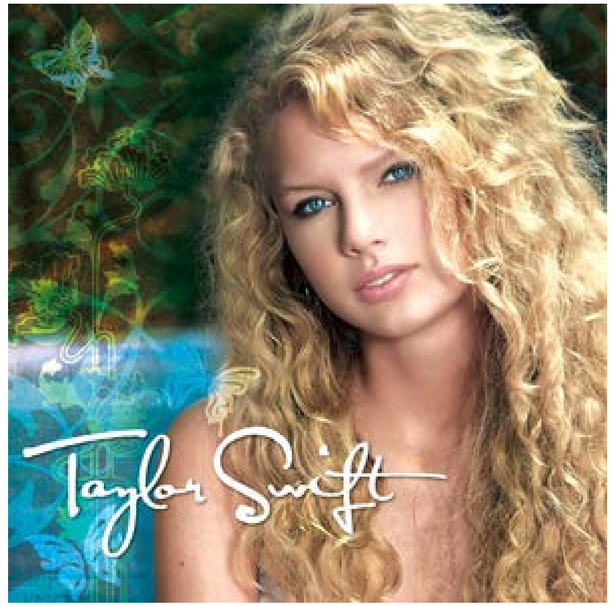
87,673,744 Spotify Streams

"But when you think Tim McGraw, I hope you think my favorite song"

"He's got a one-hand feel on the steering wheel The other on my heart"

Our Song (non break up song)

200,074,240 Spotify Streams



Album : Taylor Swift (2006)

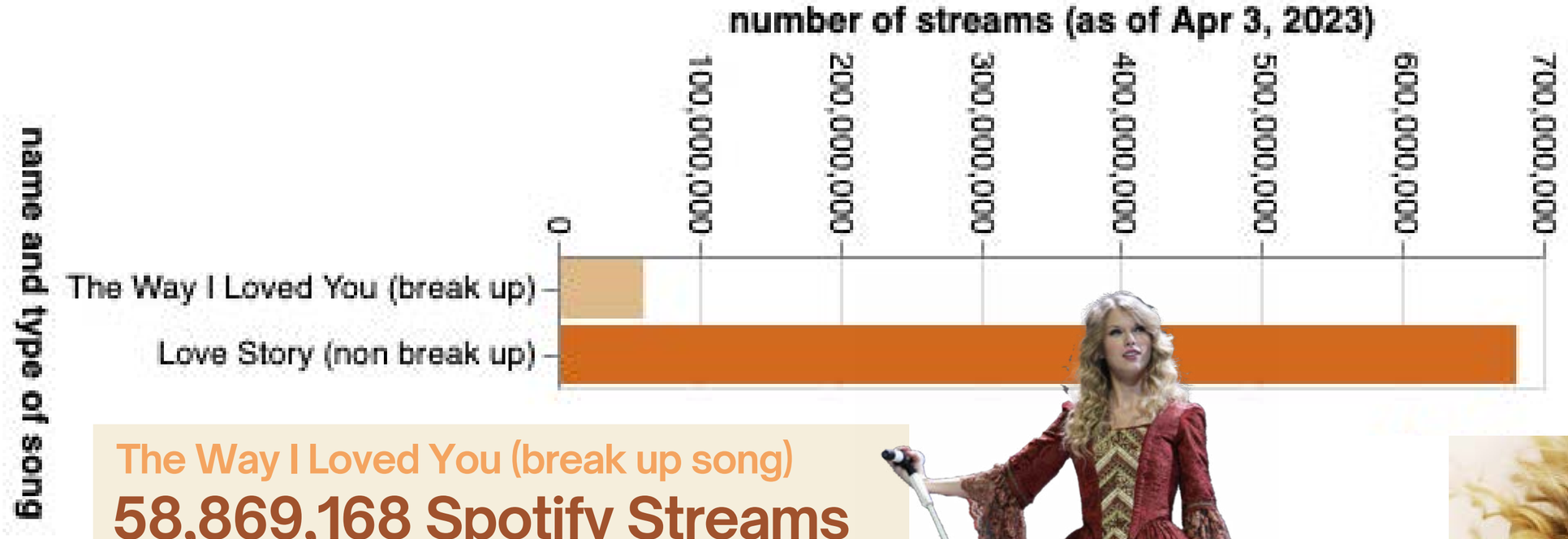


FIGURE 13

The Way I Loved You (break up song)

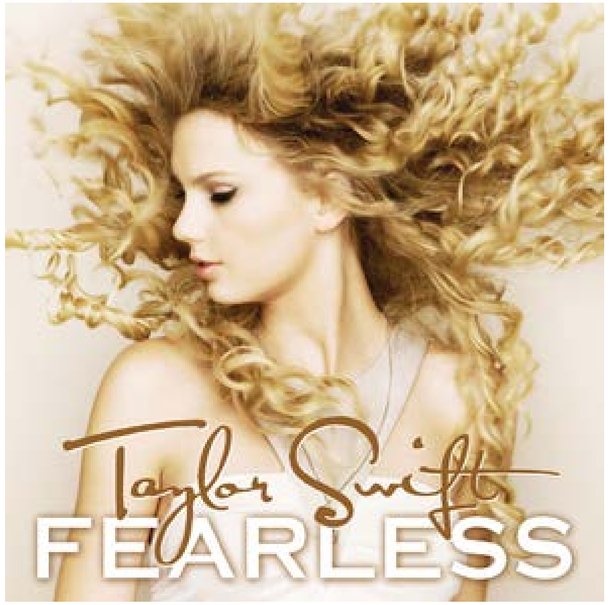
58,869,168 Spotify Streams

"But I miss screaming and fighting and kissing in the rain And it's 2 a.m. and I'm cursing your name"

"We were both young when I first saw you I close my eyes and the flashback starts"

Love Story (non break up song)

679,269,245 Spotify Streams



Album : Fearless (2008)

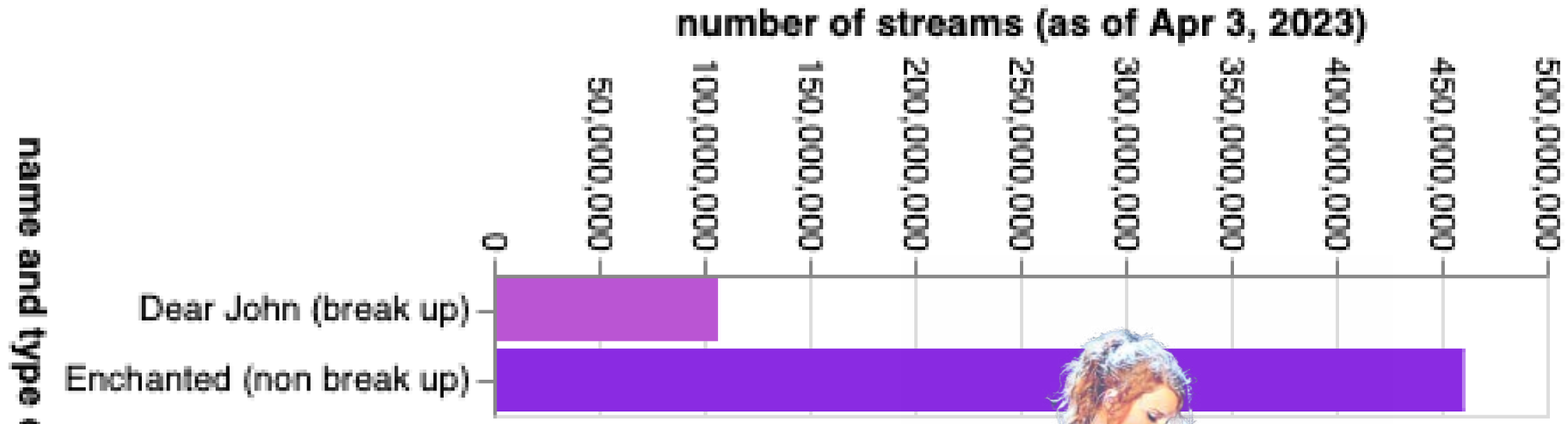


FIGURE 15

Dear John (break up song)

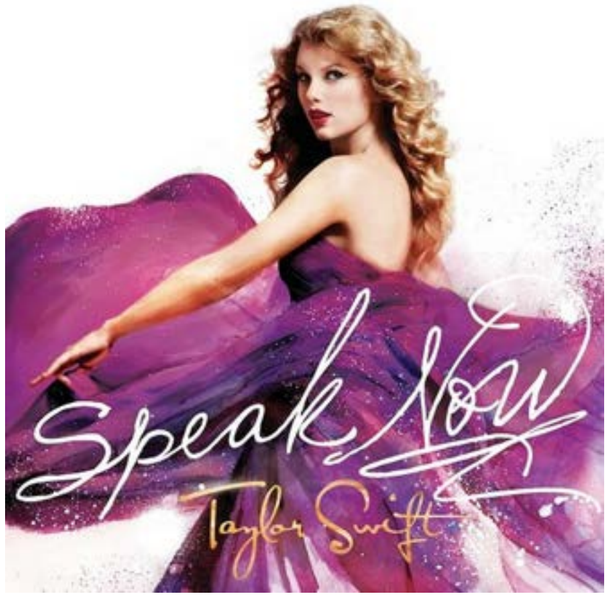
105,045,91 Spotify Streams

"Dear John, I see it all now that you're gone
Don't you think I was too young to be messed with?"

