



**Spotify**  
SQL Analysis



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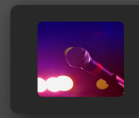
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# Query Utilization

## 1.Data Extraction and Retrieval

- Extracted relevant data from large datasets using commands like SELECT, WHERE.
- Combined data from multiple tables for a comprehensive analysis.

## 2.Data Aggregation and Summarization

- Applied aggregate functions such as SUM, COUNT, AVG.
- Used GROUP BY to summarize data and derive key insights like trends and performance metrics.

## 3.Ranking and Classification

- Implemented ranking functions RANK() to classify data.
- Identified top performers, trends, and segmented records effectively

## 4.Conditional Logic for Analysis

- Used CASE statements for dynamic classification and conditional calculations.
- Enabled enhanced insights, such as creating categories or generating custom outputs.

## 5.Performance Optimization

- Optimized query performance through indexing, subqueries,.
- Ensured faster execution and accurate results, even on complex datasets.

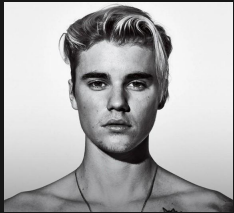
# Questions

## Basic Queries



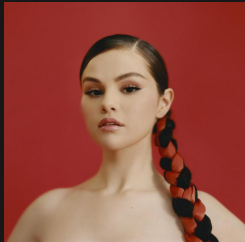
- Q1-Retrieve the Names of all tracks that have more than 1 billion streams.
- Q2-List all the albums along with their respective artist .
- Q3-Get the total number of comments for tracks where licenced is true.
- Q4-Find all the tracks that belong to the album type 'single'.
- Q5-Count the total number of track by each artist.

## Intermediate Queries



- Q6-Calculate the average danceability of tracks in each album.
- Q7-Find the top 5 tracks with the highest energy values.
- Q8-List all the tracks along with their views and likes where official video is available
- Q9-For each album ,calculate the total views of all associated tracks
- Q10- Retrieve the track names that have been streamed on spotify more than youtube

## Advanced Queries



- Q11-Find the top 3 most viewed tracks for each artist using window function .
- Q12-Write a query to find tracks where the liveness score is above the average.
- Q13-Use a with clause to calculate the difference between the highest and lowest energy values for tracks in each album.
- Q14-Find tracks where the energy to liveness ratio is greater than 1:2
- Q15-Calculate the Cumulative sum of likes for tracks ordered by number of views using window function

# Foundational Insights

Queries and Output



Q1-Retrieve the Names of all tracks that have more than 1 billion streams.



```
select track from spotify
where stream > 1000000000;
```



**track**

character varying (255)

Feel Good Inc.

Californication

Under the Bridge

In Da Club

Yellow

Viva La Vida

Something Just Like This

The Scientist

A Sky Full of Stars

Hymn for the Weekend

Fix You

In the End

Numb

Creep

Highway to Hell

rows: 385

Query complete 00:00:00.862

# Foundational Insights

Queries and Output

♡ Q2-List all the albums along with their respective artist .



```
select distinct(album),artist
from spotify
order by 1;
```



album	artist
character varying (255)	character varying (255)
'Justments	Bill Withers
'N Sync UK Version	*NSYNC
'The Sounds of Nightwish Reborn: Early Demos for "Dark Passion Play" and B-Sides'	Nightwish
- TRAGEDY +	\$NOT
!Volare! The Very Best of the Gipsy Kings	Gipsy Kings
"Awaken, My Love!"	Childish Gambino
"Heroes" (2017 Remaster)	David Bowie
"Let's Rock"	The Black Keys
"Let Go" Dj Pack	Dina Rae
"Miguel"	Miguel Bosé
#1 (Colby O'Donis Remix)	Colby O'Donis

# Foundational Insights

Queries and Output



Q3-Get the total number of comments for tracks where licenced is true.

