

Analyzing the Success of Drake's Musical Career

Group 10

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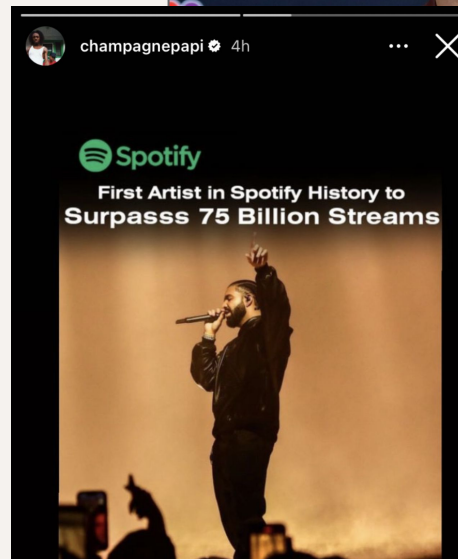
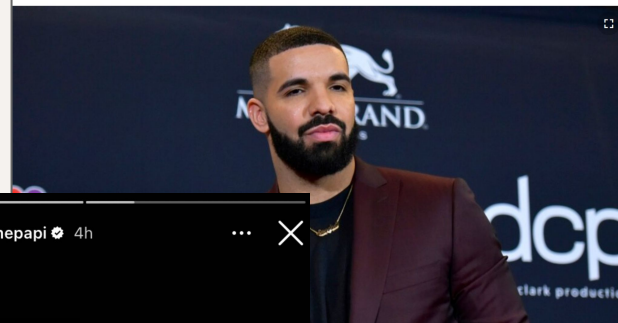
Motivations

We're interested in learn more about Drake's music career over the past decade:

Questions to ask:

- How can we quantify the increase in Drake's popularity over the past decade?
- Is there an association between certain song attributes and his most popular songs?
- Do people prefer Drake's new music or Drake's new music?
- How has Drake's rising popularity been received by the broader audience?

Drake is Spotify's Most Streamed Artist of the Decade



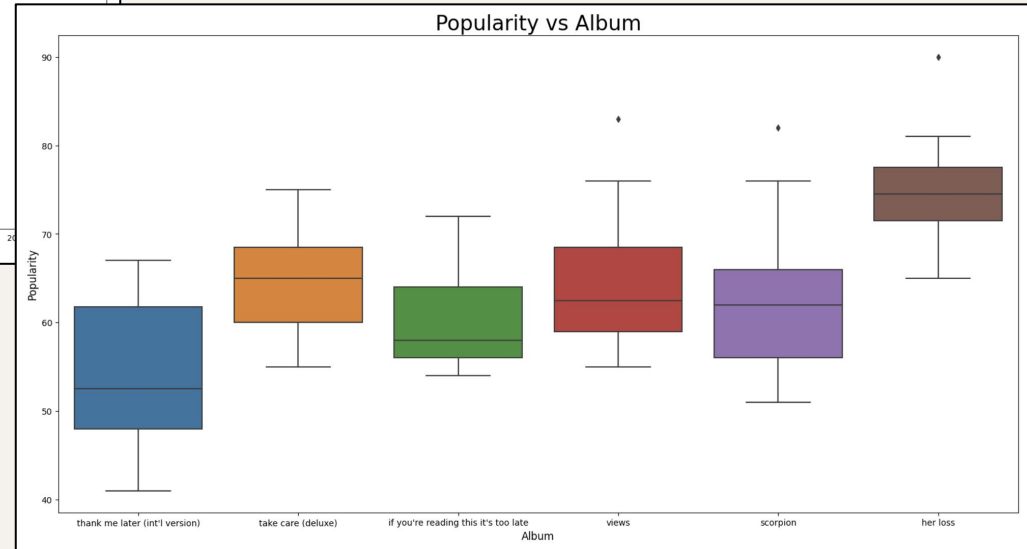
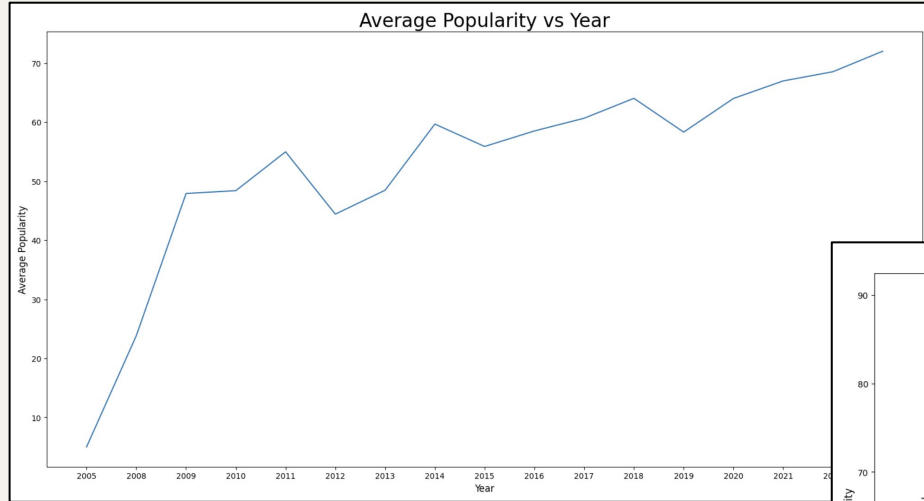
Extracting Data from Spotify API