"And it was enchanting to meet you
All I can say is, I was enchanted to meet you"

Enchanted (non break up song)

459,331,131 Spotify Streams



Album : Speak Now (2010)

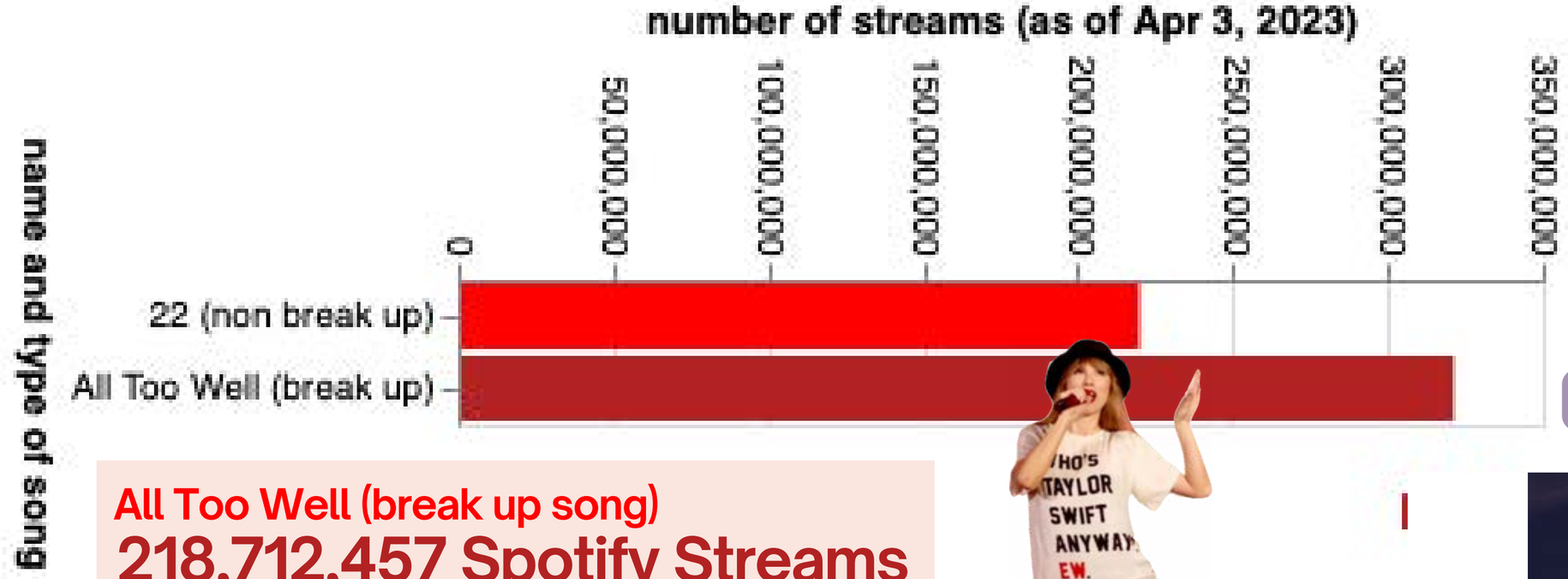


FIGURE 16

All Too Well (break up song)

218,712,457 Spotify Streams

"And I know it's long gone and that magic's not here no more And I might be okay but I'm not fine at all"

"I don't know about you, but I'm feeling 22 Everything will be alright if you keep me next to you"

22 (non break up song)

320,090,749 Spotify Streams

Album : Red (2012)

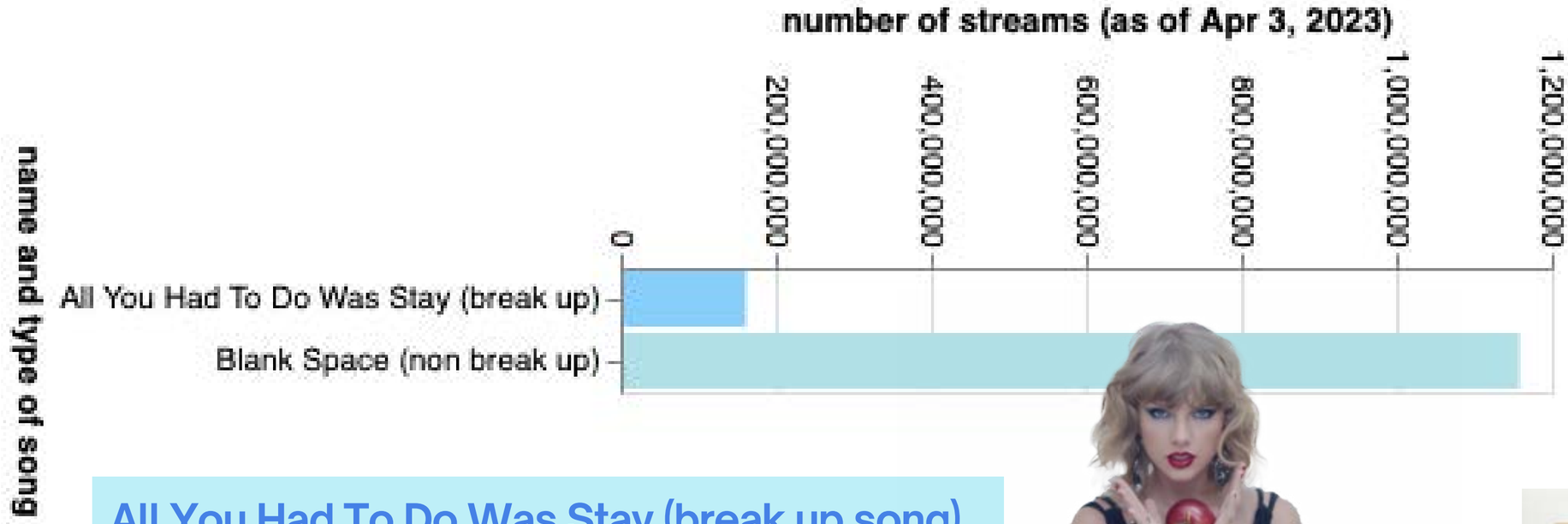


FIGURE 17

All You Had To Do Was Stay (break up song)

157,799,487 Spotify Streams

"Here you are now, calling me up, but I don't know what to say I've been picking up the pieces of the mess you made"

"Stolen kisses, pretty lies You're the King, baby, I'm your Queen"

Blank Space (non break up song)

1,154,533,148 Spotify Streams

Album : 1989 (2014)

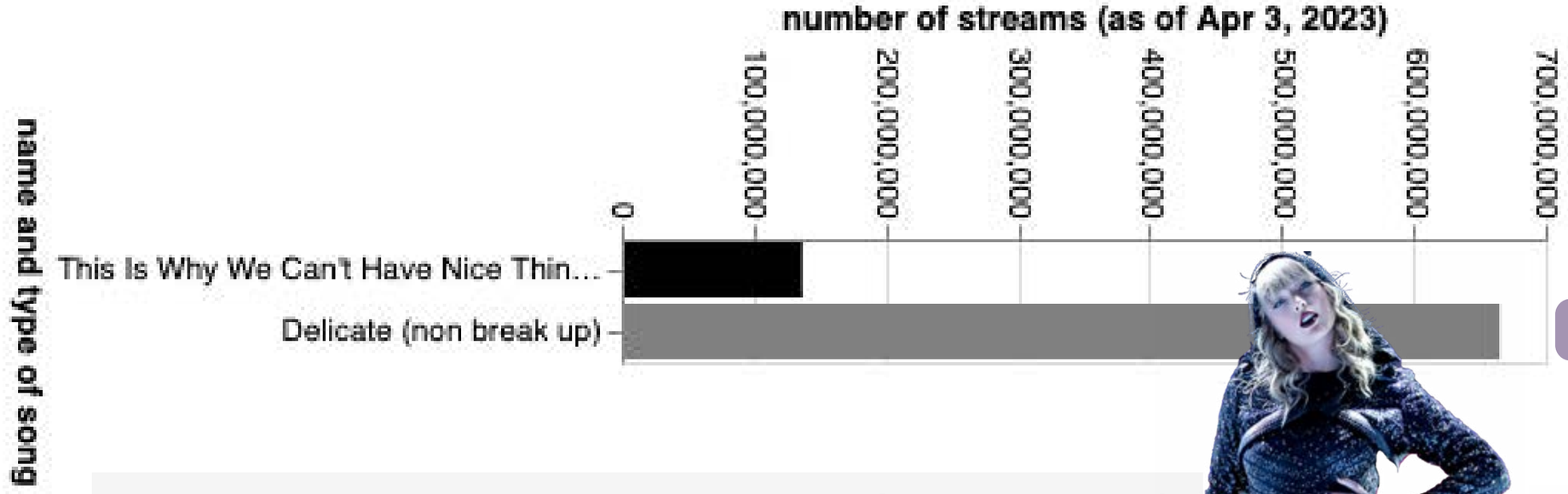


FIGURE 18

This Is Why We Can't Have Nice Things (break up song)

134,778,163 Spotify Streams

"This is why we can't have nice things, darling Because you break them, I had to take them away"

"Dark jeans and your Nikes, look at you Oh, damn, never seen that color blue"

Delicate (non break up song)

663,056,389 Spotify Streams

Album : Reputation (2017)

