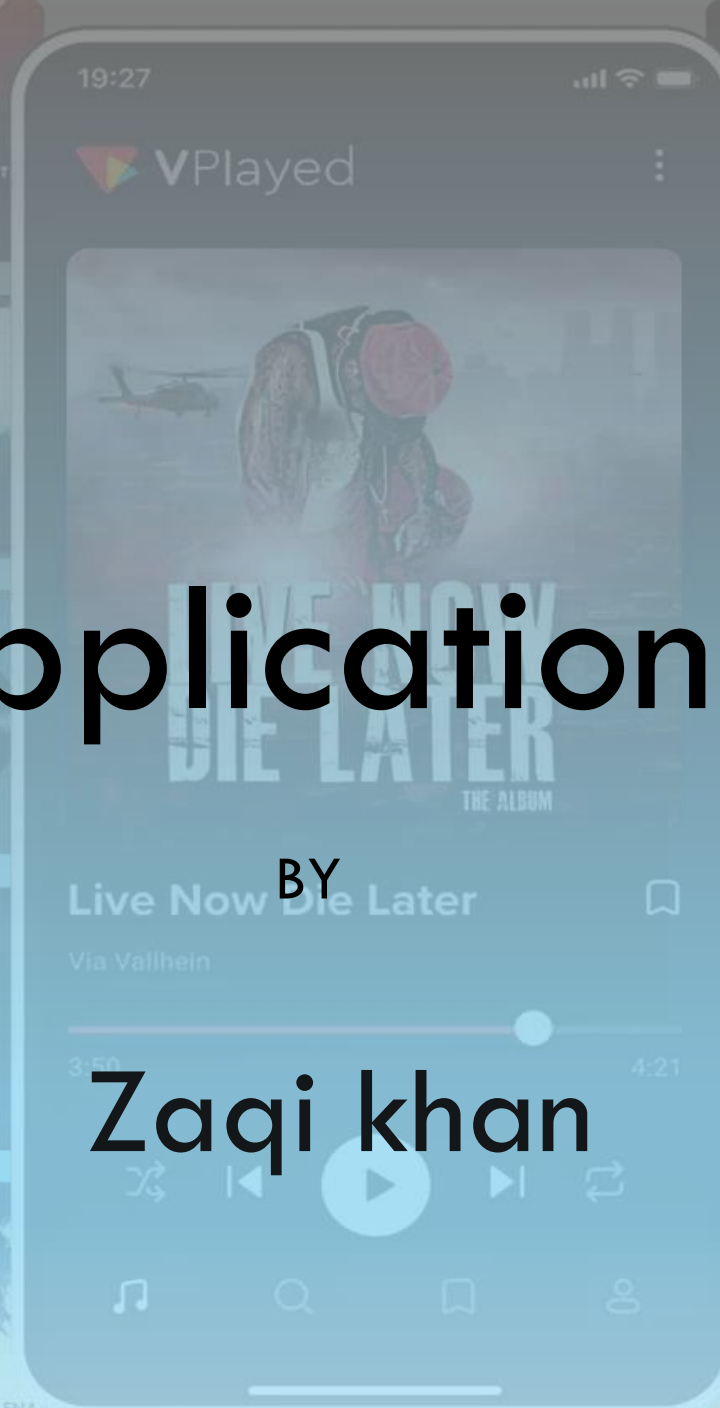


# Music Application Analysis

BY  
Zaqi khan



# Objective

- ♣ Provide Insights into the Music Store's Data Using SQL Analysis
- ♣ Help the Client Understand Customer Behavior, Sales Trends, and Inventory Management
- ♣ Sales Trends
- ♣ Ultimately, support the client's goal of achieving sustained business growth through effective data utilization.
- ♣ Detailed examination of customer data to find key demographic and spending insights.

# Questions

- Who is the senior most employee based on job title?
- Which countries have the most Invoices?
- What are top 3 values of total invoice?
- 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.
- 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.