---



```
select sum(comments) as total_comments  
from spotify  
where licensed='true';
```

	total_comments 
1	497015695

# Foundational Insights

Queries and Output

♡ Q4-Find all the tracks that belong to the album type 'single'.



```
select track
from spotify
where album_type = 'single';
```

	track character varying (255)
1	New Gold (feat. Tame Impala and Bootie Brown)
2	New Gold (feat. Tame Impala and Bootie Brown) - Dom Dolla Remix
3	Cracker Island (feat. Thundercat)
4	Best Friend - Remix
5	Lux Æterna
6	Screaming Suicide
7	Get Lucky (feat. Pharrell Williams & Nile Rodgers) - Radio Edit
8	Numb / Encore
9	Pump It Louder
10	Never Gonna Not Dance Again
11	Raise Your Glass
12	TRUSTFALL
13	Down In Atlanta
14	Cash In Cash Out
15	Hit Different



# Foundational Insights

Queries and Output



Q5-Count the total number of track by each artist.



```
select artist,count(*) as total_tracks
from spotify
group by artist
order by 2 desc;
```

	artist character varying (255)	total_tracks bigint
1	Marisela	10
2	Ray Charles	10
3	Joey Bada\$\$	10
4	La Mosca Tse-Tse	10
5	TheFatRat	10
6	Leo Dan	10
7	Tyga	10
8	Grupo Marca Registrada	10
9	Tyler, The Creator	10
10	NCT DREAM	10
11	Last Child	10
12	Plan B	10
13	Afgan	10
14	James Horner	10

# Intermediate Insights

Queries and Output

♡ Q6-Calculate the average danceability of tracks in each album.

⬇

```
select album, avg(danceability) as avg_danceability
from spotify
group by 1
order by 2 desc;
```

▶

	album character varying (255)	avg_danceability double precision
1	FOR CERTAIN (Deluxe)	0.975
2	Funky Friday	0.975
3	The House Is Burning [homies begged]	0.971
4	Quality Control: Control The Streets Volume 2	0.97
5	N9NA	0.97
6	Aka Entre el Humo	0.967

# Intermediate Insights

Queries and Output

♡ Q7-Find the top 5 tracks with the highest energy values.



```
select track,max(energy)
from spotify
group by 1
order by 2 desc
limit 5 ;
```

	track character varying (255) 🔒	max double precision 🔒
1	Rain and Thunderstorm, Pt. 7	1
2	Rain and Thunderstorm, Pt. 33	1
3	Rain and Thunderstorm, Pt. 4	1
4	Rain and Thunderstorm, Pt. 6	1
5	Gentle Piano Melodies	1



# Intermediate Insights

Queries and Output

♡ Q8-List all the tracks along with their views and likes where official video is available.

⬇

```
select track,sum(likes)as total_likes,sum(views) as total_views
from spotify
where official_video='true'
group by 1
order by 2 desc;
```

▶

	track character varying (255) 🔒	total_likes numeric 🔒	total_views double precision 🔒
1	Despacito	101577278	16159296273
2	See You Again (feat. Charlie Puth)	80295292	11547595554
3	Boy With Luv (feat. Halsey)	55176413	3268219993
4	lovely (with Khalid)	48852042	3442782701
5	Señorita	39692236	2975300305
6	Old Town Road - Remix	37889373	2406591529
7	Taki Taki (with Selena Gomez, Ozuna & Cardi B)	37552053	4828403435

# Intermediate Insights

Queries and Output

♡ Q9-For each album ,calculate the total views of all associated tracks

↓

```
select album,track,sum(views) as total_views
from spotify
group by 1,2
order by 3 desc;
```

▶

	album character varying (255) 🔒	track character varying (255) 🔒	total_views double precision 🔒
1	VIDA	Despacito	16159296273
2	See You Again (feat. Charlie Puth)	See You Again (feat. Charlie Puth)	11547595554
3	Peace Is The Mission (Extended)	Lean On	9974504694
4	÷ (Deluxe)	Shape of You	5908398479
5	MUNAY	Calma - Remix	5322011392
6	This Is What You Came For	This Is What You Came For	5252059812
7	Swalla (feat. Nicki Minaj & Ty Dolla \$ign)	Swalla (feat. Nicki Minaj & Ty Dolla \$ign)	5162403752

