# MUSIC STORE ANALYSIS

**OBJECTIVE:**

SQL project to analyse online music store data.

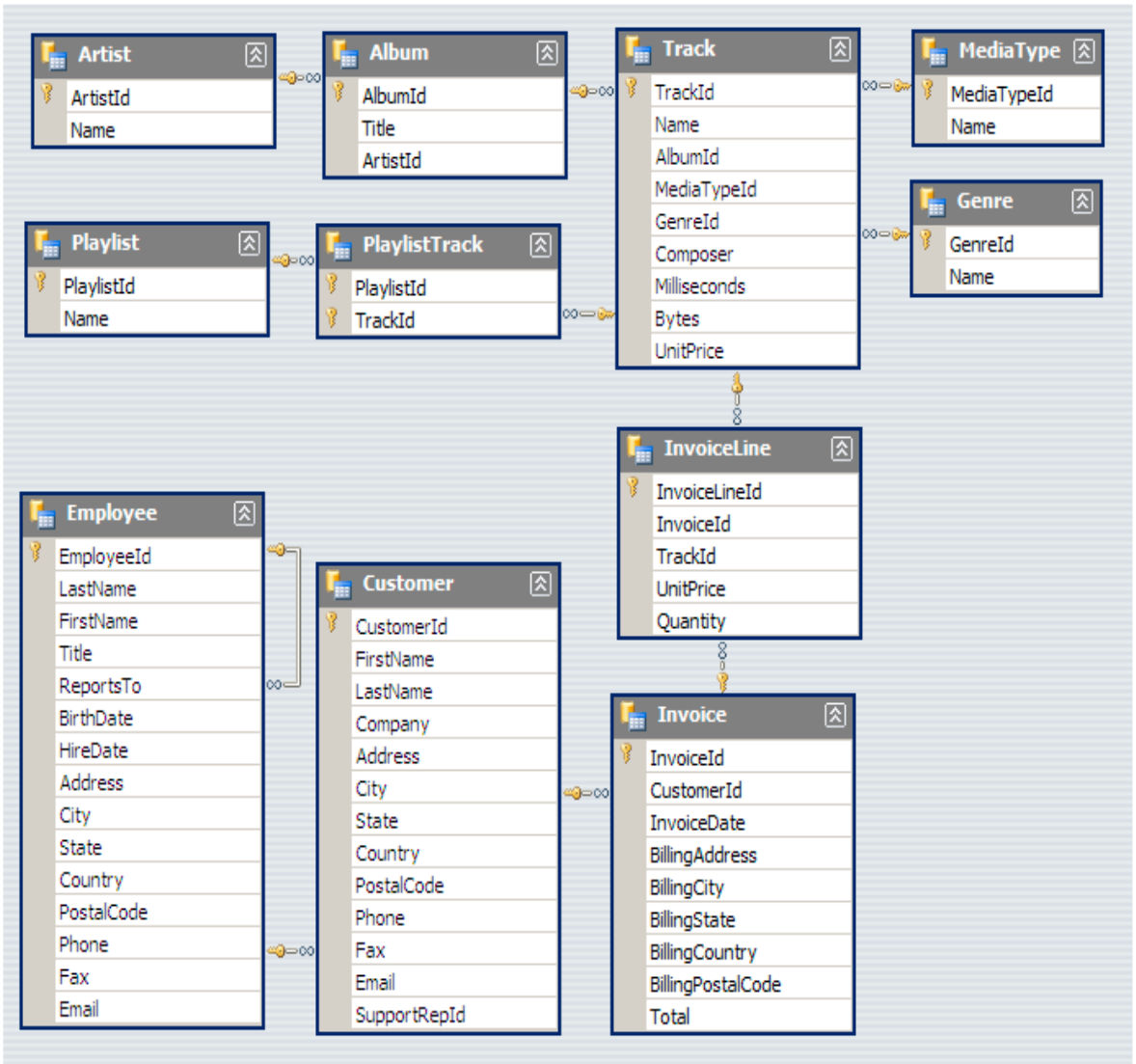
To examine the dataset with SQL and help the store understand its business growth.