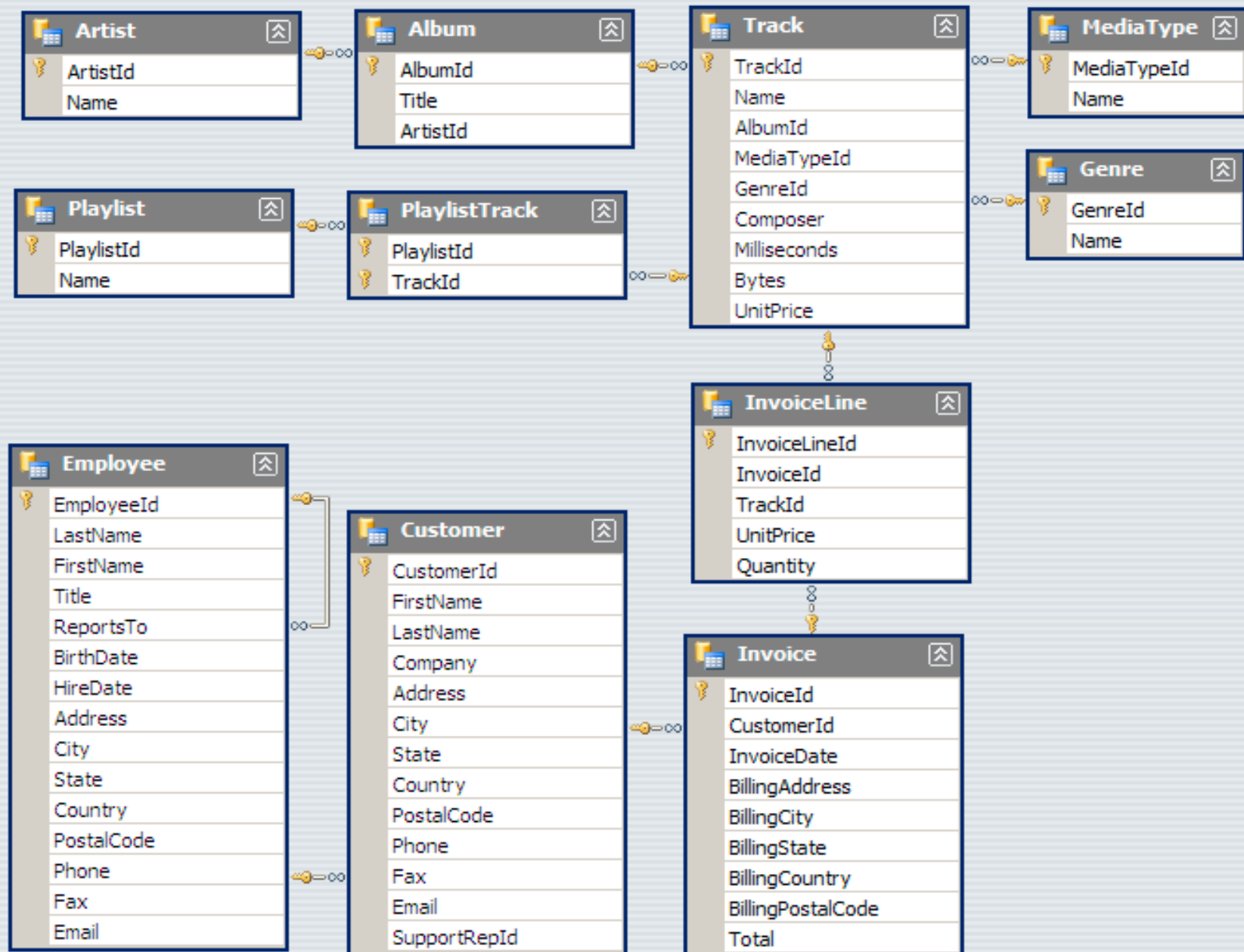
# Questions

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

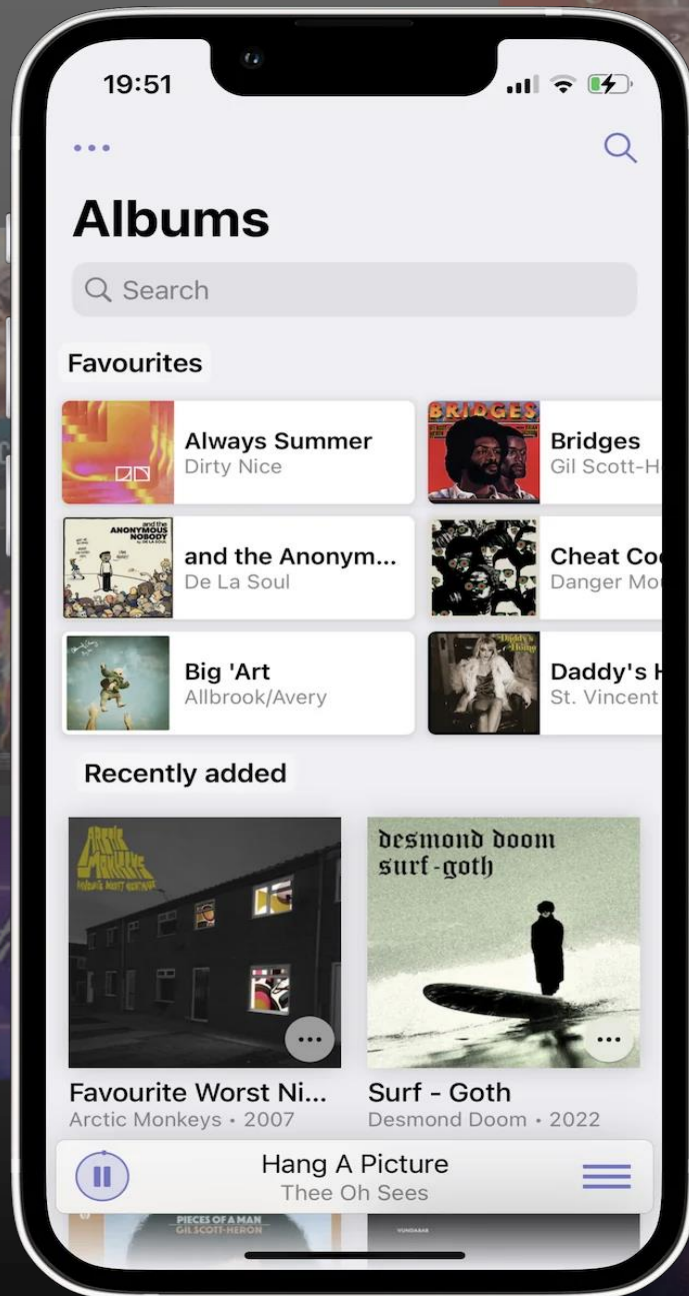
# Questions

- 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.
- 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.

# Schema of tables



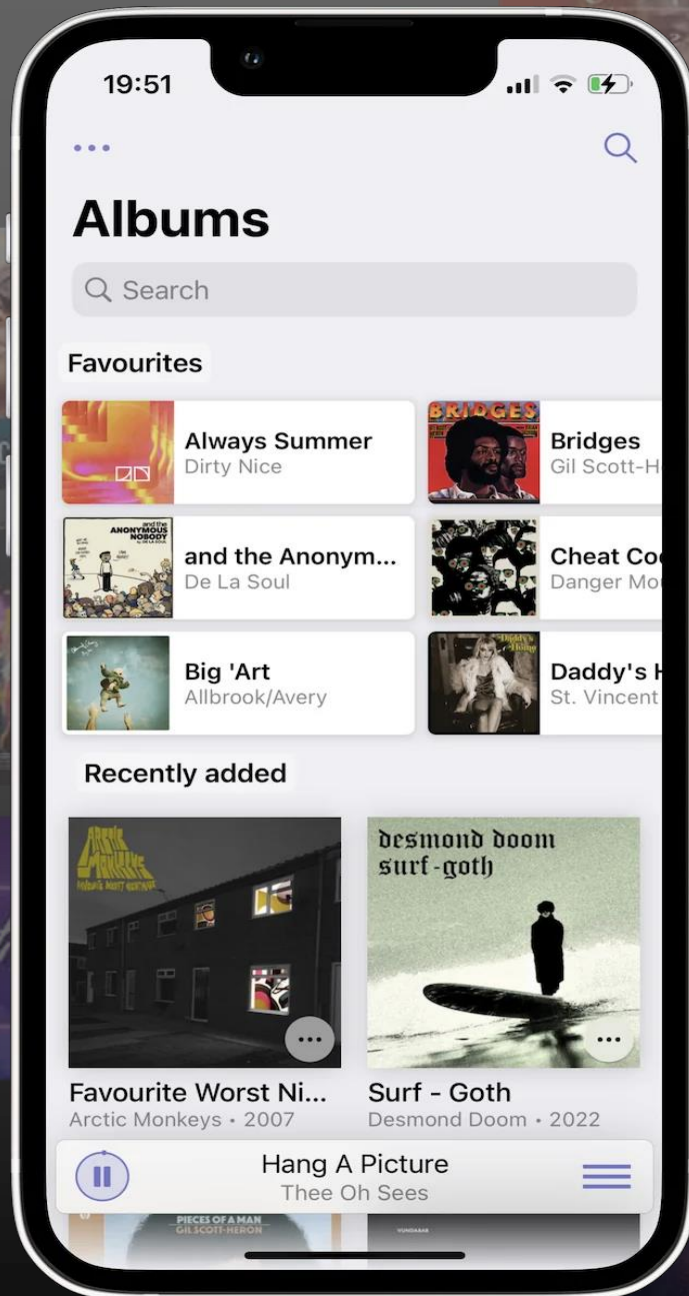




• Who is the senior most employee based on job title?

```
2
3 SELECT * FROM employee
4 ORDER BY levels DESC
5 limit 1
6
7
```

Data Output Messages Notifications				
	employee_id [PK] character varying (50)	last_name character	first_name character	title character varying (50)
1	9	Madan	Mohan	Senior General Manager