# Intermediate Insights

Queries and Output

♡ Q10- Retrieve the track names that have been streamed on spotify more than youtube

↓

```
select track,streamed_on_youtube,streamed_on_spotify from spotify;
select * from
  (select track,
    sum(case when streamed_on='youtube' then stream end) as streamed_on_youtube,
    sum(case when streamed_on='spotify' then stream end) as streamed_on_spotify
    from spotify
    group by track) as t1
  where streamed_on_spotify >streamed_on_youtube
  and
  streamed_on_youtube <> 0;
```

▶

	track character varying (255)	streamed_on_youtube numeric	streamed_on_spotify numeric
1	Usted	30059201	137916795
2	3 A.M.	31174412	607872704
3	21 Hungarian Dances, WoO 1: Hungarian Dance No. 5 in G Minor. Allegro (Orch. Schmeli...	39575743	79151486
4	Mientes Tan Bien	6915455	224299945
5	Have You Ever Seen The Rain	61903001	975300588
6	Dream A Little Dream Of Me	157256901	495674374
7	When I Grow Up	231236307	260959663
8	Mv Tvpe	24220191	317319763

# Advanced Insights

Queries and Output

♡ Q11-Find the top 3 most viewed tracks for each artist using window function .

⬇

```
with ranking_artist as
    (select artist,track,sum(views) as total_view,
     dense_rank() over(partition by artist order by sum(views) desc) as rank
    from spotify
    group by 1,2
    order by 1,3 desc)
select * from ranking_artist
where rank <=3;
```

▶

	artist character varying (255) 🔒	track character varying (255) 🔒	total_view double precision 🔒	rank bigint 🔒
1	\$NOT	Tell Em	41100657	1
2	\$NOT	Like Me (feat. iann dior)	15803517	2
3	\$NOT	Mean	13563870	3
4	\$uicideboy\$	Paris	175156959	1
5	\$uicideboy\$	For the Last Time	91771038	2
6	\$uicideboy\$	Kill Yourself (Part III)	31674988	3
7	(G)I-DLE	POP/STARS	541864471	1
8	(G)I-DLE	TOMBOY	204797335	2
9	(G)I-DLE	Oh my god	191587399	3

# Advanced Insights

Queries and Output



Q12-Write a query to find tracks where the liveness score is above the average.



```
select track,artist,liveness
from spotify
where liveness > (select avg(liveness) from spotify)
```



	track character varying (255)	artist character varying (255)	liveness double precision
1	Feel Good Inc.	Gorillaz	0.613
2	DARE	Gorillaz	0.298
3	New Gold (feat. Tame Impala and Bootie Brown) - Dom Dolla Remix	Gorillaz	0.325
4	Cracker Island (feat. Thundercat)	Gorillaz	0.325
5	Dirty Harry	Gorillaz	0.672
6	Dani California	Red Hot Chili Peppers	0.346
7	Candy Shop	50 Cent	0.38
8	Just A Lil Bit	50 Cent	0.315



# Advanced Insights

Queries and Output



Q13-Use a with clause to calculate the difference between the highest and lowest energy values for tracks in each album.



```
with cte
as
  (select album,
    max(energy) as highest_energy,
    min(energy) as lowest_energy
  from spotify
  group by 1 )
select album ,
  highest_energy - lowest_energy as energy_difference
from cte
order by 2 desc;
```



	album character varying (255)	energy_difference double precision
1	White Noise	0.9067500000000001
2	Spotify Singles - Holiday	0.8360000000000001
3	Spotify Singles	0.8232
4	UNDERTALE Soundtrack	0.816
5	Making Mirrors	0.8109000000000001
6	Everytime We Touch (Premium Edition)	0.8049999999999999
7	If I Can Dream: Elvis Presley with the Royal Philharmonic Orchestra	0.787