**DATABASE AND TOOLS:**

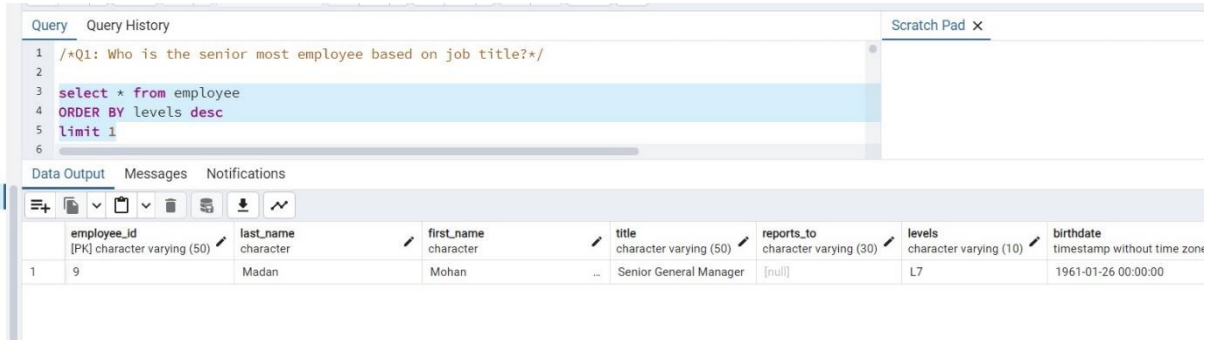
- Postgre SQL
- PgAdmin4

**SCHEMA:**

Music store database



Q1: Who is the senior most employee based on job title?

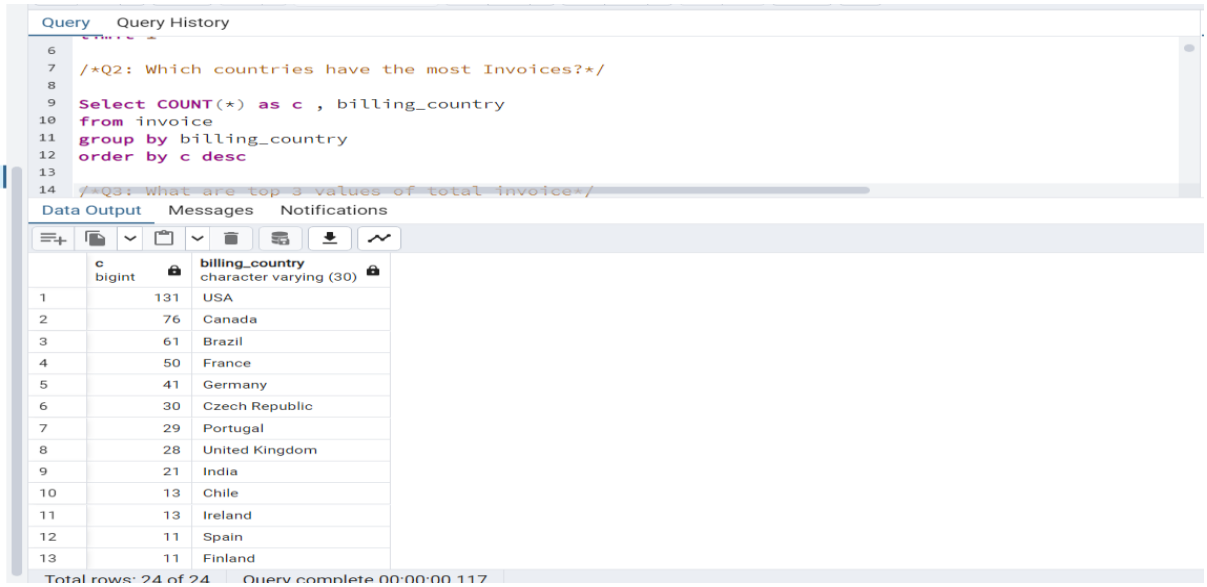


```
/*Q1: Who is the senior most employee based on job title?*/

select * from employee
ORDER BY levels desc
limit 1
```

| employee_id [PK] character varying (50) | last_name character | first_name character | title character varying (50) | reports_to character varying (30) | levels character varying (10) | birthdate timestamp without time zone |
|---|---|---|---|---|---|---|
| 9 | Madan | Mohan | Senior General Manager | [null] | L7 | 1961-01-26 00:00:00 |

Q2: Which countries have the most Invoices?

