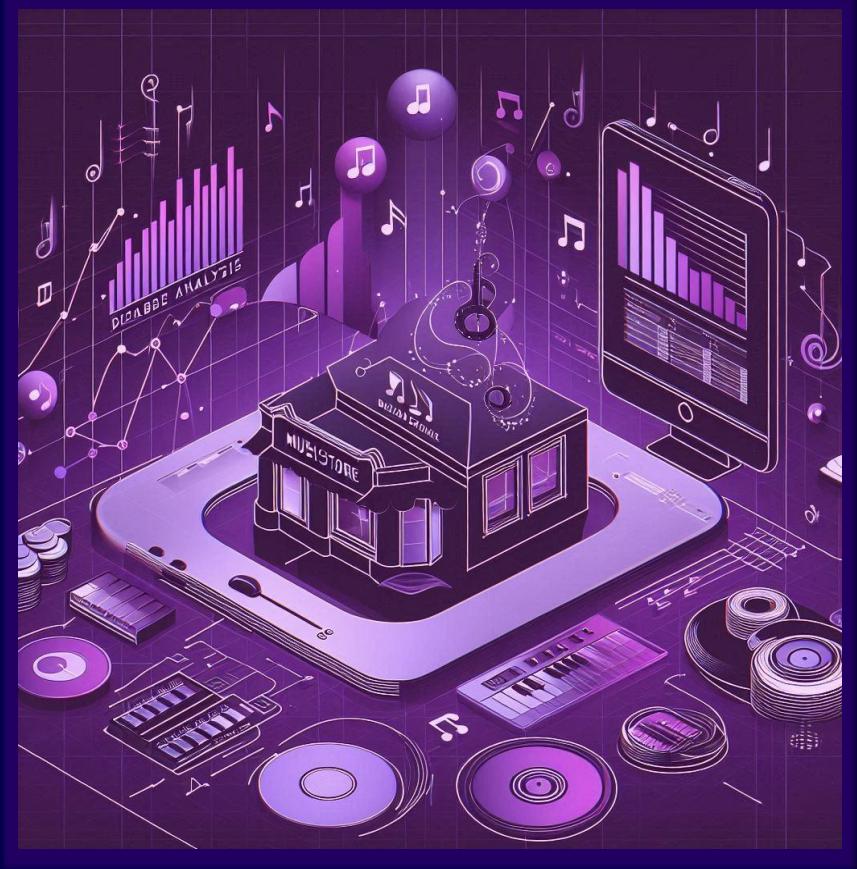


SQL PROJECT //

Music Store Analysis



RDBMS Used to Run QUERIES :