# Advanced Insights

Queries and Output

♡ Q14-Find tracks where the energy to liveness ratio is greater than 1:2



```
select track,  
energy/liveness as energy_to_liveness_ratio  
from spotify  
where energy/liveness > 1.2;
```



	track character varying (255) 🔒	energy_to_liveness_ratio double precision 🔒
1	Rhinestone Eyes	15.183585313174945
2	New Gold (feat. Tame Impala and Bootie Brown)	7.956896551724138
3	On Melancholy Hill	11.546875
4	Clint Eastwood	9.94269340974212
5	DARE	2.9899328859060406
6	New Gold (feat. Tame Impala and Bootie Brown) - Dom Dolla Remix	2.76
7	She's My Collar (feat. Kali Uchis)	7.2767857142857135
8	Cracker Island (feat. Thundercat)	2.809230769230769

# Advanced Insights

Queries and Output



Q15-Calculate the Cumulative sum of likes for tracks ordered by number of views using window function



```
select track,  
sum(likes)over(order by views) as cumulative_sum  
from spotify  
order by sum(likes) over(order by views) desc;
```



	track character varying (255)		cummulative_sum numeric	
1	Despacito		13344544007	
2	Despacito		13293755355	
3	Shape of You		13242966729	
4	See You Again (feat. Charlie Puth)		13211918949	
5	See You Again (feat. Charlie Puth)		13171771275	
6	Wheels on the Bus		13131623657	
7	Uptown Funk (feat. Bruno Mars)		13117226816	
8	Gangnam Style (?????)		13097158937	
9	Sugar		13070759804	

# Key Insights

Upgrade

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## Basic Queries

Tracks with over 1 billion streams:

- Identified the most popular tracks globally by stream count, indicating their significant impact and popularity on the platform.

Albums and their artists:

- Established the association between albums and artists, offering a comprehensive understanding of their contributions.

Tracks with licensed content and comments:

- Analyzed the impact of licensed content on audience engagement, showing potential for audience interaction.

Tracks belonging to 'single' album type:

- Segregated tracks based on their album type, providing clarity on single releases.

Track count by artist:

- Quantified the productivity of artists, highlighting prolific contributors to Spotify's catalog.



# Key Insights

Upgrade

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## Intermediate Queries

Average danceability by album:

- Showed the average danceability score, revealing trends in music style and its alignment with listener preferences.

Top 5 tracks by energy:

- Highlighted the most dynamic tracks, which might be suitable for high-energy playlists or events.

Tracks with official videos and engagement metrics:

- Offered insights into tracks that drive additional engagement through visual content.

Total views by album:

- Assessed an album's collective popularity, helping in evaluating the effectiveness of album releases.

Tracks streamed more on Spotify than YouTube:

- Showed platform-specific performance, aiding strategic decisions for platform-focused marketing.



# Key Insights

Upgrade

 Sakshi M ▼



## Advanced Queries

Top 3 tracks by views for each artist:

- Ranked an artist's most popular tracks, useful for personalized marketing campaigns or recommendations.

Tracks with above-average liveness scores:

- Identified tracks with a vibrant, live atmosphere, catering to specific audience preferences.

Energy variation in albums:

- Calculated the difference between the highest and lowest energy levels, showcasing the diversity of music styles within albums.

Energy to liveness ratio exceeding 1:2:

- Focused on tracks blending high energy with live performance vibes, pinpointing unique listening experiences.

Cumulative likes by views:

- Showed the cumulative popularity of tracks, aiding in understanding trends in listener approval.



# Thank You



Spotify



Despacito

Luis Fonsi, Daddy Yankee

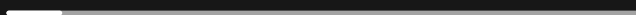


Despacito

Luis Fonsi, Daddy Yankee



0:23



-3:25