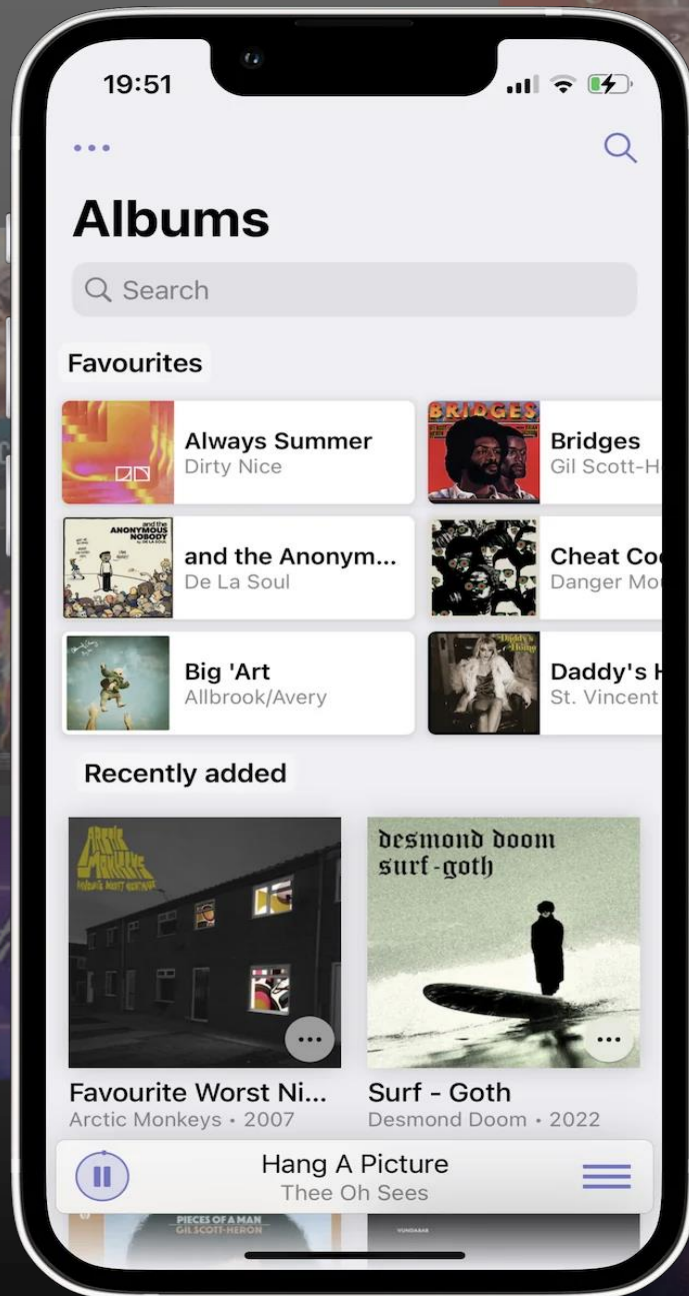
- Which countries have the most Invoices?

```
10 SELECT COUNT (*) as c, billing_country
11 FROM invoice
12 group by billing_country
13 order by c desc
14
```

Data Output Messages Notifications

	c bigint	billing_country character varying (30)
1	131	USA
2	76	Canada
3	61	Brazil
4	50	France
5	41	Germany
6	30	Czech Republic
7	29	Portugal
8	28	United Kingdom





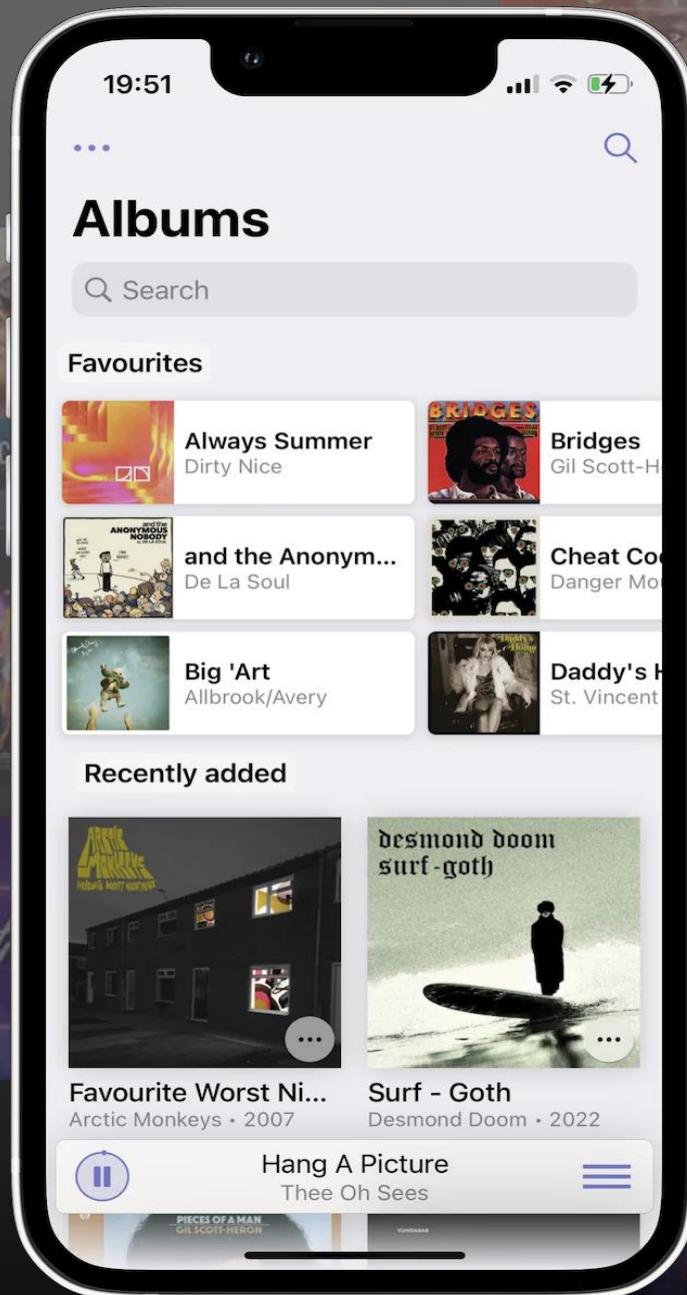
• What are top 3 values of total invoice?

```
SELECT total FROM invoice
order by total desc
limit 3
```