PostgreSQL



PROJECT OVERVIEW



OBJECTIVE



DATABASE



SQL TOOL



DATA SOURCE

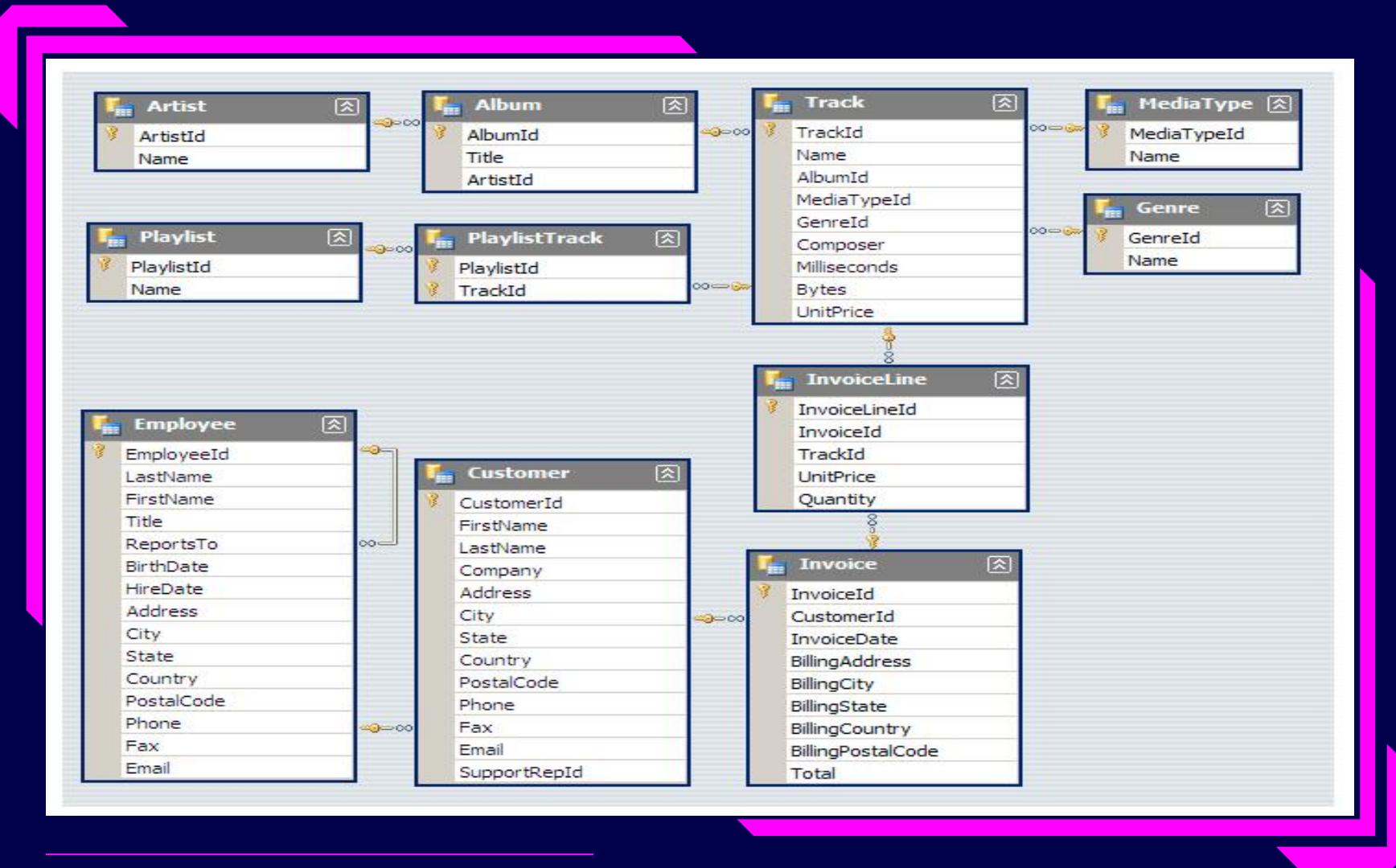
The primary objective of this project is to delve into the music playlist database and extract meaningful information using SQL queries. By doing so, we aim to gain a deeper understanding of the store's performance, customer preferences, and overall business trends.

The music playlist database, which contains crucial information about the store's inventory, sales, and customer interactions.

PostgreSQL, a powerful and user-friendly tool for managing and querying relational databases.

CSV files will serve as the source of data for our analysis, providing structured information that can be easily queried.

MUSIC PLAYLIST DATABASE SCHEMA



Division of Questions

Questions are divided into 3 Categories based on the complexity of the question

EASY



MODERATE



ADVANCE



QUESTION 1

Who is the senior most employee based on job title?

INPUT

```
SELECT MAX(levels) as max_level, title, last_name, first_name  
FROM employee  
GROUP BY title, last_name, first_name  
ORDER BY max_level DESC  
LIMIT 1
```

OUTPUT

	max_level text	title character varying (50)	last_name character	first_name character
1	L7	Senior General Manager	Madan	Mohan

QUESTION 2

Which countries have the most Invoices?

INPUT

```
SELECT billing_country, COUNT(*) AS c
FROM invoice
GROUP BY billing_country
ORDER BY c DESC;
```

OUTPUT

	billing_country	c
1	USA	131
2	Canada	76
3	Brazil	61
4	France	50
5	Germany	41
6	Czech Republic	30
7	Portugal	29
8	United Kingdom	28
9	India	21
10	Chile	13
11	Ireland	13
12	Spain	11

QUESTION 3

What are top 3 values of total invoice?