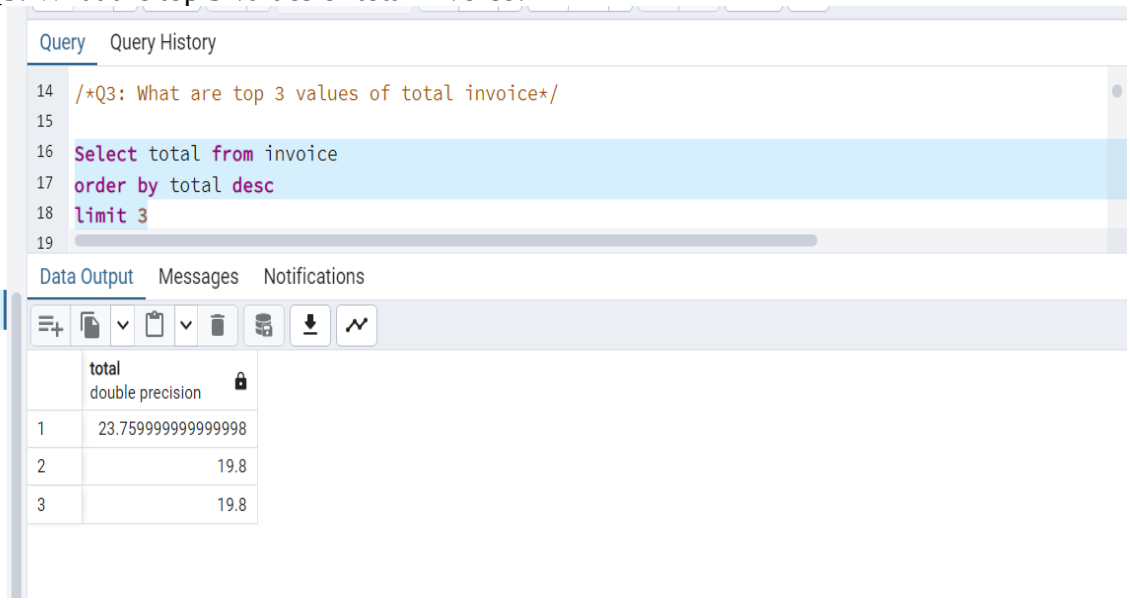


```
/*Q2: Which countries have the most Invoices?*/

Select COUNT(*) as c , billing_country
from invoice
group by billing_country
order by c desc
```

| | 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 |
| 9 | 21 | India |
| 10 | 13 | Chile |
| 11 | 13 | Ireland |
| 12 | 11 | Spain |
| 13 | 11 | Finland |

Q3: What are top 3 values of total invoice?