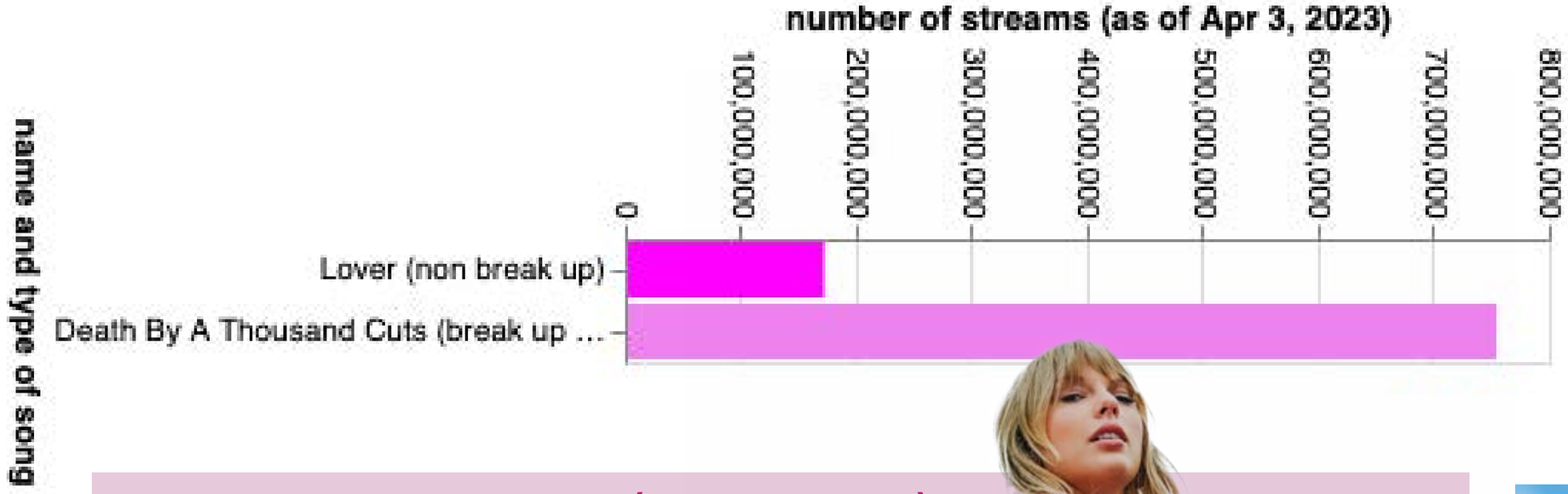


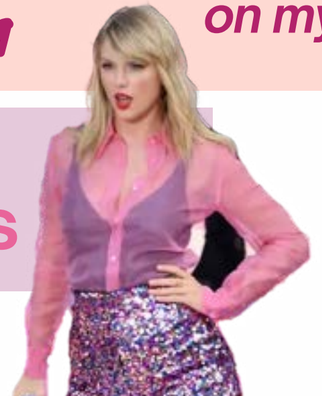
FIGURE 19

Death By A Thousand Cuts (break up song)

752,179,611 Spotify Streams

"Saying goodbye is death by a thousand cuts
Flashbacks waking me up"

"Ladies and gentlemen, will you please stand?
With every guitar string scar on my hand"



Lover (non break up song)

169,518,941 Spotify Streams

Album : Lover (2019)

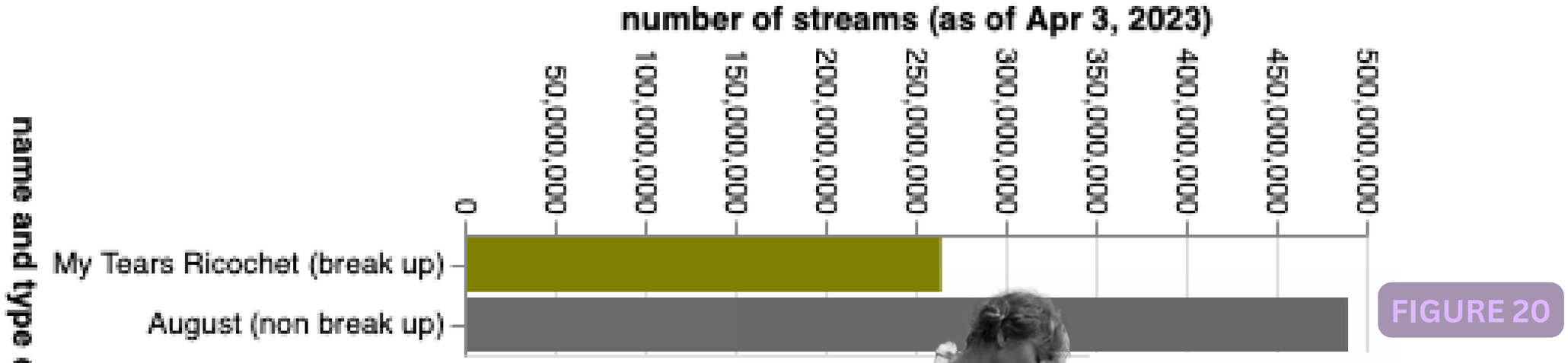


FIGURE 20

My Tears Ricochet (break up song)

262,899,843 Spotify Streams

"And if I'm dead to you, why are you at the wake?
Cursing my name, wishing I stayed"

Salt air, and the rust on your door
I never needed anything more

August (non break up song)

488,270,367 Spotify Streams

Album : Folklore (2020)

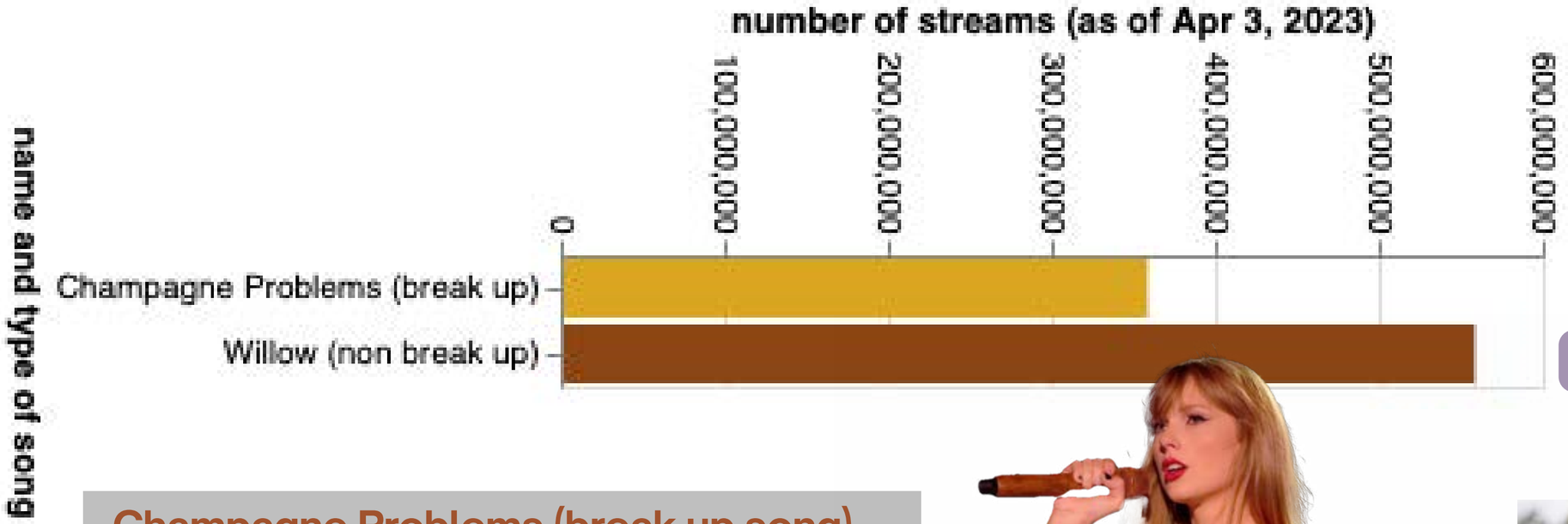


FIGURE 21

Champagne Problems (break up song)

356,834,16 Spotify Streams

"You had a speech, you're speechless
Love slipped beyond your reaches"

Wait for the signal and I'll meet you after dark
Show me the places where the others gave you scars

Willow (non break up song)

556,748,156 Spotify Streams

Album : Evermore (2020)

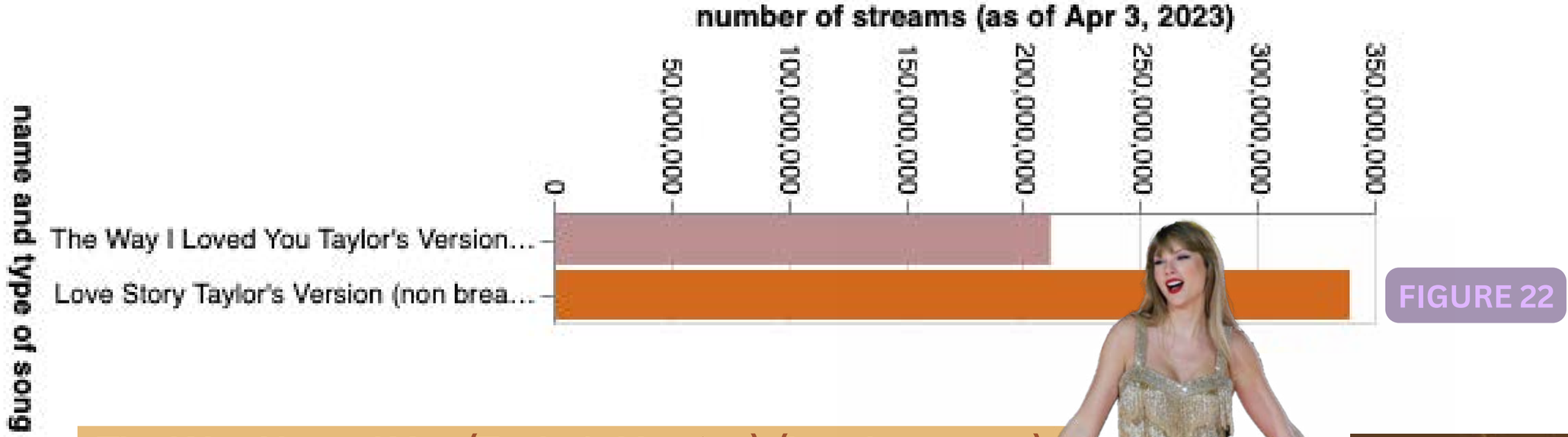


FIGURE 22

The Way I Loved You (Taylor's Version) (break up song)

210,911,059 Spotify Streams

"Never knew I could feel that much
And that's the way I loved you"

"Romeo, take me somewhere we can be alone
I'll be waiting, all there's left to do is run"

Love Story (Taylor's Version) (non break up song)

338,476,860 Spotify Streams

Album : Fearless (Taylor's Version) (2021)