INPUT

```
SELECT total  
FROM invoice  
ORDER BY total DESC  
LIMIT 3;
```

OUTPUT

	total	double precision	locked
1	23.759999999999998		
2		19.8	
3		19.8	

QUESTION 4

Which city has the best customers? We would like to throw a promotional Music Festival in the city we made the most money. Write a query that returns one city that has the highest sum of invoice totals. Return both the city name & sum of all invoice totals.

INPUT

```
SELECT billing_city, SUM(total) AS InvoiceTotal  
FROM invoice  
GROUP BY billing_city  
ORDER BY InvoiceTotal DESC  
LIMIT 1;
```

OUTPUT

	billing_city character varying (30)	invoicetotal double precision
1	Prague	273.24000000000007

QUESTION 5

Who is the best customer? The customer who has spent the most money will be declared the best customer. Write a query that returns the person who has spent the most money.

INPUT

```
SELECT customer.customer_id, first_name, last_name, SUM(total) AS total_spending
FROM customer
JOIN invoice ON customer.customer_id = invoice.customer_id
GROUP BY customer.customer_id
ORDER BY total_spending DESC
LIMIT 1;
```

OUTPUT

	customer_id [PK] integer	first_name character	last_name character	total_spending double precision
1	5	R	Madhav	144.54000000000002

QUESTION 1

MODERATE

Write query to return the email, first name, last name, & Genre of all Rock Music listeners. Return your list ordered alphabetically by email starting with A

```
SELECT DISTINCT email AS Email, first_name AS FirstName, last_name AS LastName, genre.name AS Genre
FROM customer
JOIN invoice ON invoice.customer_id = customer.customer_id
JOIN invoice_line ON invoice_line.invoice_id = invoice.invoice_id
JOIN track ON track.track_id = invoice_line.track_id
JOIN genre ON genre.genre_id = track.genre_id
WHERE genre.name LIKE 'Rock'
ORDER BY email;
```

INPUT

	email character varying (50)	firstname character	lastname character	genre character varying (120)
1	aaronmitchell@yahoo.ca	Aaron	Mitchell	Rock
2	alero@uol.com.br	Alexandre	Rocha	Rock
3	astrid.gruber@apple.at	Astrid	Gruber	Rock
4	bjorn.hansen@yahoo.no	Bjørn	Hansen	Rock
5	camille.bernard@yahoo.fr	Camille	Bernard	Rock
6	daan_peeters@apple.be	Daan	Peeters	Rock
7	diego.gutierrez@yahoo.ar	Diego	Gutiérrez	Rock
8	dmiller@comcast.com	Dan	Miller	Rock
9	dominiquelefevre@gmail.c...	Dominique	Lefebvre	Rock

OUTPUT



QUESTION 2

MODERATE

Let's invite the artists who have written the most rock music in our dataset. Write a query that returns the Artist name and total track count of the top 10 rock bands.

INPUT



```
SELECT artist.artist_id, artist.name, COUNT(track.track_id) AS number_of_songs
FROM artist
JOIN album ON artist.artist_id = album.artist_id
JOIN track ON album.album_id = track.album_id
JOIN genre ON track.genre_id = genre.genre_id
WHERE genre.name = 'Rock'
GROUP BY artist.artist_id, artist.name
ORDER BY number_of_songs DESC
LIMIT 10;
```

OUTPUT



	artist_id [PK] character varying (50)	name character varying (120)	number_of_songs bigint
1	22	Led Zeppelin	114
2	150	U2	112
3	58	Deep Purple	92
4	90	Iron Maiden	81
5	118	Pearl Jam	54
6	152	Van Halen	52
7	51	Queen	45
8	142	The Rolling Stones	41
9	76	Creedence Clearwater Revival	40
10	52	Kiss	35



QUESTION 3

MODERATE

Return all the track names that have a song length longer than the average song length. Return the Name and Milliseconds for each track. Order by the song length with the longest songs listed first.

