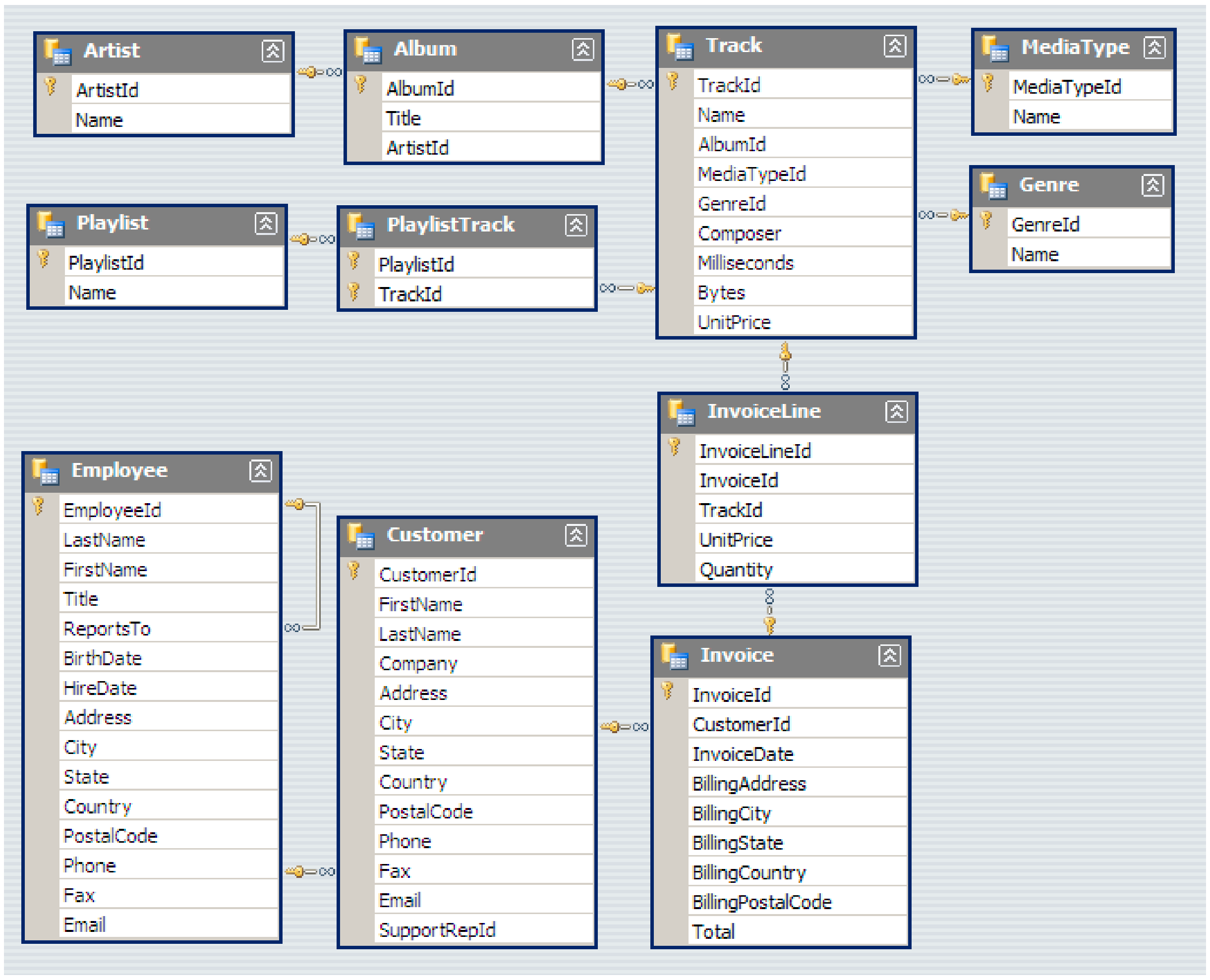
Data Analysis using sql for digital music store SQL project to analyze online music store data

Analysed and helped the the store to understand its business growth by answering simple question using Music store dataset.



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

```
select * from employee
order by levels desc
limit 1
```

Q2 : Which countries have the most invoices?

```
select count(*) as c ,  billing_country
from invoice
```

```
group by billing_country
order by c desc
```

Q3. What are the top 3 values of top invoices?

```
select * from invoice
order by total desc
limit 3
```

Q4. Which city has the best customer ? We would like to throw a promotional music festival in the city where 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 and sum of all invoice totals?

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

Q5. Who is the best customer? The person who has spent most of the money will be the best customer . write a query who has spent the most money?
We take schema's help when one table is not enough to identify data that we need to write a query for?

```
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;
```

Q6.1. Write a 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;
```

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;
```

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?

```
SELECT name,milliseconds
FROM track
WHERE milliseconds > (
        SELECT AVG(milliseconds) AS avg_track_length
        FROM track )

ORDER BY milliseconds DESC;
```

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;
```

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 ?

Recursive - method

Second query output depends on the first query output that is a recursive method , syntax same as ct .(temporary table).

1.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
```

2. Using recursive method-

```
WITH RECURSIVE
        sales_per_country AS(
                SELECT COUNT(*) AS purchases_per_genre, customer.country,
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 2,3,4
        ORDER BY 2
    ),
    max_genre_per_country AS (SELECT MAX(purchases_per_genre) AS
max_genre_number, country
        FROM sales_per_country
        GROUP BY 2
        ORDER BY 2)

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;
```

Q10.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
```

2.With recursive-

```
WITH RECURSIVE
    customter_with_country AS (
                    SELECT
customer.customer_id,first_name,last_name,billing_country,SUM(total) AS
total_spending
                    FROM invoice
                    JOIN customer ON customer.customer_id = invoice.customer_id
                    GROUP BY 1,2,3,4
                    ORDER BY 2,3 DESC),

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

SELECT cc.billing_country, cc.total_spending, cc.first_name, cc.last_name,
cc.customer_id
FROM customter_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;
```