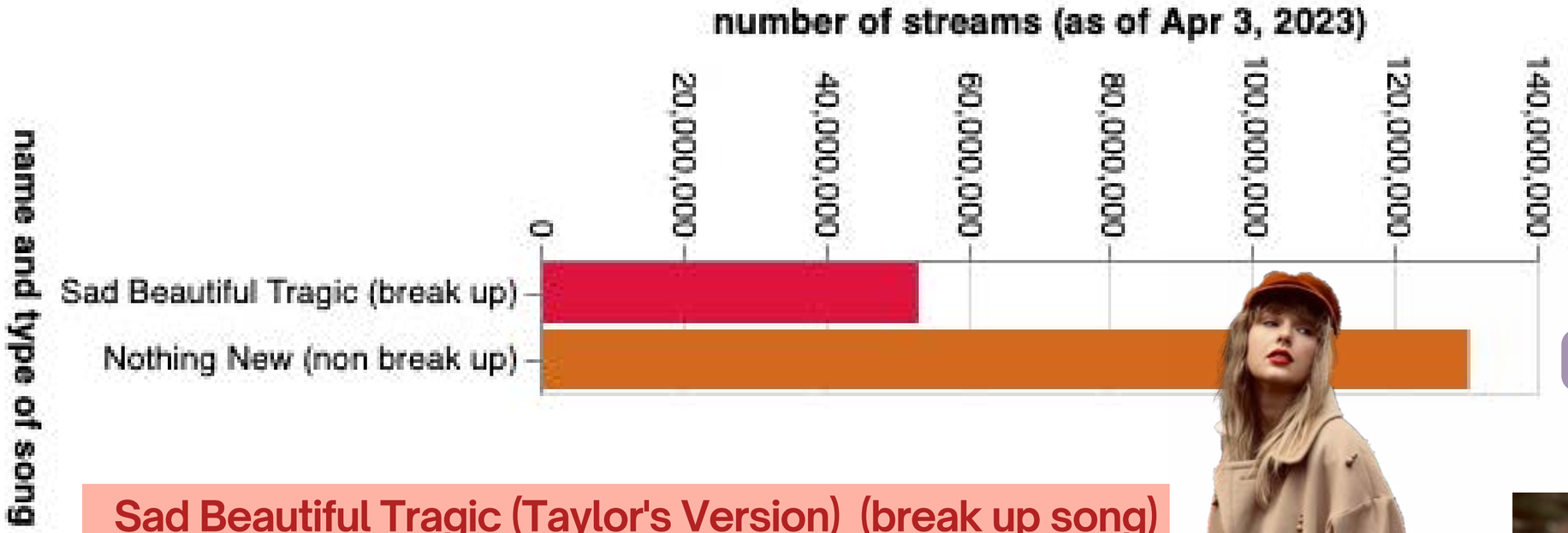


FIGURE 23

Sad Beautiful Tragic (Taylor's Version) (break up song)

52,705,578 Spotify Streams

"We had a beautiful magic love there
What a sad beautiful tragic love affair"

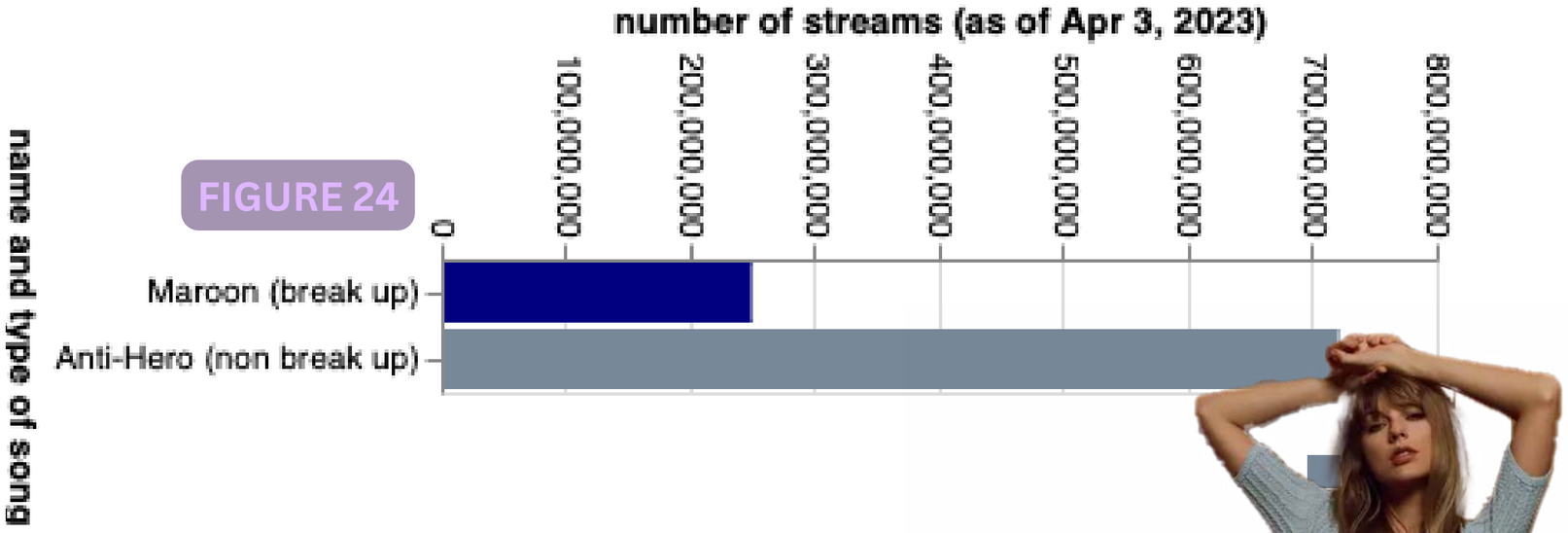
"I know someday I'm gonna meet her, it's a fever dream
The kind of radiance you only have at 17"

Nothing New (Taylor's Version) (non break up song)

130,003,625 Spotify Streams

Album : Red (Taylor's Version) (2021)

FIGURE 24



Each histogram for every album (like the one on the left) highlights that for every "break-up-song" on Swift's albums, there exists a "non-break-up-song" with a higher number of streams.

Maroon (break up song)

246,854,661 Spotify Streams

And I lost you
The one I was dancin' with
In New York, no shoes

It's me, hi, I'm the problem, it's me
At tea time, everybody agrees

Anti-Hero (non break up song)

718,991,592 Spotify Streams

Album : Midnights (Taylor's Version) (2022)

Comparing the cumulative streams of Taylor Swift's break-up songs versus her non break-up songs

FIGURE 25

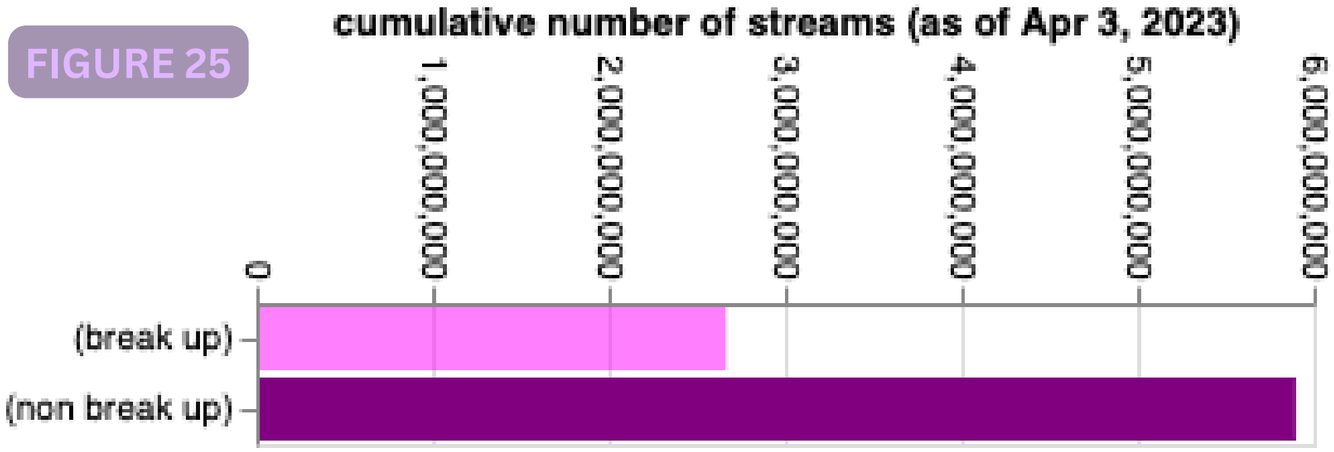
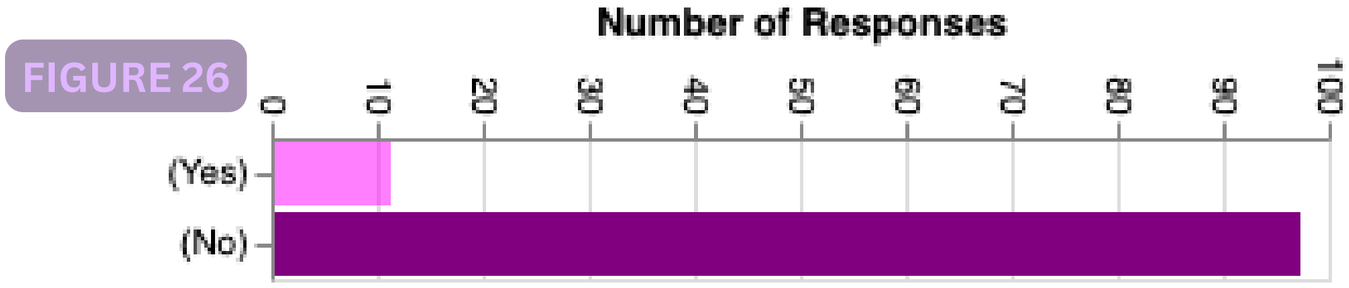


FIGURE 26



our survey responses are linked here: https://docs.google.com/forms/d/1f6ZNUUcSK07CRoUzbzRKkZkaesRm6LRquXPAb2XU60s/edit#responses

The graph on the left essentially sums up all the graphs above that were comparing the Spotify streams of one break up song on Swift's albums and one non-break-up song.