INPUT



```
SELECT name,milliseconds  
FROM track  
WHERE milliseconds > (  
    SELECT AVG(milliseconds) AS avg_track_length  
    FROM track )  
ORDER BY milliseconds DESC;
```

OUTPUT



	name character varying (150)	milliseconds integer
1	Occupation / Precipice	5286953
2	Through a Looking Glass	5088838
3	Greetings from Earth, Pt. 1	2960293
4	The Man With Nine Lives	2956998
5	Battlestar Galactica, Pt. 2	2956081
6	Battlestar Galactica, Pt. 1	2952702
7	Murder On the Rising Star	2935894
8	Battlestar Galactica, Pt. 3	2927802
9	Take the Celestra	2927677
10	Fire In Space	2926593
11	The Long Patrol	2925008
12	The Magnificent Warriors	2924716



QUESTION 1

ADVANCE

Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent

INPUT

```
WITH best_selling_artist AS (
    SELECT artist.artist_id AS artist_id, artist.name AS artist_name,
    SUM(invoice_line.unit_price*invoice_line.quantity) AS total_sales
    FROM invoice_line
    JOIN track ON track.track_id = invoice_line.track_id
    JOIN album ON album.album_id = track.album_id
    JOIN artist ON artist.artist_id = album.artist_id
    GROUP BY 1
    ORDER BY 3 DESC
    LIMIT 1)
SELECT c.customer_id, c.first_name, c.last_name, bsa.artist_name, SUM(il.unit_price*il.quantity)
FROM invoice i
JOIN customer c ON c.customer_id = i.customer_id
JOIN invoice_line il ON il.invoice_id = i.invoice_id
JOIN track t ON t.track_id = il.track_id
JOIN album alb ON alb.album_id = t.album_id
JOIN best_selling_artist bsa ON bsa.artist_id = alb.artist_id
GROUP BY 1,2,3,4
ORDER BY 5 DESC;
```



QUESTION 1

ADVANCE

Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent

OUTPUT



	customer_id integer	first_name character	last_name character	artist_name character varying (120)	amount_spent double precision
1	46	Hugh	O'Reilly	Queen	27.719999999999985
2	38	Niklas	Schröder	Queen	18.81
3	3	François	Tremblay	Queen	17.82
4	34	João	Fernandes	Queen	16.830000000000002
5	53	Phil	Hughes	Queen	11.88
6	41	Marc	Dubois	Queen	11.88
7	47	Lucas	Mancini	Queen	10.89
8	33	Ellie	Sullivan	Queen	10.89
9	20	Dan	Miller	Queen	3.96
10	5	R	Madhav	Queen	3.96
11	23	John	Gordon	Queen	2.969999999999998
12	54	Steve	Murray	Queen	2.969999999999998



QUESTION 2

ADVANCE

We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre with the highest amount of purchases. Write a query that returns each country along with the top Genre. For countries where the maximum number of purchases is shared return all Genres.

INPUT



```
WITH popular_genre AS
(
    SELECT COUNT(invoice_line.quantity) AS purchases, customer.country, genre.name,
    genre.genre_id,
    ROW_NUMBER() OVER(PARTITION BY customer.country ORDER BY COUNT(invoice_line.quantity) DESC)
    AS RowNo
    FROM invoice_line
    JOIN invoice ON invoice.invoice_id = invoice_line.invoice_id
    JOIN customer ON customer.customer_id = invoice.customer_id
    JOIN track ON track.track_id = invoice_line.track_id
    JOIN genre ON genre.genre_id = track.genre_id
    GROUP BY 2,3,4
    ORDER BY 2 ASC, 1 DESC
)
SELECT * FROM popular_genre WHERE RowNo <= 1
```

QUESTION 2

We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre with the highest amount of purchases. Write a query that returns each country along with the top Genre. For countries where the maximum number of purchases is shared return all Genres.

OUTPUT

	purchases bigint	country character varying (50)	name character varying (120)	genre_id character varying (50)	rowno bigint
1	17	Argentina	Alternative & Punk	4	1
2	34	Australia	Rock	1	1
3	40	Austria	Rock	1	1
4	26	Belgium	Rock	1	1
5	205	Brazil	Rock	1	1
6	333	Canada	Rock	1	1
7	61	Chile	Rock	1	1
8	143	Czech Republic	Rock	1	1
9	24	Denmark	Rock	1	1
10	46	Finland	Rock	1	1
11	211	France	Rock	1	1
12	194	Germany	Rock	1	1



QUESTION 3

ADVANCE

Write a query that determines the customer that has spent the most on music for each country. Write a query that returns the country along with the top customer and how much they spent. For countries where the top amount spent is shared, provide all customers who spent this amount.