We first extracted data directly from the Spotify API for every Drake song in the website's catalogue.

- Extract song features such as danceability, energy, speechiness, valence, popularity, etc.
- Create unique visualization and see changes in musical attributes.

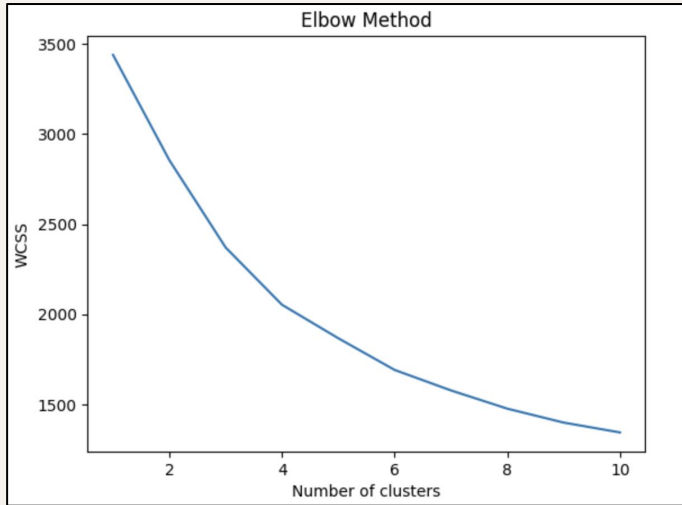
danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	tempo	duration_ms	time_signature	track_popularity	track_name	release_date	album_name	Year
0.698	0.430	2	-7.334	1	0.0929	0.0785	0.000000	0.1210	0.5310	92.028	210520	4	5	soul searching	2005-01-01	roshana	2005
0.778	0.660	1	-9.508	1	0.4960	0.0740	0.000000	0.2820	0.7430	118.377	247547	5	0	stuntin	2008-04-01	dedication 3 gangsta grillz	2008
0.482	0.698	6	-6.701	0	0.3500	0.0924	0.000000	0.0719	0.8990	132.981	211853	5	0	change you	2008-04-11	the radio singles	2008
0.662	0.763	1	-8.455	1	0.3770	0.0389	0.000000	0.1030	0.5660	170.031	225307	4	63	i'm goin in	2008-09-15	so far gone	2008
0.334	0.783	9	-6.144	0	0.1810	0.0615	0.000000	0.1090	0.3080	83.944	280667	4	46	fear	2008-09-15	so far gone	2008

