Music Store Data Analysis Using SQL

1. Who is the senior most Employee based on Job title?

```
SELECT * FROM employee
        ORDER BY Levels DESC
        Limit 1;
```

Data Output | Messages | Notifications

	employee_id [PK] character varying (50)	last_name character	first_name character	title character varying (50)	reports_to character varying (30)	levels character varyin
1	9	Madan	Mohan	Senior General Manager	[null]	L7

2. Which countries have the most invoices?

```
SELECT COUNT(*) AS c, billing_country
        FROM invoice
        GROUP BY billing_country
        Order by c ASC;
```

Data Output | Messages | Notifications

	c bigint	billing_country character varying (30)
1	5	Argentina
2	7	Belgium
3	9	Norway
4	9	Italy
5	9	Austria
6	10	Sweden

3. What are top 3 values of total invoices?

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

Data Output | Messages | Notification

	total double precision
1	23.759999999999998
2	19.8
3	19.8

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 invoices totals. Return both the city name & sum of all invoices total.

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

Data Output | Messages | Notifications

	invoice_total double precision	billing_city character varying (30)
1	273.24000000000007	Prague
2	169.29	Mountain View
3	166.32	London
4	158.4	Berlin
5	151.47	Paris
6	129.69	São Paulo

Total rows: 53 of 53 Query complete 00:00:00.076

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.

```
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;
```

Data Output | Messages | Notifications

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

Q1: 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;
```

Data Output | Messages | Notifications

	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

Total rows: 59 of 59 | Query complete 00:00:00.127

Q2. 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;
```

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

Total rows: 10 of 10 Query complete 00:00:00.134

Q3.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;
```

Data Output | Messages | Notifications

	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

Total rows: 494 of 494 Query complete 00:00:00.194

Q1: Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent */

Steps to Solve: First, find which artist has earned the most according to the InvoiceLines. Now use this artist to find
which customer spent the most on this artist. For this query, you will need to use the Invoice, InvoiceLine, Track, Customer,
Album, and Artist tables. Note, this one is tricky because the Total spent in the Invoice table might not be on a single product,
so you need to use the InvoiceLine table to find out how many of each product was purchased, and then multiply this by the price
for each artist.

```
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;
```

Data Output | Messages | Notifications

	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

Total rows: 43 of 43 | Query complete 00:00:00.130

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. */

/* Steps to Solve: There are two parts in question- first most popular music genre and second need data at country level. */

```
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
```

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

Total rows: 24 of 24 | Query complete 00:00:00.239

Q3: 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. */

/* Steps to Solve: Similar to the above question. There are two parts in question-
first find the most spent on music for each country and second filter the data for respective customers.

```
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

	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	108.89999999999998	1

Total rows: 24 of 24 | Query complete 00:00:00.117 | Ln