INPUT



```
WITH Customer_with_country AS (
    SELECT customer.customer_id, first_name, last_name, billing_country, SUM(total)
        AS total_spending,
        ROW_NUMBER() OVER(PARTITION BY billing_country ORDER BY SUM(total) DESC) AS RowNo
    FROM invoice
    JOIN customer ON customer.customer_id = invoice.customer_id
    GROUP BY 1,2,3,4
    ORDER BY 4 ASC,5 DESC)
SELECT * FROM Customer_with_country WHERE RowNo <= 1
```

QUESTION 3

Write a query that determines the customer that has spent the most on music for each country. Write a query that returns the country along with the top customer and how much they spent. For countries where the top amount spent is shared, provide all customers who spent this amount.

OUTPUT

	customer_id integer	first_name character	last_name character	billing_country character varying (30)	total_spending double precision	rowno bigint
1	56	Diego	Gutiérrez	Argentina	39.6	1
2	55	Mark	Taylor	Australia	81.18	1
3	7	Astrid	Gruber	Austria	69.3	1
4	8	Daan	Peeters	Belgium	60.38999999999999	1
5	1	Luís	Gonçalves	Brazil	108.8999999999998	1
6	3	François	Tremblay	Canada	99.99	1
7	57	Luis	Rojas	Chile	97.02000000000001	1
8	5	R	Madhav	Czech Republic	144.54000000000002	1
9	9	Kara	Nielsen	Denmark	37.61999999999999	1
10	44	Terhi	Hämäläinen	Finland	79.2	1
11	42	Wyatt	Girard	France	99.99	1
12	37	Fynn	Zimmermann	Germany	94.05000000000001	1

Based on the Insight; Suggestions for the Music Store Analysis

Targeted Marketing

Focus marketing efforts on countries with high invoice counts and customers with high spending tendencies.

Promotional Events

Organize music festivals or events in cities with high invoice totals.

Inventory Management

Stock up on music from popular rock bands and other genres that show high purchase rates.

Customer Engagement

Engage with top spending customers to foster loyalty and encourage repeat purchases.

Genre-based Recommendations

Provide personalized recommendations based on popular genres in different regions to enhance customer experience and drive sales.

By leveraging these insights and implementing strategic initiatives, the music store can optimize its operations, enhance customer satisfaction, and drive revenue growth..

Insights and Conclusions for the Music Store Analysis

Senior Most Employee : The senior most employee based on job title is Madan Mohan, holding the position of Senior General Manager.

Top Spending Countries : The countries with the most invoices are the USA, Canada, and Brazil, indicating significant sales potential in these regions.

Top 3 Total Invoice Values : The top three total invoice values are \$23.75, \$19.80, and \$19.80, indicating substantial purchases.

City with Best Customers : Prague emerges as the city with the highest sum of invoice totals, suggesting it could be a lucrative location for promotional events like music festivals.

Best Customer : R Madhav is the best customer, having spent a total of \$144.54.

Rock Music Listeners : The list of customers who listen to rock music provides valuable insights for targeted marketing and promotions. The customers' emails, first names, last names, and genres are listed in alphabetical order by email.

Top Rock Bands : The top rock bands by the number of tracks are AC/DC, Aerosmith, and Audioslave. This information helps understand customer preferences.

Longest Tracks : The longest tracks in terms of song length, ordered by the song length, provide useful data for playlist curation or understanding customer preferences.

Customer Spending on Artists : Hugh O'Reilly has spent the most on the Queen artist, followed by other customers with significant spending amounts.

Popular Genres by Country : Rock emerges as the most popular genre in various countries, indicating its widespread appeal.

Top Spending Customers by Country : The top spending customers in each country highlight potential high-value markets and customer segments.

THANK YOU