The graph highlights that the cumulative number of streams for the non-break-up songs that we chose from each of her albums are higher than the cumulative number of streams for her break-up songs.

The visualization on the left is a view coordinated visualization and is available in our notebook titled "break up and non break up streams.ipynb". When one clicks on each of the bars in each respective graph, a corresponding bar from the other visualization is automatically highlighted.

The histogram on the top was made by adding together Spotify streams and categorizing them, while the second histogram on the bottom was made by extracting responses from our survey where we asked respondents: "Do you think Taylor Swift only writes break up songs about her exes?"

Look What You Made Me Do

The Man

Shake It Off

...Ready For It?

I Did Something Bad

You Need To Calm Down

ME! (feat. Brendon Urie of Panic! At The Disco)

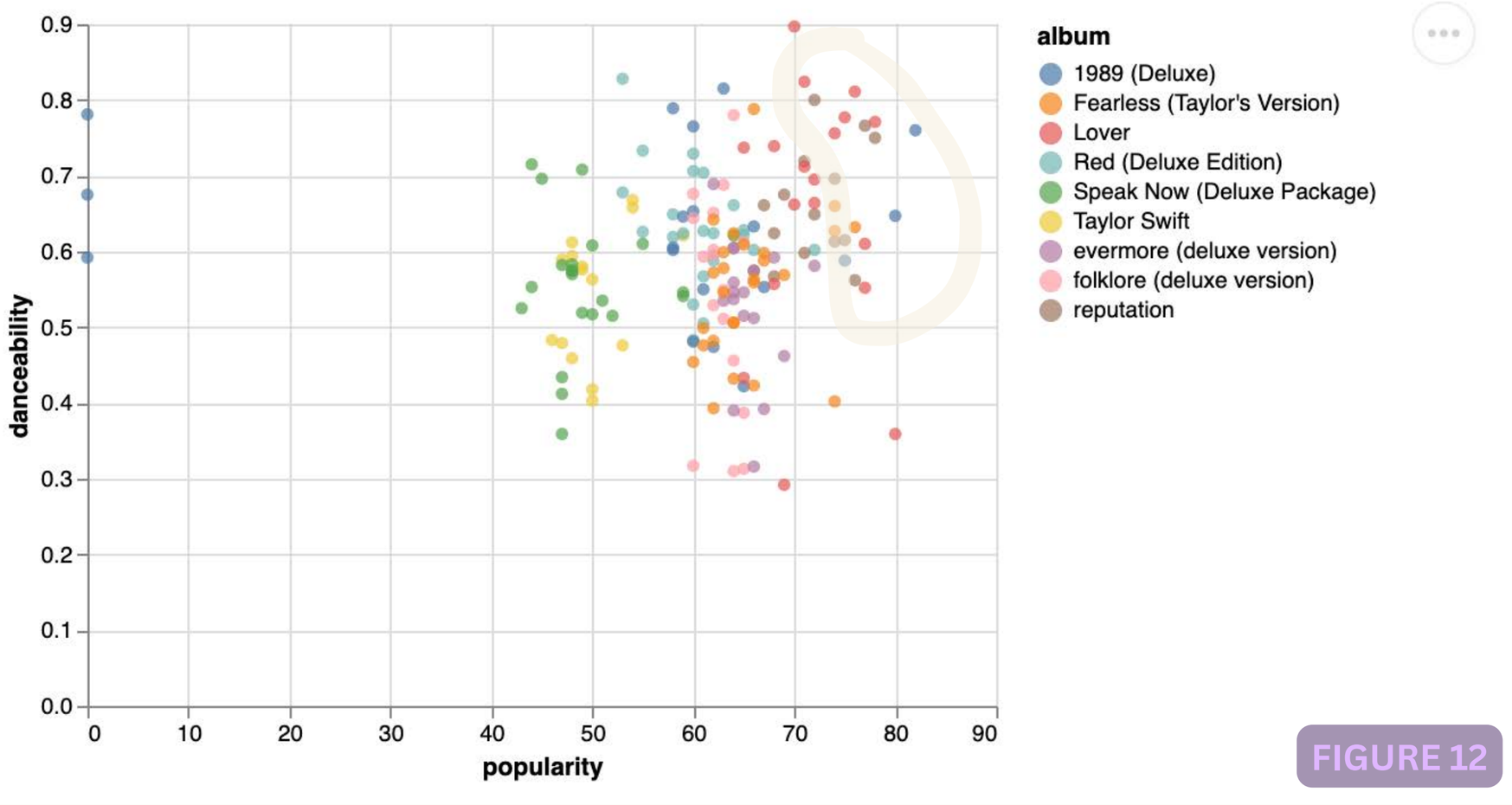


FIGURE 12

This graph shows that some of Taylor Swift's most popular songs are not necessarily focused on relationships at all. This is an interesting observation, as Taylor Swift is well-known for her music that explores the ups and downs of romantic relationships. Whatever the reason for this shift, it's clear that Taylor Swift's music continues to resonate with fans, whether she's singing about relationships or other topics. The fact that some of her most popular songs are not focused on romance is a testament to her versatility and ability to connect with audiences in a variety of ways.

Taylor Swift and the track 5 supremacy

Based on many articles and discussions on social media platforms, her fans have identified that Swift's most **emotionally raw and cathartic** songs are the fifth tracks on her albums.

Swift, herself later acknowledged this by stating that she has in fact been placing her most emotional and honest songs as the fifth tracks on her albums. In light of Taylor Swift not being perceived as a seriously distinguished artist due to deep-rooted sexism, **our project will use the below data visualizations to focus on how deeply adored her fifth tracks are, on every album.**

SUN, 29 JANUARY 2023 AT 4:51 PM Tweet

Why Is Track 5 on Taylor Swift Albums So Important? Every Track 5 Song's Meaning Revealed!

What respondents from our survey rated Taylor Swift's track 5s...

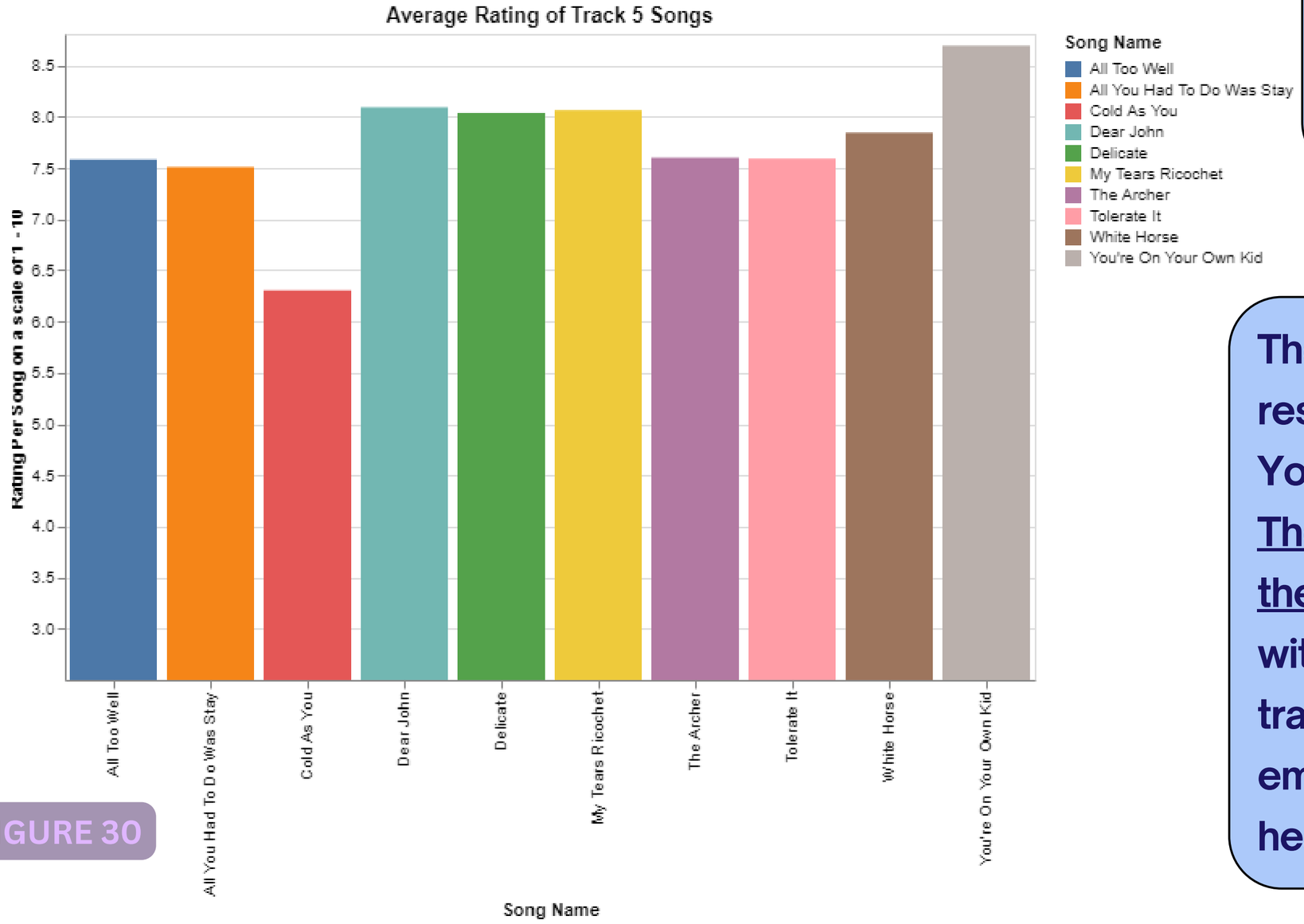


FIGURE 30

The graph on the left displays the average rating on a scale of 1 to 10 of Taylor Swift's track 5 songs on each of her 10 albums released.