Data Output Messages Notifications

	total double precision	
1	23.759999999999998	
2	19.8	
3	19.8	

• Which city has the best customers? We would...

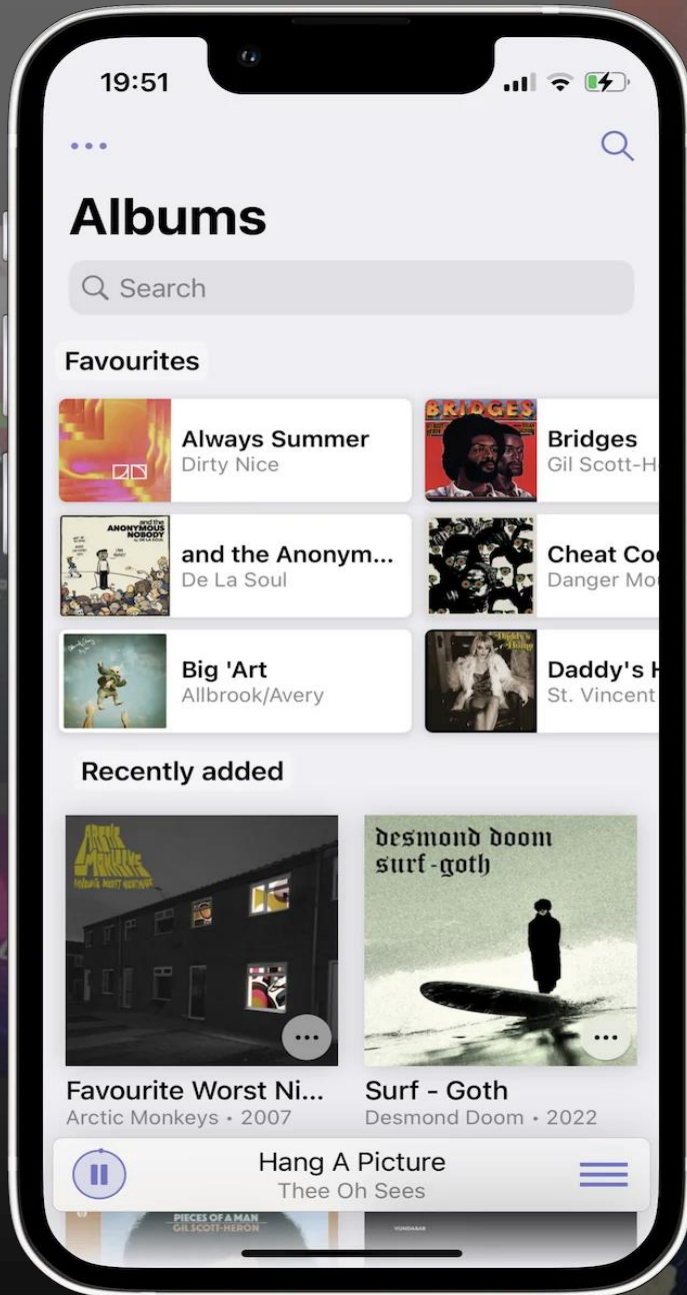


```
29  
30 select SUM(total) as invoice_total, billing_city  
31 from invoice  
32 group by billing_city  
33 order by invoice_total desc  
34  
35
```

Data Output Messages Notifications

SQL

	invoice_total double precision	billing_city character varying (30)
1	273.240000000000007	Prague
2	169.29	Mountain View
3	166.32	London
4	158.4	Berlin
5	151.47	Paris
6	129.69	São Paulo
7	114.839999999999997	Dublin
8	111.869999999999999	Delhi
9	108.899999999999998	São José dos Campos
10	106.919999999999999	Brasília
11	102.960000000000001	Lisbon