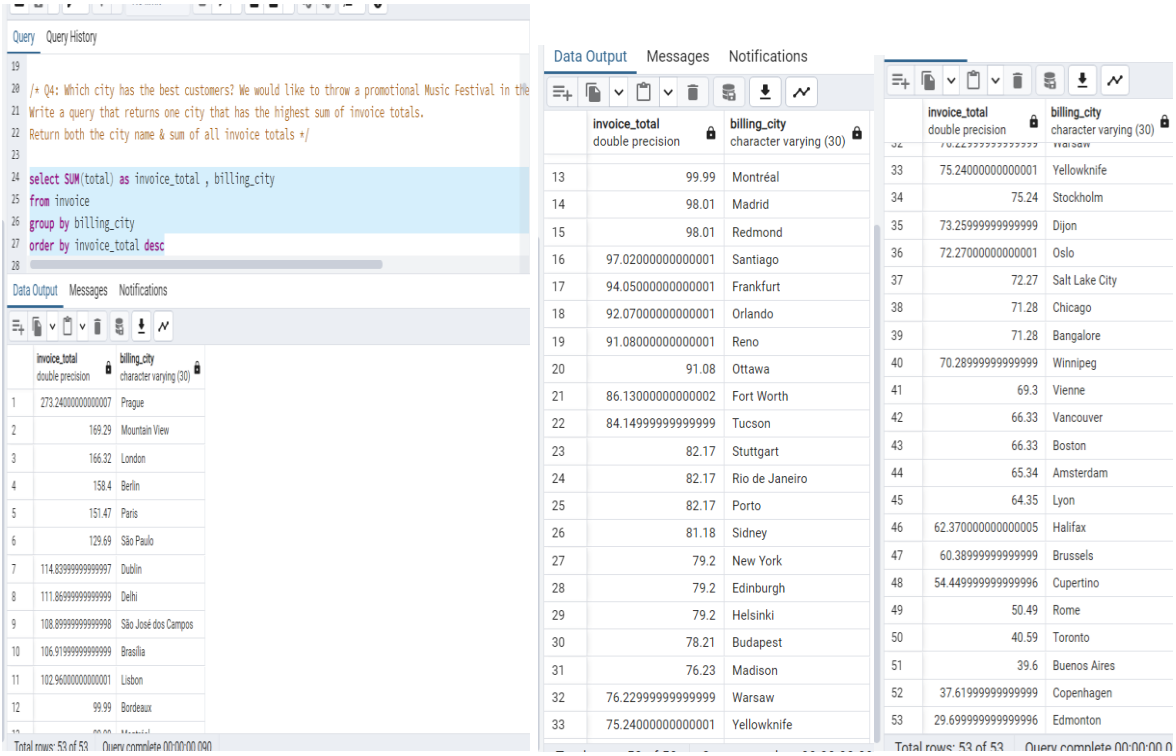


```
/*Q3: What are top 3 values of total invoice*/

Select total from invoice
order by total desc
limit 3
```

| | total double precision |
|---|---|
| 1 | 23.759999999999998 |
| 2 | 19.8 |
| 3 | 19.8 |

Q4: 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.

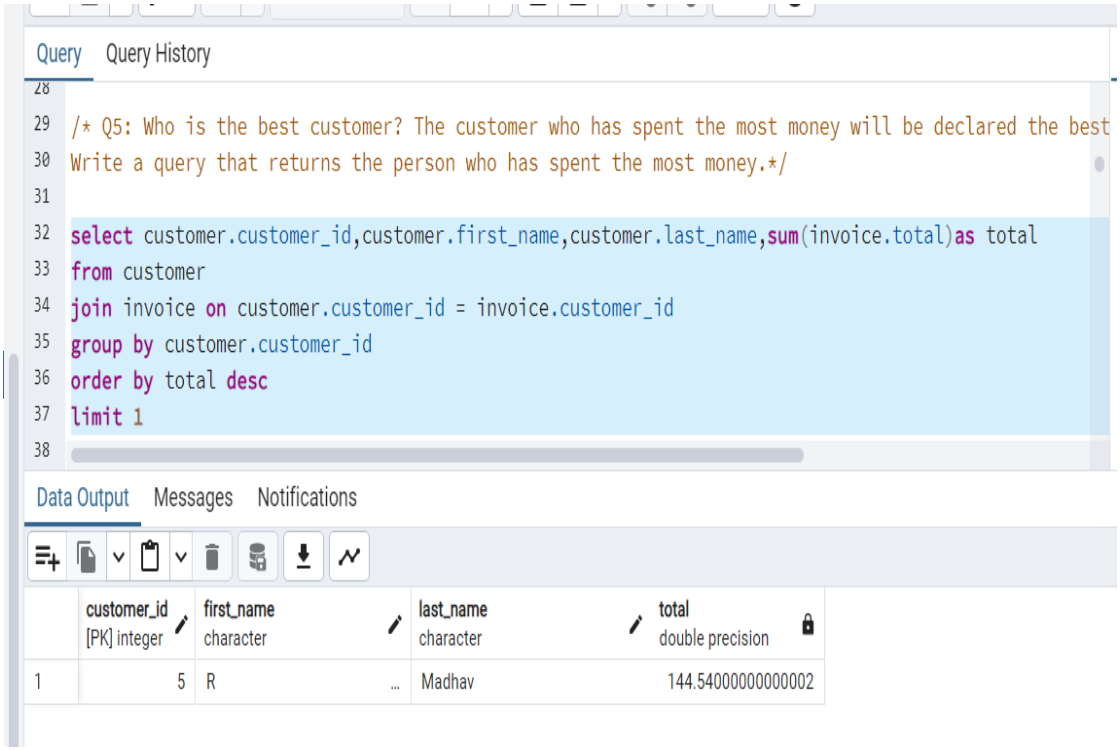


```
/* Q4: Which city has the best customers? We would like to throw a promotional Music Festival in the
Write a query that returns one city that has the highest sum of invoice totals.
Return both the city name & sum of all invoice totals */

select SUM(total) as invoice_total , billing_city
from invoice
group by billing_city
order by invoice_total desc
```