The lowest rating of the 108 survey responses was for the song Cold As You, with an average rating of 6.31. The highest average rating was for the song You're On Your Own Kid, with an average rating of 8.69. The track 5 songs typically are her most emotionally charged, raw, and heartfelt songs.

What respondents from our survey rated Taylor's non-track-five songs

The highest rating for a none-track 5 song was a 10, and the lowest rating was a 1. This demonstrates the wide breadth of interest in her music. As seen in the word chart earlier, respondents had varying answers to how the songs made them feel which influenced these results.

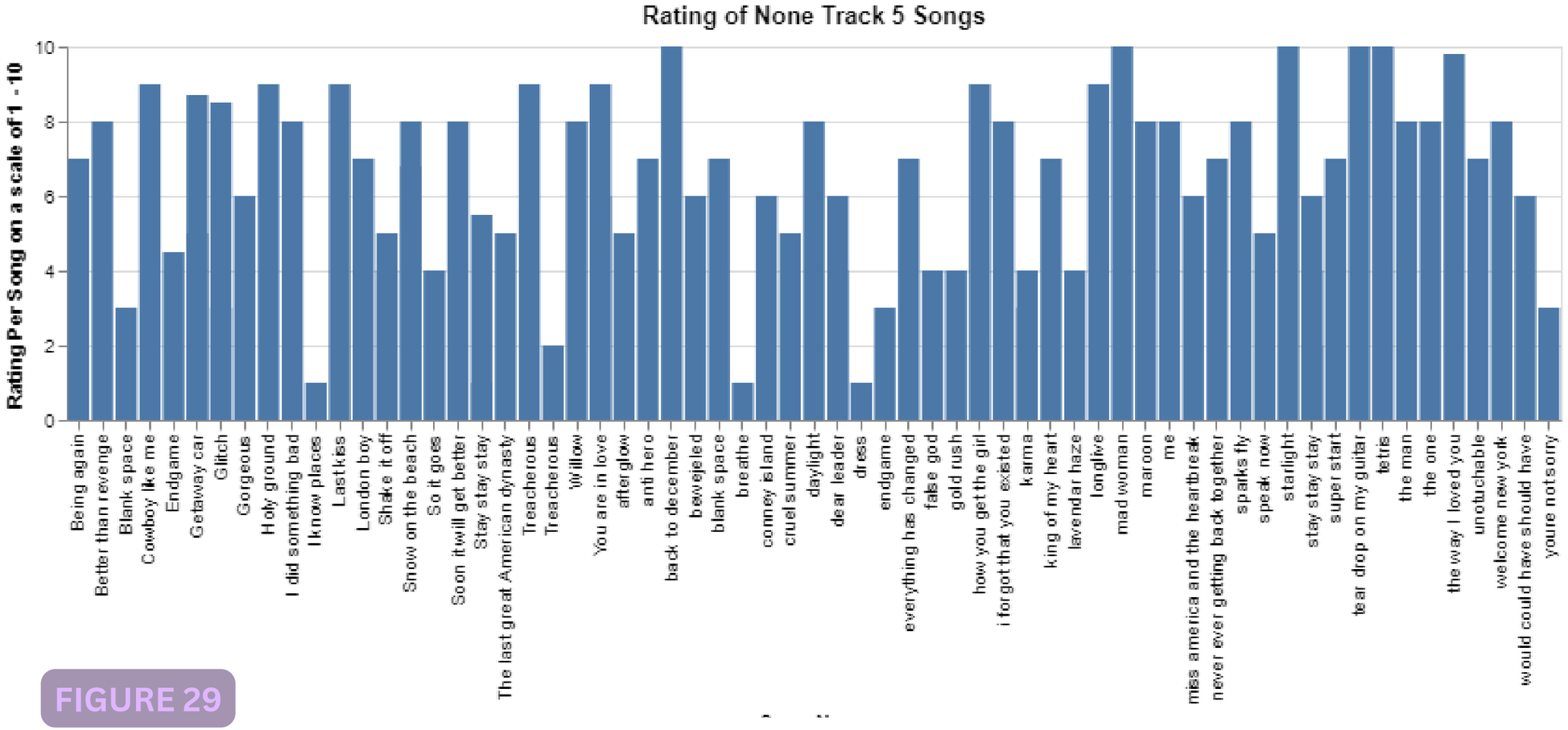


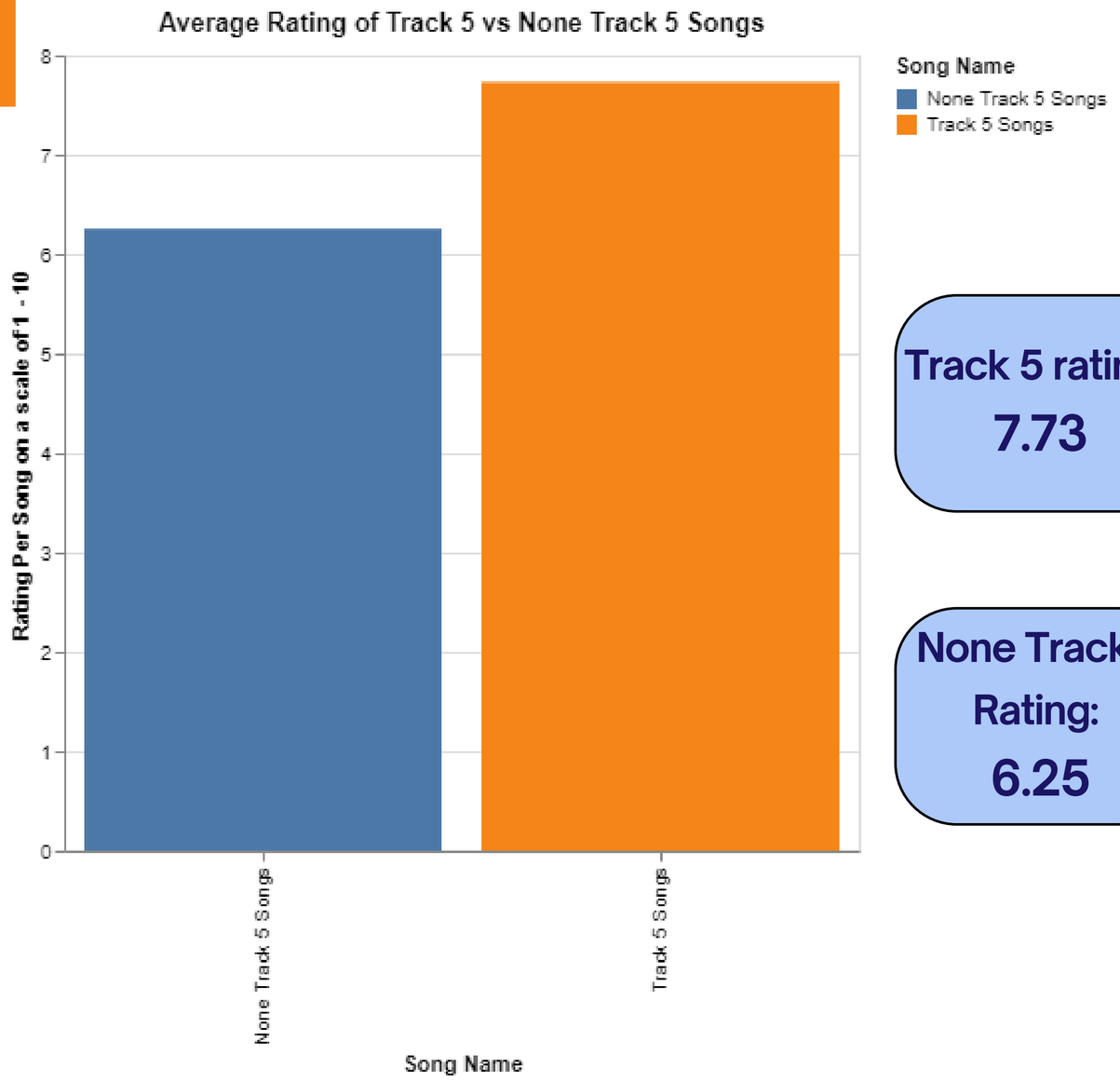
FIGURE 29

From our respondent survey of about a 108 people, we compiled the individual ratings for multiple none-Track 5 songs. Songs were selected using a random online song generator where we inputted all of Taylor Swift's non-track 5 songs

Comparing Taylor's non-track-fives with her track-fives

This graph compares the average rating of a track 5 song versus a none track 5 song. Our survey respondents predominantly reacted more positively to the track 5 songs. This answered our primary question, which was to see if Taylor Swift is a serious musician, or does she only write about her exes?

This graph clearly demonstrates that there is a positive correlation between a higher rating and Taylor Swift's Track 5 songs compared to other randomly selected songs. It is important to note that the majority of the Track 5 songs are not about her exes, while the majority of the randomly generated songs were written about her previous relationship partners.



Track 5 rating: 7.73

None Track 5 Rating: 6.25

FIGURE 31

The moment of truth....

letting the people decide

To further analyze popular opinion about Taylor Swift and the effect her music has on her listeners, we decided to collect survey data in the Pit, regarding their favorite songs, and their perception of Taylor Swift's music in general. We wanted to know if Taylor's music evokes deep emotion in her listeners so we decided to ask the survey respondents whether they found her music emotionally deep or profound.

The survey results for this question are portrayed in this pie chart. Among the 108 respondents, 89.8% of people felt that Taylor's music is emotionally deep and profound, while 10.2% didn't believe so. Among the people who took the survey, the results suggest that Taylor's music evokes certain deep and intense emotions in her listeners.