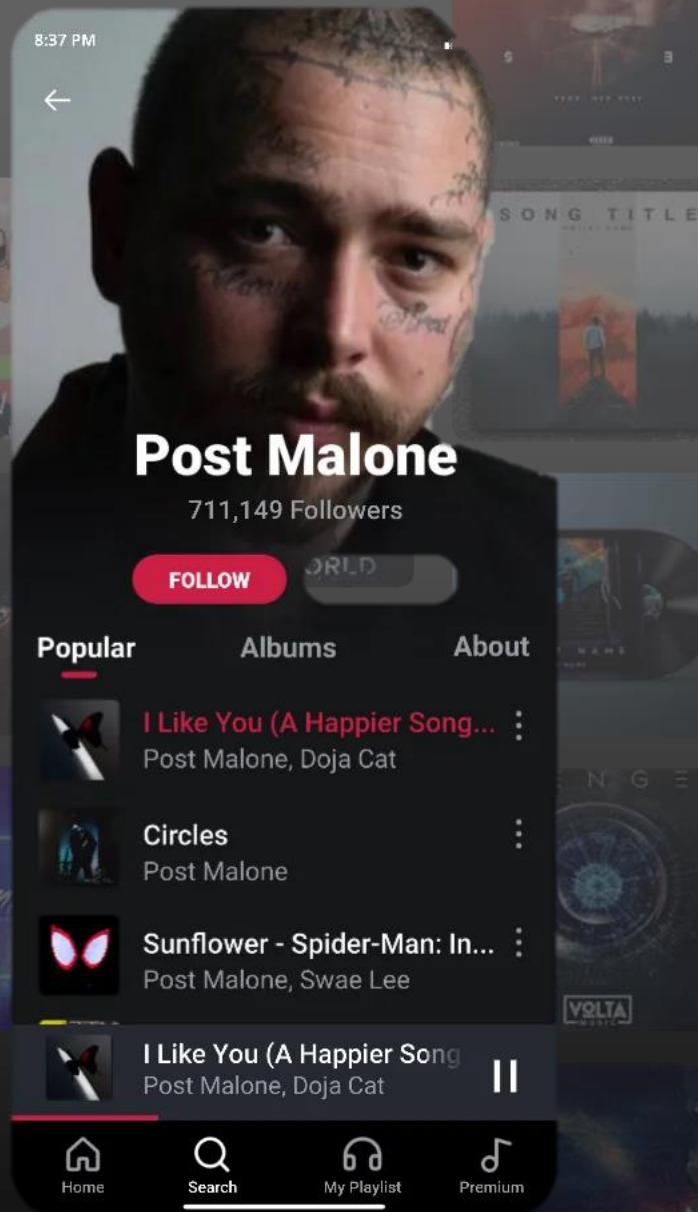
- Who is the best customer? The customer who has spent the most money will be declared the best customer. Write a query that returns the person who has spent the most money.

```
40 SELECT customer.customer_id, customer.first_name , customer.last_name, SUM(invoice.total) as total
41 FROM customer
42 JOIN invoice
43 on customer.customer_id = invoice.customer_id
44 GROUP BY customer.customer_id
45 ORDER BY total desc
46 limit 1
47
```

Data Output Messages Notifications

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





- 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.

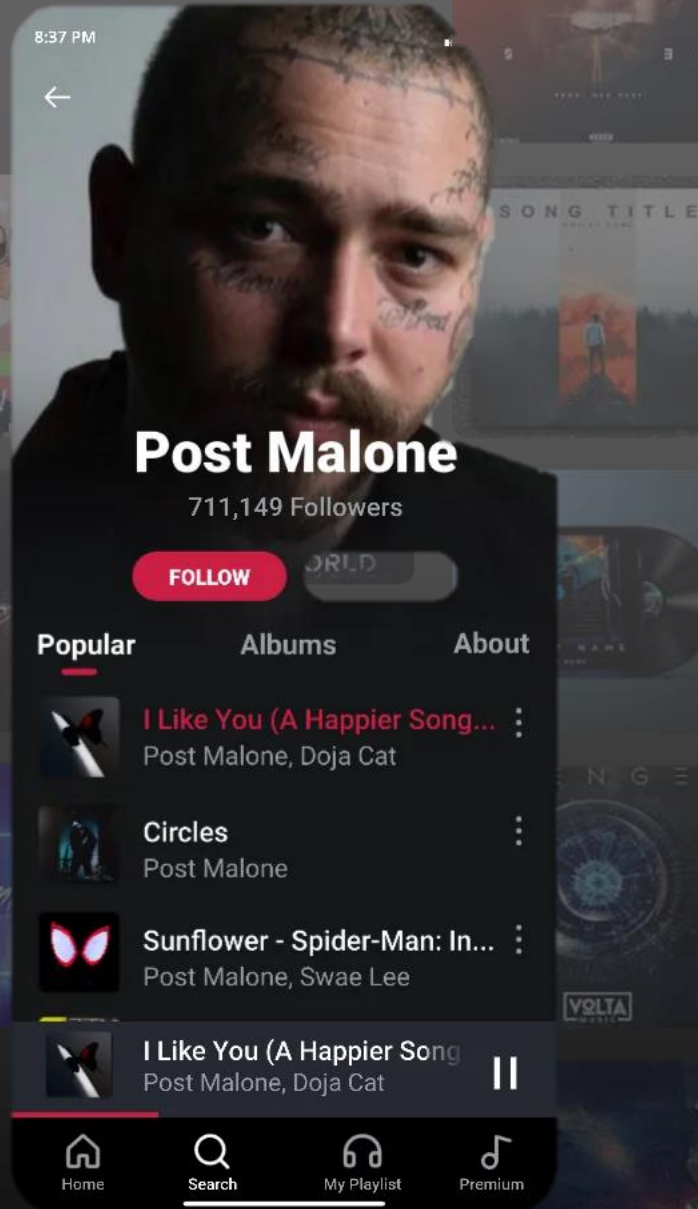
```
SELECT DISTINCT email, first_name, last_name
FROM customer
JOIN invoice ON customer.customer_id = invoice.customer_id
JOIN invoice_line ON invoice.invoice_id=invoice_line.invoice_id
WHERE track_id IN (
    select track_id from track
    join genre on track.genre_id = genre.genre_id
    WHERE genre.name like 'Rock'
)
ORDER BY email;
```