| | invoice_total double precision | billing_city character varying (30) |
|---|---|---|
| 1 | 273.2400000000007 | Prague |
| 2 | 169.29 | Mountain View |
| 3 | 166.32 | London |
| 4 | 158.4 | Berlin |
| 5 | 151.47 | Paris |
| 6 | 129.69 | São Paulo |
| 7 | 114.83999999999997 | Dublin |
| 8 | 111.86999999999999 | Delhi |
| 9 | 108.89999999999998 | São José dos Campos |
| 10 | 106.91999999999999 | Brasília |
| 11 | 102.96000000000001 | Lisbon |
| 12 | 99.99 | Bordeaux |
| 13 | 99.99 | Montréal |
| 14 | 98.01 | Madrid |
| 15 | 98.01 | Redmond |
| 16 | 97.02000000000001 | Santiago |
| 17 | 94.05000000000001 | Frankfurt |
| 18 | 92.07000000000001 | Orlando |
| 19 | 91.08000000000001 | Reno |
| 20 | 91.08 | Ottawa |
| 21 | 86.13000000000002 | Fort Worth |
| 22 | 84.14999999999999 | Tucson |
| 23 | 82.17 | Stuttgart |
| 24 | 82.17 | Rio de Janeiro |
| 25 | 82.17 | Porto |
| 26 | 81.18 | Sidney |
| 27 | 79.2 | New York |
| 28 | 79.2 | Edinburgh |
| 29 | 79.2 | Helsinki |
| 30 | 78.21 | Budapest |
| 31 | 76.23 | Madison |
| 32 | 76.22999999999999 | Warsaw |
| 33 | 75.24000000000001 | Yellowknife |
| 34 | 75.24 | Stockholm |
| 35 | 73.25999999999999 | Dijon |
| 36 | 72.27000000000001 | Oslo |
| 37 | 72.27 | Salt Lake City |
| 38 | 71.28 | Chicago |
| 39 | 71.28 | Bangalore |
| 40 | 70.28999999999999 | Winnipeg |
| 41 | 69.3 | Vienne |
| 42 | 66.33 | Vancouver |
| 43 | 66.33 | Boston |
| 44 | 65.34 | Amsterdam |
| 45 | 64.35 | Lyon |
| 46 | 62.370000000000005 | Halifax |
| 47 | 60.38999999999999 | Brussels |
| 48 | 54.449999999999996 | Cupertino |
| 49 | 50.49 | Rome |
| 50 | 40.59 | Toronto |
| 51 | 39.6 | Buenos Aires |
| 52 | 37.61999999999999 | Copenhagen |
| 53 | 29.699999999999996 | Edmonton |

Q5: 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.



```
/* Q5: Who is the best customer? The customer who has spent the most money will be declared the best
Write a query that returns the person who has spent the most money.*/

select customer.customer_id,customer.first_name,customer.last_name,sum(invoice.total)as total
from customer
join invoice on customer.customer_id = invoice.customer_id
group by customer.customer_id
order by total desc
limit 1
```