Popularity Measures



Unsupervised Machine Learning: K-Means Clustering

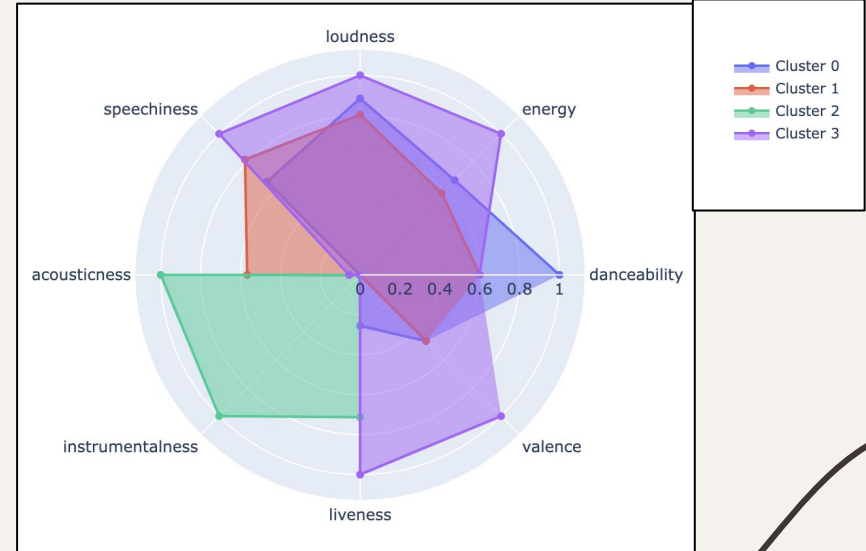
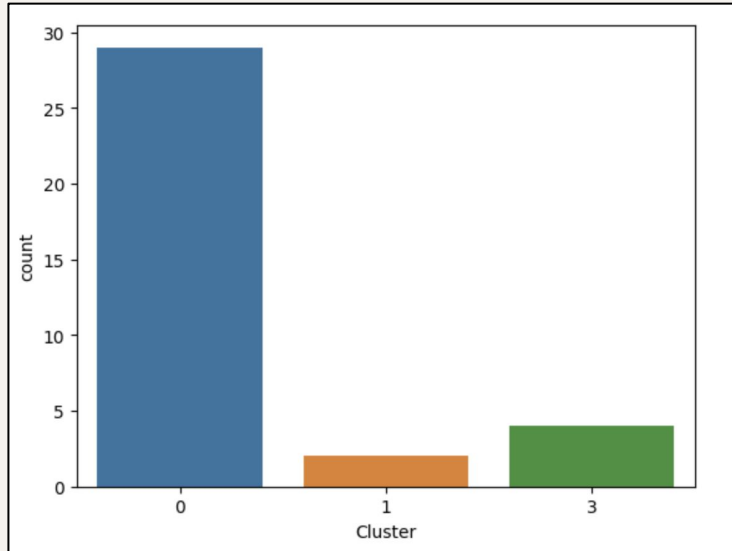
- Create groups of songs based on music attributes that have impact on listeners:
 - Danceability, energy, loudness, speechiness, acousticness, instrumentality, liveness, valence
- Plot from “Elbow Method” tells us to create four clusters.



	danceability	energy	loudness	speechiness	acousticness	instrumentalness	liveness	valence
Cluster								
0	0.763613	0.522147	-7.919157	0.188587	0.100186	0.004914	0.177612	0.330878
1	0.576680	0.458533	-9.617293	0.222273	0.593893	0.004040	0.148168	0.330715
2	0.295000	0.056200	-26.407500	0.046450	0.971500	0.868000	0.230500	0.174500
3	0.575530	0.751000	-5.487826	0.261642	0.148661	0.002419	0.263665	0.508272