Output Messages Notifications



email	first_name	last_name
character varying (50)	character	character
aaronmitchell@yahoo.ca	Aaron	Mitchell
alero@uol.com.br	Alexandre	Rocha
astrid.gruber@apple.at	Astrid	Gruber
bjorn.hansen@yahoo.no	Bjørn	Hansen
camille.bernard@yahoo.fr	Camille	Bernard
daan_peeters@apple.be	Daan	Peeters
diego.gutierrez@yahoo.ar	Diego	Gutiérrez

- 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.



```

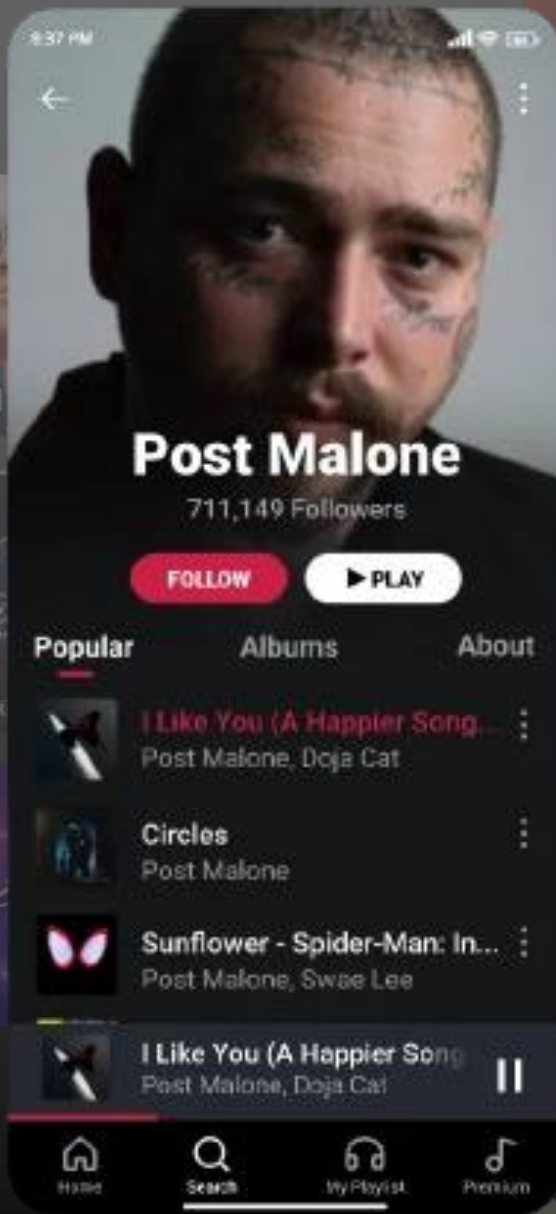
73 SELECT artist.artist_id, artist.name, COUNT(artist.artist_id) AS number_of_songs
74 FROM track
75 JOIN album ON album.album_id = track.album_id
76 JOIN artist ON artist.artist_id = album.artist_id
77 JOIN genre ON genre.genre_id = track.genre_id
78 WHERE genre.name like 'Rock'
79 group by artist.artist_id
80 ORDER BY number_of_songs DESC
81 limit 10;

```

Data Output Messages Notifications



	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



- 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.