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

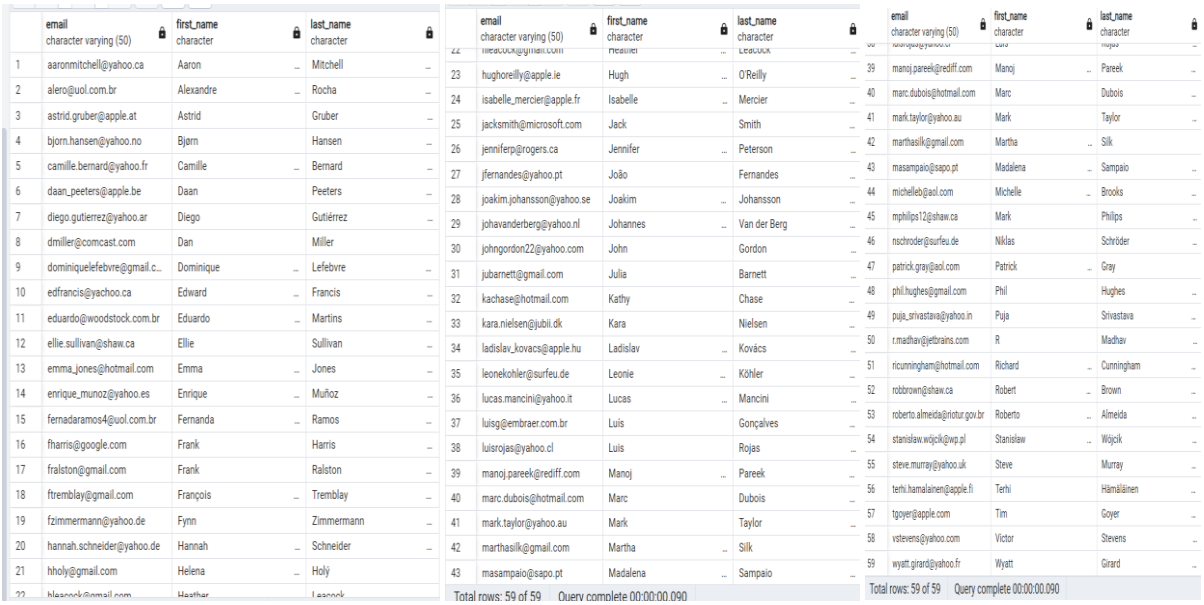
Q6: Write query to return the email, first name, last name, & Genre of all Rock Music listeners.

Return your list ordered alphabetically by email starting with A.

Query | Query History

```
/* Q6: 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;
```



| | email character varying (50) | first_name character | last_name character |
|---|---|---|---|
| 1 | aaronmitchell@yahoo.ca | Aaron | Mitchell |
| 2 | alero@uol.com.br | Alexandre | Rocha |
| 3 | astrid.gruber@apple.at | Astrid | Gruber |
| 4 | bjorn.hansen@yahoo.no | Bjørn | Hansen |
| 5 | camille.bernard@yahoo.fr | Camille | Bernard |
| 6 | daan_peeters@apple.be | Daan | Peeters |
| 7 | diego.gutierrez@yahoo.ar | Diego | Gutiérrez |
| 8 | dmiller@comcast.com | Dan | Miller |
| 9 | dominiquelefebvre@gmail.c... | Dominique | Lefebvre |
| 10 | edfrancis@yachoo.ca | Edward | Francis |
| 11 | eduardo@woodstock.com.br | Eduardo | Martins |
| 12 | ellie.sullivan@shaw.ca | Ellie | Sullivan |
| 13 | emma_jones@hotmail.com | Emma | Jones |
| 14 | enrique_munoz@yahoo.es | Enrique | Muñoz |
| 15 | fernadaramos4@uol.com.br | Fernanda | Ramos |
| 16 | fharris@google.com | Frank | Harris |
| 17 | fralston@gmail.com | Frank | Ralston |
| 18 | ftremblay@gmail.com | François | Tremblay |
| 19 | fzimmermann@yahoo.de | Fynn | Zimmermann |
| 20 | hannah.schneider@yahoo.de | Hannah | Schneider |
| 21 | hholy@gmail.com | Helena | Holý |
| 22 | hleacock@gmail.com | Heather | Leacock |