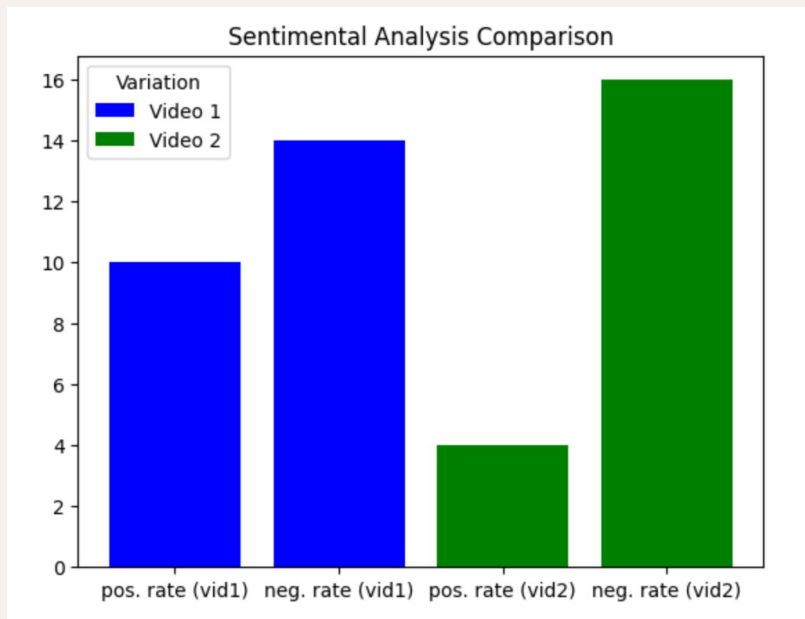
Unsupervised Machine Learning: K-Means Clustering

- Create clusters of songs based on song attributes
- Web Scrape "Top Charts" Table and compare with Clusters
- **Cluster 0:** Danceability, loudness, energy



Youtube API

- Extracted Youtube comments from two videos and ran a sentimental analysis on each comment using NLTK,



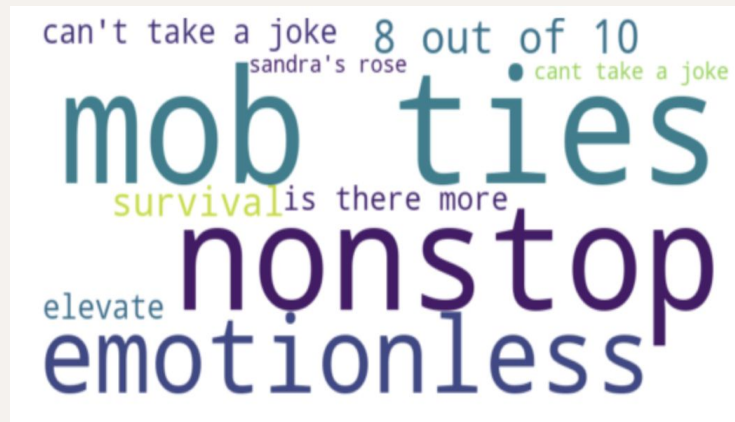
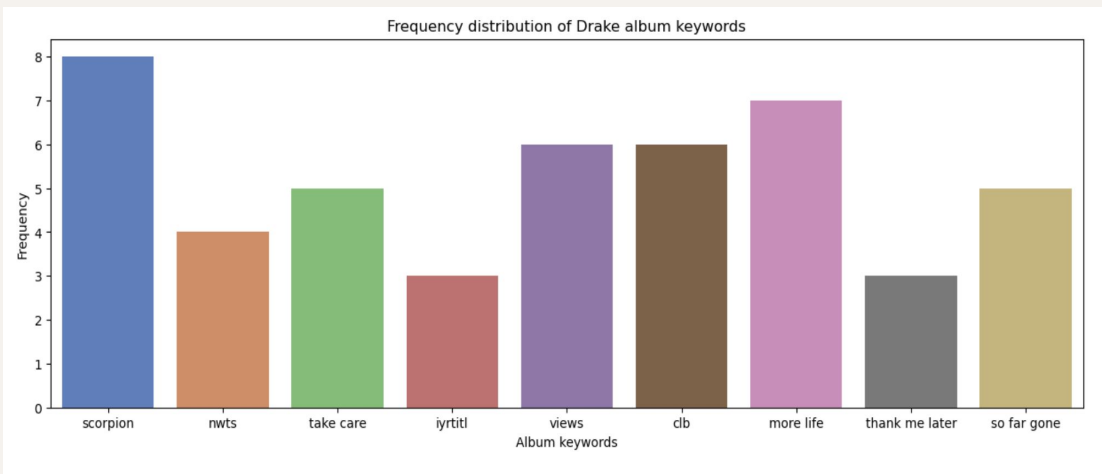
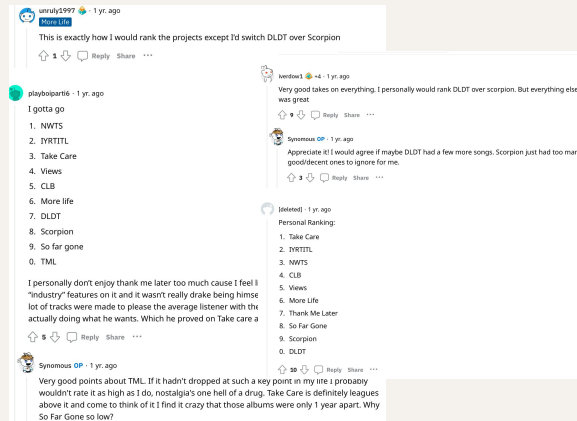
Video 1: Drake: The Biggest Fraud in Hip Hop