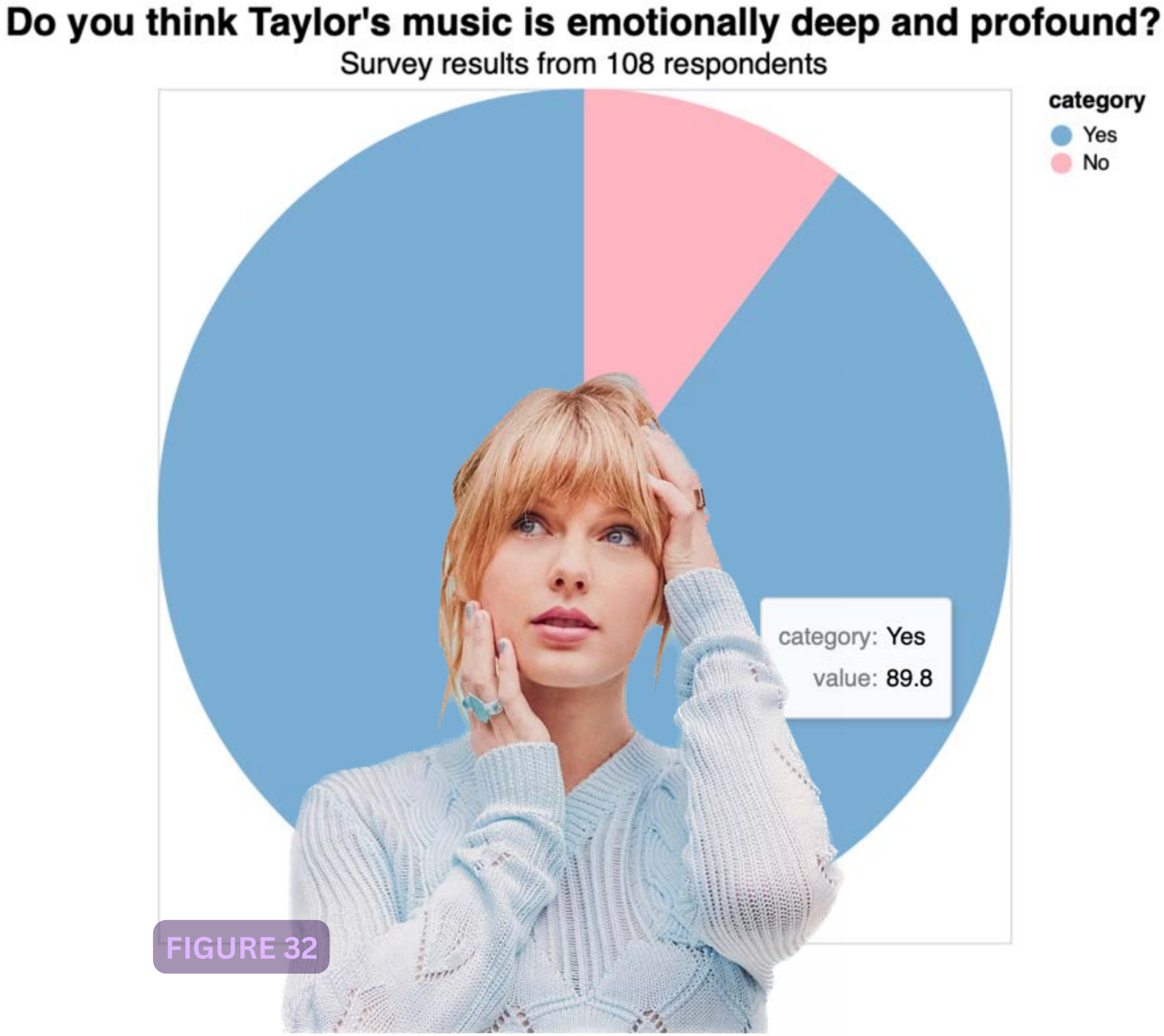


FIGURE 32

Typical trends in Taylor's Music

An extra graph !!

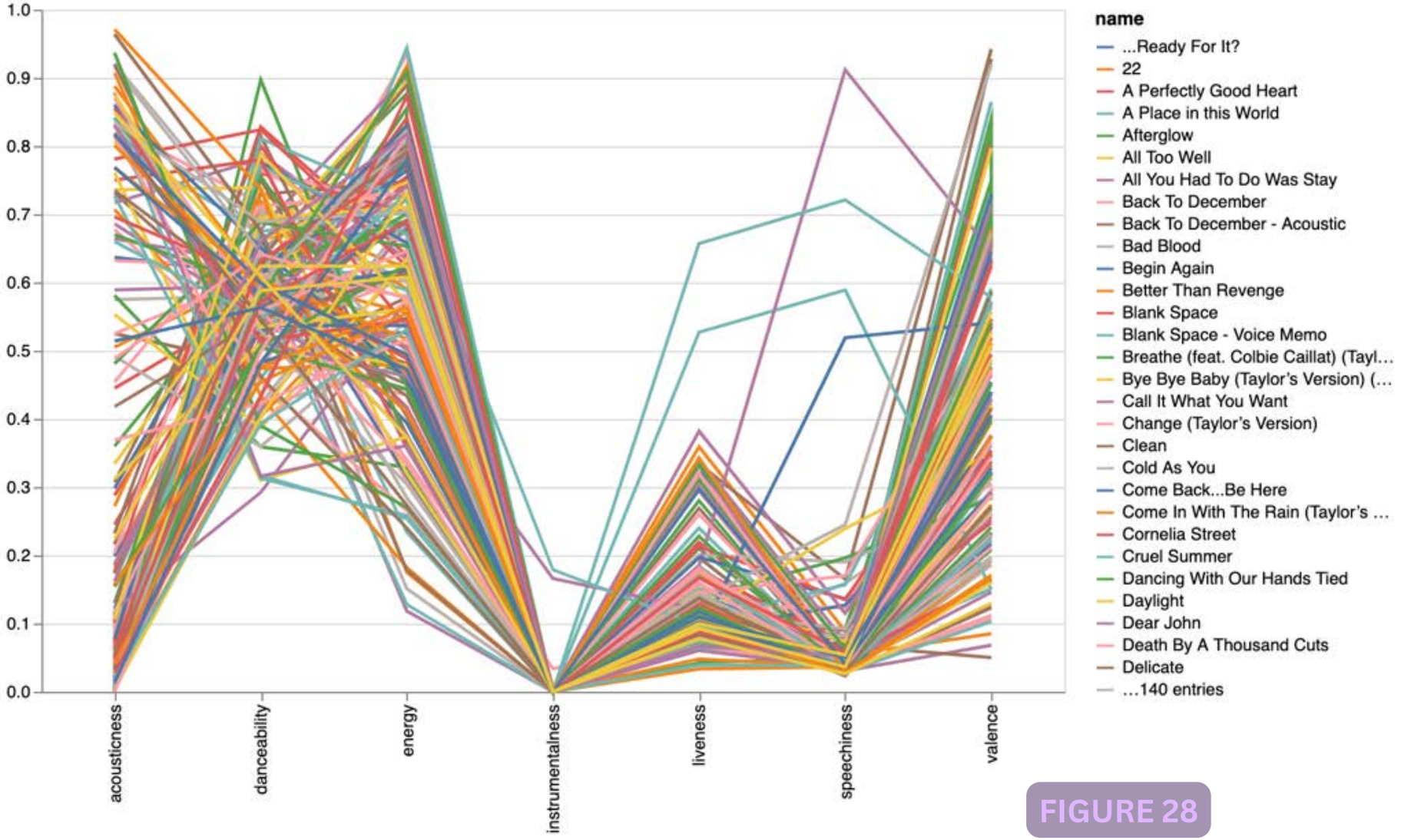


FIGURE 28

Analyzing a musician's songs through a line graph that shows the overall trend or formula for their music across various categories, including "acousticness," "danceability," "energy," "instrumentalness," "liveness," "speechless," and "valence," can provide valuable insights into their musical style and approach. The graph can show the artist's typical values or formula for each category, allowing us to see the overall trend or pattern in their music. For example, we might observe that the artist tends to favor high energy and danceability in their music, with lower values for acousticness and instrumentalness. This could indicate a preference for upbeat and lively tracks that prioritize rhythm and melody over more stripped-down or instrumental music.

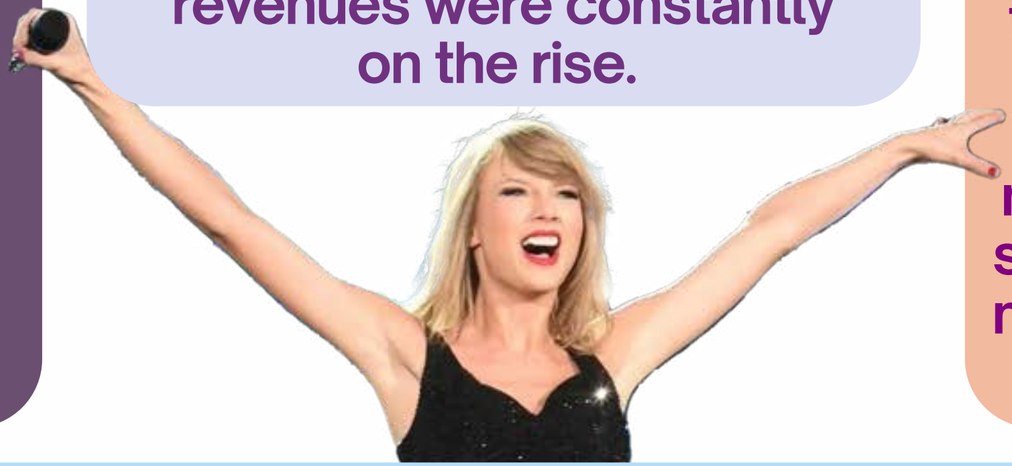
Key results from our data report...

what we found out about our target problem

When we analyzed the Spotify top 200 songs, a higher proportion of her songs made it onto the list than other artists.

