Queries

Q. Who is the senior most employee based on job title?

```
SELECT
   *
FROM
   employee
ORDER BY levels DESC
LIMIT 1;
```

Q. Which countries have the most Invoices?

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

Q. What are top 3 values of total invoice?

```
SELECT
   invoice_id, total
FROM
   invoice
ORDER BY total DESC;
```

Q. 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.

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

Q. 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_spending
FROM
   customer
      JOIN
```

```
   invoice ON customer.customer_id = invoice.customer_id
GROUP BY customer.customer_id , customer.first_name , customer.last_name
ORDER BY total_spending DESC
LIMIT 1;
```

Q. 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.

```
/*Method 1 */

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;


/* Method 2 */

SELECT DISTINCT
   email AS Email,
   first_name AS FirstName,
   last_name AS LastName,
   genre.name AS Name
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;
```

Q. 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
   COUNT(artist.artist_id) AS number_of_songs, artist.name
FROM
   track
      JOIN
   album2 ON album2.album_id = track.album_id
      JOIN
   artist ON artist.artist_id = album2.artist_id
      JOIN
   genre ON genre.genre_id = track.genre_id
WHERE
   genre.name = 'Rock'
GROUP BY artist.name
ORDER BY number_of_songs DESC
LIMIT 10;
```

Q. 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;
```

Q. 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, 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 album2 ON album2.album_id = track.album_id
        JOIN artist ON artist.artist_id = album2.artist_id
        GROUP BY artist.artist_id, artist.name
        ORDER BY total_sales 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 AS i
JOIN
   customer AS c ON c.customer_id = i.customer_id
JOIN
   invoice_line AS il ON il.invoice_id = i.invoice_id
JOIN
   track AS t ON t.track_id = il.track_id
JOIN
   album2 AS alb ON alb.album_id = t.album_id
JOIN
   best_selling_artist AS bsa ON bsa.artist_id = alb.artist_id
GROUP BY
   c.customer_id, c.first_name, c.last_name, bsa.artist_name
ORDER BY
   amount_spent DESC;
```

Q. 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.

```
/* Method 1: Using CTE */

WITH popular_genre AS
(
   SELECT COUNT(invoice_line.quantity) AS purchases, customer.country, genre.name as
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 customer.country, genre.name, genre.genre_id
         ORDER BY customer.country ASC, purchases desc
)
SELECT * FROM popular_genre WHERE RowNo <= 1;



/* Method 2: : Using Recursive */

WITH RECURSIVE
         sales_per_country AS(
                  SELECT COUNT(*) AS purchases_per_genre, customer.country, genre.name as
genre_name, genre.genre_id
                  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 customer.country, genre.name, genre.genre_id
                ORDER BY customer.country
        ),
        max_genre_per_country AS (SELECT MAX(purchases_per_genre) AS max_genre_number,
country
                FROM sales_per_country
                GROUP BY country
                ORDER BY country)

SELECT sales_per_country.*
FROM sales_per_country
JOIN max_genre_per_country ON sales_per_country.country = max_genre_per_country.country
WHERE sales_per_country.purchases_per_genre = max_genre_per_country.max_genre_number;
```

Q. 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.

```
/* Method 1: using CTE */

WITH Customer_with_country AS (
        SELECT
    Customer.customer_id as cust_id,
    Customer.first_name as first_name,
    customer.last_name as last_name,
    invoice.billing_country as billing_country,
    SUM(invoice.total) AS total_spending,
        ROW_NUMBER() OVER(PARTITION BY invoice.   billing_country ORDER BY
SUM(invoice.total) DESC) AS RowNo
        FROM invoice
                JOIN customer ON customer.customer_id = invoice.customer_id
                GROUP BY cust_id,first_name,last_name,billing_country
                ORDER BY billing_country ASC, total_spending DESC)
SELECT *
FROM Customer_with_country
WHERE RowNo <= 1;


/* Method 2: Using Recursive */

WITH RECURSIVE
        customer_with_country AS (
        SELECT
    customer.customer_id,
    customer.first_name,
    customer.last_name,
    invoice.billing_country,
    SUM(invoice.total) AS total_spending
        FROM invoice
                JOIN customer ON customer.customer_id = invoice.customer_id
```

```
                GROUP BY
customer.customer_id,customer.first_name,customer.last_name,invoice.billing_country
                ORDER BY customer.first_name,customer.last_name DESC),

        country_max_spending AS(
                SELECT billing_country,MAX(total_spending) AS max_spending
                FROM customer_with_country
                GROUP BY billing_country)

SELECT cc.billing_country, cc.total_spending, cc.first_name, cc.last_name, cc.customer_id
FROM customer_with_country cc
JOIN country_max_spending ms
ON cc.billing_country = ms.billing_country
WHERE cc.total_spending = ms.max_spending
ORDER BY 1;
```