Video 2: Drake - Artist of the Decade (Acceptance Speech)

- Observe that people have a negative attitude towards his success

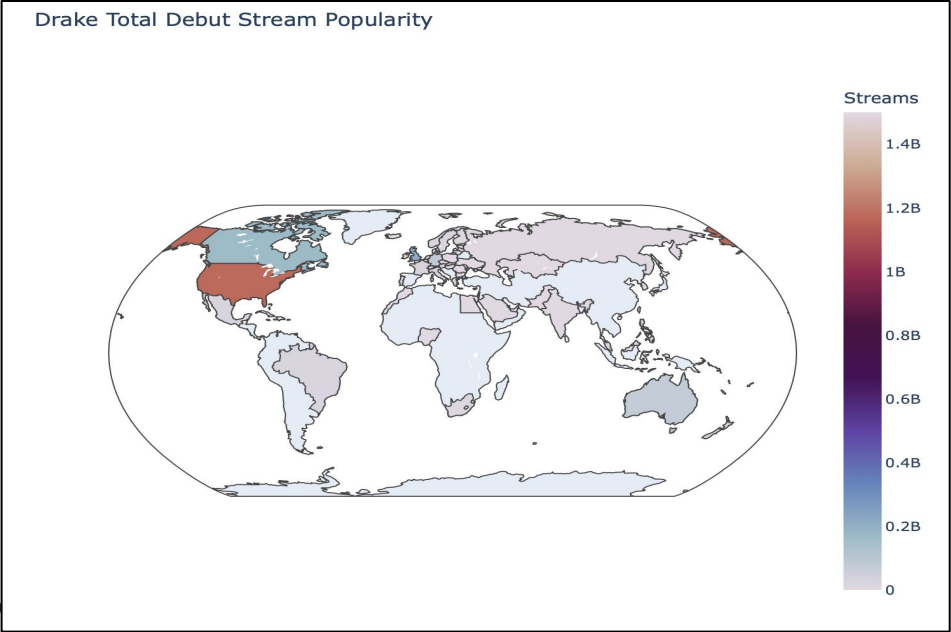
Extracting Data from Reddit

- Scrape Reddit search queries through BeautifulSoup
- Extract comments on posts about 'Drake album' and 'top songs'
- Create visualization using bar graphs and word clouds.



Visualization of Drake's Global Popularity

- A choropleth map that shows the total number of debuts of all the albums in each country.



	Country	Album	Streams
0	United States of America	Views (2016)	87782182
1	United States of America	More Life (2017)	161699615
2	United States of America	Scorpion (2018)	313146379
3	United States of America	Dark Lane Demo Tapes (2020)	80872881
4	United States of America	Certified Lover Boy (2021)	248543876
5	United States of America	Honestly, Nevermind (2022)	94526690
6	United States of America	Her Loss (2022)	190708458
7	Global	Views (2016)	161937271
8	Global	More Life (2017)	290224416
9	Global	Scorpion (2018)	559021928
10	Global	Dark Lane Demo Tapes (2020)	169038380
11	Global	Certified Lover Boy (2021)	497083050
12	Global	Honestly, Nevermind (2022)	212108781
13	Global	Her Loss (2022)	381665545



Thank You