| | email character varying (50) | first_name character | last_name character |
|---|---|---|---|
| 23 | hughoreilly@apple.ie | Hugh | O'Reilly |
| 24 | isabelle_mercier@apple.fr | Isabelle | Mercier |
| 25 | jacksmith@microsoft.com | Jack | Smith |
| 26 | jenniferp@rogers.ca | Jennifer | Peterson |
| 27 | jfernandes@yahoo.pt | João | Fernandes |
| 28 | joakim.johansson@yahoo.se | Joakim | Johansson |
| 29 | johavanderberg@yahoo.nl | Johannes | Van der Berg |
| 30 | johngordon22@yahoo.com | John | Gordon |
| 31 | jubarnett@gmail.com | Julia | Barnett |
| 32 | kachase@hotmail.com | Kathy | Chase |
| 33 | kara.nielsen@jubii.dk | Kara | Nielsen |
| 34 | ladislav_kovacs@apple.hu | Ladislav | Kovács |
| 35 | leonekohler@surfeu.de | Leonie | Köhler |
| 36 | lucas.mancini@yahoo.it | Lucas | Mancini |
| 37 | luisg@embraer.com.br | Luís | Gonçalves |
| 38 | luisrojas@yahoo.cl | Luís | Rojas |
| 39 | manoj.pareek@rediff.com | Manoj | Pareek |
| 40 | marc.dubois@hotmail.com | Marc | Dubois |
| 41 | mark.taylor@yahoo.au | Mark | Taylor |
| 42 | marthasilk@gmail.com | Martha | Silk |
| 43 | masampaio@sapo.pt | Madalena | Sampaio |

Total rows: 59 of 59 Query complete 00:00:00.090

| | email character varying (50) | first_name character | last_name character |
|---|---|---|---|
| 39 | manoj.pareek@rediff.com | Manoj | Pareek |
| 40 | marc.dubois@hotmail.com | Marc | Dubois |
| 41 | mark.taylor@yahoo.au | Mark | Taylor |
| 42 | marthasilk@gmail.com | Martha | Silk |
| 43 | masampaio@sapo.pt | Madalena | Sampaio |
| 44 | michelleb@aol.com | Michelle | Brooks |
| 45 | mphilips12@shaw.ca | Mark | Philips |
| 46 | nschroder@surfeu.de | Niklas | Schröder |
| 47 | patrick.gray@aol.com | Patrick | Gray |
| 48 | phil.hughes@gmail.com | Phil | Hughes |
| 49 | puja_srivastava@yahoo.in | Puja | Srivastava |
| 50 | r.madhav@jetbrains.com | R | Madhav |
| 51 | ricunningham@hotmail.com | Richard | Cunningham |
| 52 | robbrown@shaw.ca | Robert | Brown |
| 53 | roberto.almeida@riotur.gov.br | Roberto | Almeida |
| 54 | stanislaw.wojcik@wp.pl | Stanisław | Wójcik |
| 55 | steve.murray@yahoo.uk | Steve | Murray |
| 56 | terhi.hamalainen@apple.fi | Terhi | Hämäläinen |
| 57 | tgoyer@apple.com | Tim | Goyer |
| 58 | vstevens@yahoo.com | Victor | Stevens |
| 59 | wyatt.girard@yahoo.fr | Wyatt | Girard |

Total rows: 59 of 59 Query complete 00:00:00.090

Q7: 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.

Query | Query History

```
/* Q7: 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. */

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

| | 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 |

Q8: 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.

Query | Query History

```
/* Q8: 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

 Select name , milliseconds
 From track
 where milliseconds > (
     select avg(milliseconds)as avg_track_length
     from track )
Order by milliseconds desc;
```

Data Output | Messages | Notifications

| | name<br>character varying (150) | milliseconds<br>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 |

Q9: Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent

Query | Query History