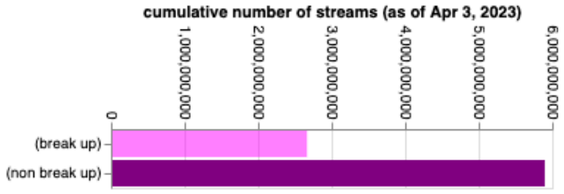
When compared to other successful artists, Taylor Swift's success is stronger. Her revenue was consistently increasing, and her publishing and streaming revenues were constantly on the rise.

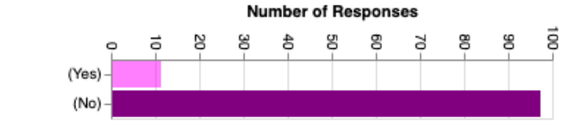
We found that her track 5's ratings are higher than non-track 5's, indicating that the demographic we surveyed prefers the more profound and deep songs that she creates.

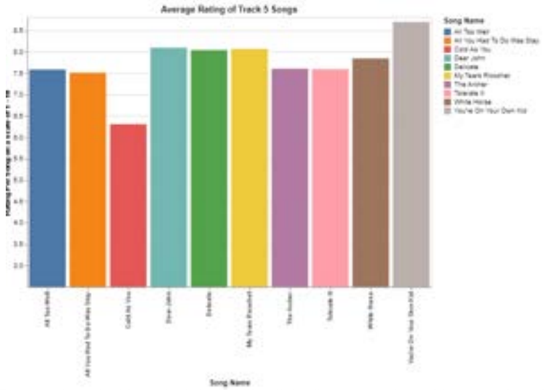


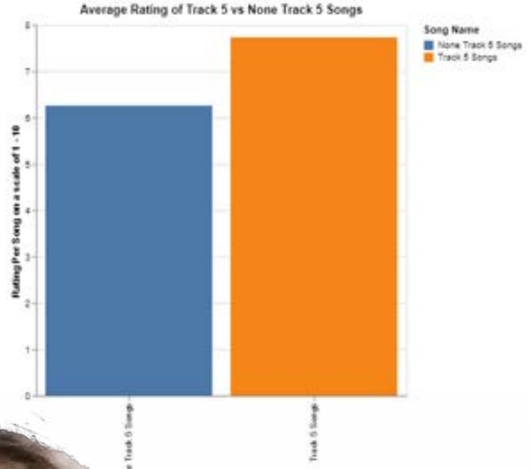
58.3% of respondents named Taylor Swift as their favorite artist, 94.4% believed she is more successful than other musical artists, and 89.8% said that Taylor Swift does not only write songs about her exes.

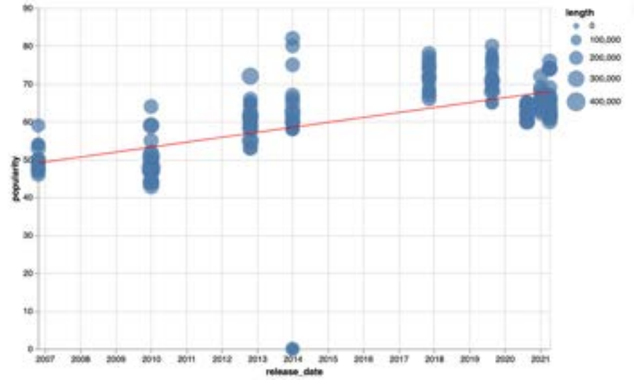
These findings suggest that Taylor Swift's music is not limited to surface-level break-up songs. Our visualizations and research project demonstrate how her music is appreciated by a wide demographic, her success is due to her ability to create meaningful, relatable songs that resonate with her fans.

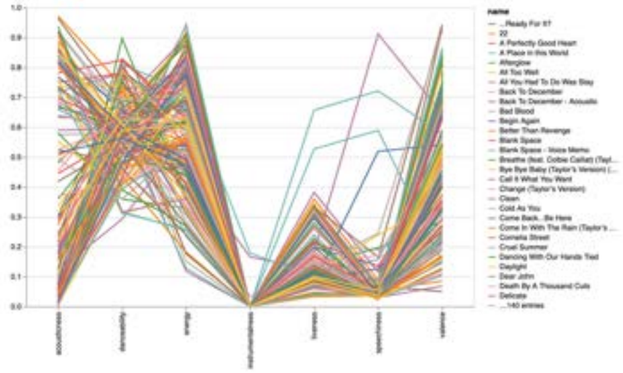




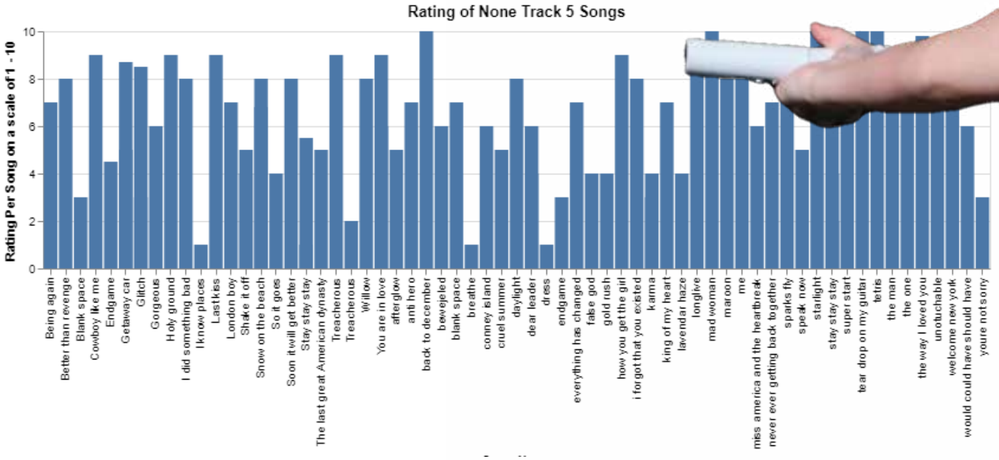


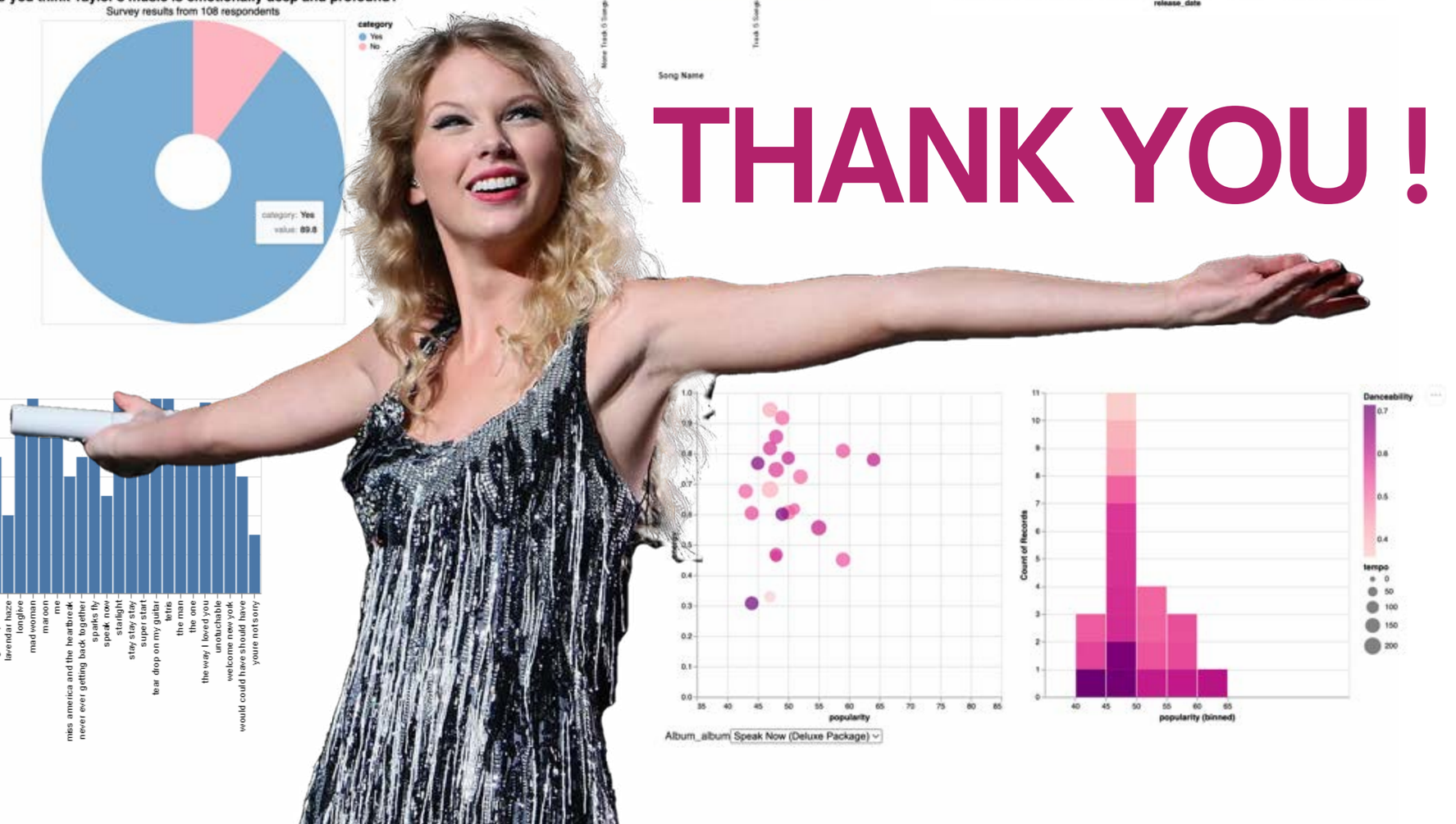






Do you think Taylor's music is emotionally deep and profound?





THANK YOU !