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

Output Messages Notifications

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



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

```
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) AS amount_spent
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;
```

	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

- 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.....

```
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
```

Output Messages Notifications

purchases bigint	country character varying (50)	name character varying (120)	genre_id character varying (50)	rowno bigint
17	Argentina	Alternative & Punk	4	1
34	Australia	Rock	1	1
40	Austria	Rock	1	1
26	Belgium	Rock	1	1
205	Brazil	Rock	1	1
333	Canada	Rock	1	1
61	Chile	Rock	1	1

- 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.

```
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
```

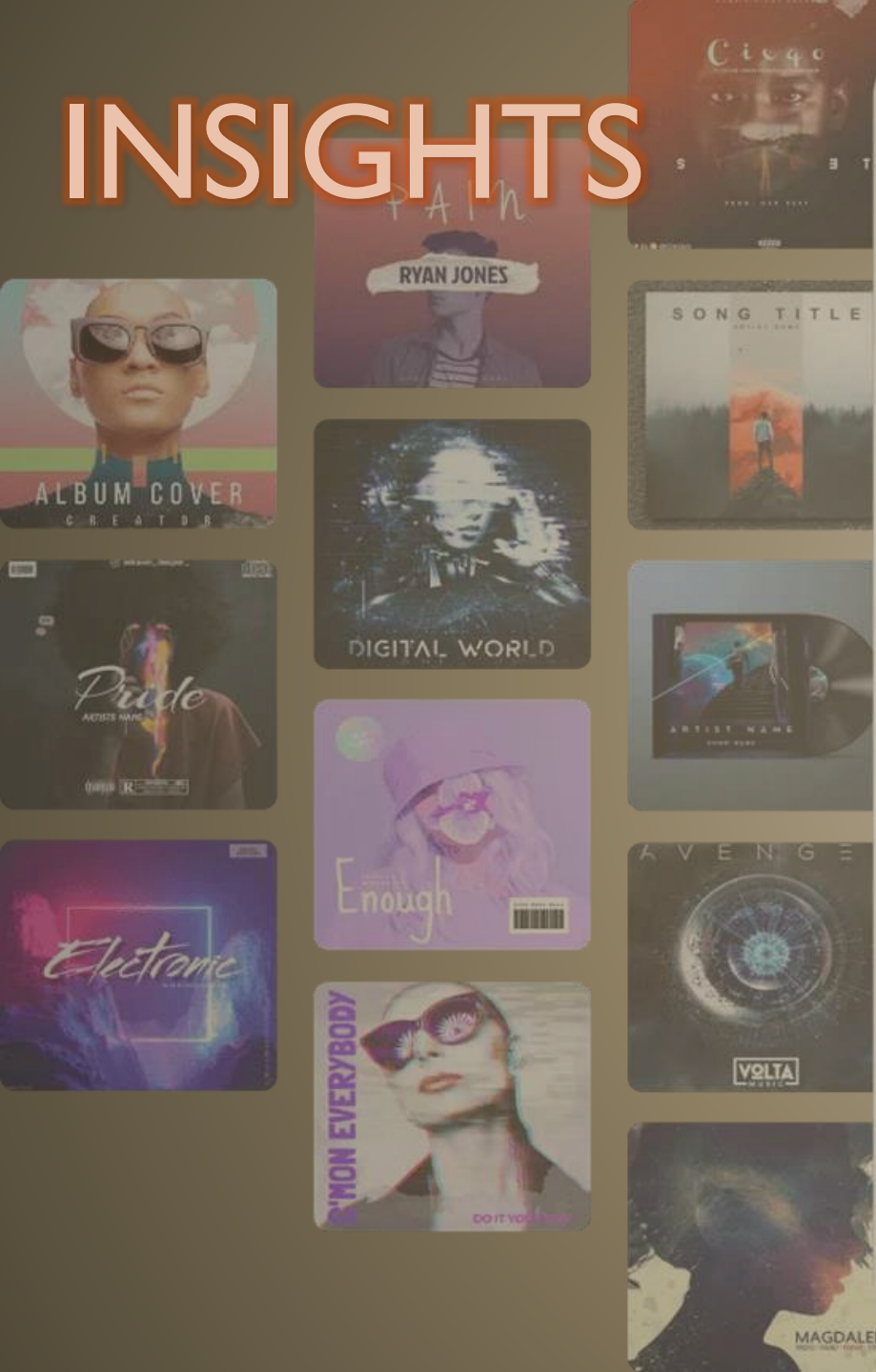
Output Messages Notifications



customer_id integer	first_name character	last_name character	billing_country character varying (30)	total_spending double precision	rowno bigint
56	Diego	Gutiérrez	Argentina	39.6	1
55	Mark	Taylor	Australia	81.18	1
7	Astrid	Gruber	Austria	69.3	1
8	Daan	Peeters	Belgium	60.389999999999999	1
1	Luís	Gonçalves	Brazil	108.899999999999998	1
3	François	Tremblay	Canada	99.99	1
57	Luis	Rojas	Chile	97.020000000000001	1
5	R	Madhav	Czech Republic	144.540000000000002	1
9	Kara	Nielsen	Denmark	37.610000000000000	1



# INSIGHTS



Through these analysis the insights we have got are :

- **Customer Spending on Artists**
- **Popular Music Genres by Country**
- **Top Spending Customers by Country**
- **Rock Music Listeners**
- **Top Rock Bands**
- **City with Best Customers and Best Customer**
- **Countries with Most Invoices**



# THANK YOU

Thank you for your time and attention during the presentation. Your engagement and interest are truly appreciated.