```
/* Q9: 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<br>integer | first_name<br>character | last_name<br>character | artist_name<br>character varying (120) | amount_spent<br>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 | 2.9699999999999998 |
| 12 | 54 | Steve | Murray | Queen | 2.9699999999999998 |
| 13 | 31 | Martha | Silk | Queen | 2.9699999999999998 |
| 14 | 16 | Frank | Harris | Queen | 1.98 |
| 15 | 17 | Jack | Smith | Queen | 1.98 |
| 16 | 24 | Frank | Ralston | Queen | 1.98 |
| 17 | 30 | Edward | Francis | Queen | 1.98 |
| 18 | 35 | Madalena | Sampaio | Queen | 1.98 |
| 19 | 36 | Hannah | Schneider | Queen | 1.98 |
| 20 | 11 | Alexandre | Rocha | Queen | 1.98 |

Total rows: 43 of 43 | Query complete 00:00:00.107

| | customer_id<br>integer | first_name<br>character | last_name<br>character | artist_name<br>character varying (120) | amount_spent<br>double precision |
|---|---|---|---|---|---|
| 21 | 8 | Daan | Peeters | Queen | 1.98 |
| 22 | 42 | Wyatt | Girard | Queen | 1.98 |
| 23 | 44 | Terhi | Hämäläinen | Queen | 1.98 |
| 24 | 1 | Luís | Gonçalves | Queen | 1.98 |
| 25 | 48 | Johannes | Van der Berg | Queen | 1.98 |
| 26 | 49 | Stanisław | Wójcik | Queen | 1.98 |
| 27 | 52 | Emma | Jones | Queen | 1.98 |
| 28 | 57 | Luis | Rojas | Queen | 1.98 |
| 29 | 15 | Jennifer | Peterson | Queen | 1.98 |
| 30 | 28 | Julia | Barnett | Queen | 1.98 |
| 31 | 27 | Patrick | Gray | Queen | 0.99 |
| 32 | 58 | Manoj | Pareek | Queen | 0.99 |
| 33 | 45 | Ladislav | Kovács | Queen | 0.99 |
| 34 | 26 | Richard | Cunningham | Queen | 0.99 |
| 35 | 59 | Puja | Srivastava | Queen | 0.99 |
| 36 | 13 | Fernanda | Ramos | Queen | 0.99 |
| 37 | 6 | Helena | Holý | Queen | 0.99 |
| 38 | 22 | Heather | Leacock | Queen | 0.99 |
| 39 | 19 | Tim | Goyer | Queen | 0.99 |
| 40 | 39 | Camille | Bernard | Queen | 0.99 |

Total rows: 43 of 43 | Query complete 00:00:00.107

Q10: 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 number 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.

Query | Query History

```
/* Q10: 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. */

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
```

| | 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 |
| 13 | 44 | Hungary | Rock | 1 | 1 |
| 14 | 102 | India | Rock | 1 | 1 |
| 15 | 72 | Ireland | Rock | 1 | 1 |
| 16 | 35 | Italy | Rock | 1 | 1 |
| 17 | 33 | Netherlands | Rock | 1 | 1 |
| 18 | 40 | Norway | Rock | 1 | 1 |
| 19 | 40 | Poland | Rock | 1 | 1 |
| 20 | 108 | Portugal | Rock | 1 | 1 |
| 21 | 46 | Spain | Rock | 1 | 1 |
| 22 | 60 | Sweden | Rock | 1 | 1 |

Total rows: 24 of 24 Query complete 00:00:00.123

Q11: 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.

Query Query History

```
/* Q11: 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 Customter_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 Customter_with_country WHERE RowNo <= 1
```

Data Output Messages Notifications

| | 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 |
| 13 | 44 | Hungary | Rock | 1 | 1 |
| 14 | 102 | India | Rock | 1 | 1 |
| 15 | 72 | Ireland | Rock | 1 | 1 |
| 16 | 35 | Italy | Rock | 1 | 1 |
| 17 | 33 | Netherlands | Rock | 1 | 1 |
| 18 | 40 | Norway | Rock | 1 | 1 |
| 19 | 40 | Poland | Rock | 1 | 1 |
| 20 | 108 | Portugal | Rock | 1 | 1 |
| 21 | 46 | Spain | Rock | 1 | 1 |
| 22 | 60 | Sweden | Rock | 1 | 1 |

Total rows: 24 of 24 Query complete 00:00:00.123

# THANK YOU!!!