Comprehensive Analysis of Music Sales and Customer Insights

Introduction

This project focuses on analyzing music sales data to uncover trends and actionable insights. By leveraging SQL queries, we explore various aspects of the dataset, including revenue sources, customer behavior, and regional sales distributions. Our goal is to use these insights to inform strategic decision-making and optimize marketing efforts.

Aim of the Project

The primary aim of this project is to provide a detailed understanding of our music sales data and derive actionable insights to:

- 1. Identify key revenue sources.
- 2. Understand customer behavior and preferences.
- 3. Optimize marketing strategies.
- 4. Enhance strategic decision-making.

Questions Addressed

- 1. Which countries have the most Invoices?
- 2. What are top 3 values of total invoice?
- 3. Who is the senior most employee, find name and job title?
- **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 invoice totals. Return both the city name & sum of all invoice totals
- 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.

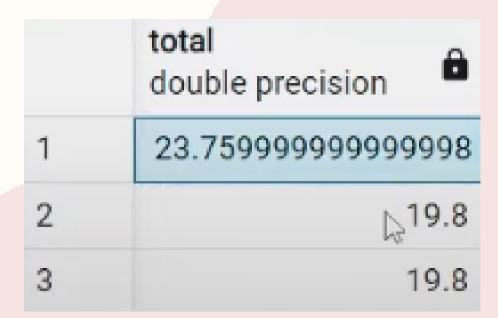
- **6**. We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre with the highest amount of purchases. Write a query that returns each country along with the top Genre. For countries where the maximum number of purchases is shared return all Genres.
- 7. Write query to return the first name, last name, email & Genre of all Rock Music listeners. Return your list ordered alphabetically by email starting with A.
- 8. 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.
- **9**. 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.
- 10. Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent.
- 11. 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.

Q1: What are top 3 values of total invoice?

```
FROM invoice

ORDER BY total DESC

limit 3;
```



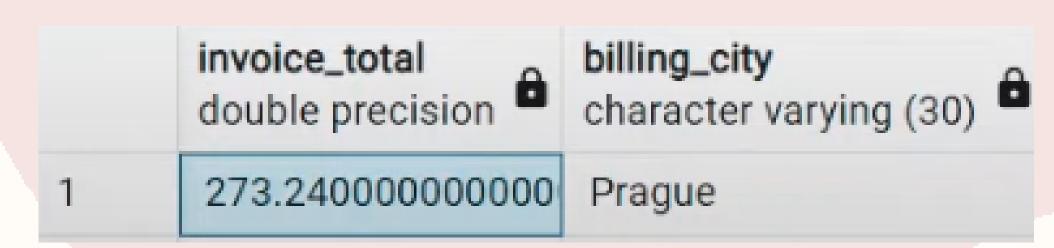
Q2: Which countries has the most invoices?

```
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 |

Q3: Identify the city with the highest total invoice amounts and name it as the best customer city for a promotional Music Festival.

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



Q4: Determine the customer who has spent the most money in total and declare them as the best customer.

```
FROM customer on customer_id, first_name, last_name, SUM(total) AS total_spending

FROM customer

JOIN invoice ON customer.customer_id = invoice.customer_id

GROUP BY customer.customer_id

ORDER BY total_spending DESC

LIMIT 1;

customer_id first_name character(50) | last_name character(50) | double precision double double precision double prec
```

Q5: Who is the senior most employee based on job title?

```
SELECT title, last_name, first_name
FROM employee
ORDER BY levels DESC
LIMIT 1
```

| employee_id [PK] character varying (50) | last_name character (50) | ï | first_name character (50) | title character varying (50) |
|---|-----------------------------|---|------------------------------|---------------------------------|
| 9 | Madan | | Mohan | Senior General Manag |

Q6: List all the track names that have a duration longer than the average track length, ordered by duration.

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

| | avg_track_length numeric | | |
|---|-----------------------------|--|--|
| 1 | 393599.2121039109 | | |

| | 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 |
| 6 | Battlestar Galactica, Pt. 1 | 2952702 |
| 7 | Murder On the Rising Star | 2935894 |
| 8 | Battlestar Galactica, Pt. 3 | 2927802 |

Q7: Find out how much each customer has spent on the top artist (the artist with the most total sales).

```
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 album ON album.album id = track.album id
    JOIN artist ON artist.artist_id = album.artist_id
    GROUP BY artist.artist id
                                                              artist_id
                                                                                                                   total_sales
                                                              [PK] character varying (50)
    ORDER BY total_sales DESC
    LIMIT 1
                                                              51
                                                                                          Queen
                                                                                                                   190.080000000000
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
                                                                                  character (50)
                                                                                              character (50)
                                                                                                          character varying (120)
JOIN customer c ON c.customer id = i.customer id
                                                                                              O'Reilly
                                                                                   Hugh
                                                                                                          Queen
                                                                                                                           27.7199999999999
JOIN invoice line il ON il.invoice id = i.invoice id
                                                                                  Niklas
                                                                                              Schröder
                                                                                                          Oueen
                                                                                                                                   18.81
JOIN track t ON t.track id = il.track id
                                                                                              Tremblay
                                                                                                                                   17.82
                                                                                3 François
                                                                                                          Queen
JOIN album alb ON alb.album_id = t.album_id
                                                                               34 João
                                                                                              Fernandes
                                                                                                          Queen
                                                                                                                           16.8300000000000
JOIN best_selling_artist 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;

Q8: Identify the most popular music genre in each country by the highest number of purchases.

FROM popular_genre
WHERE RowNo = 1;

| | purchases bigint | country character varying (50) | name character varying (120) | genre_id character varying (50) | rowno bigint | â |
|---|---------------------|--------------------------------|---------------------------------|---------------------------------|-----------------|---|
| 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 |

Q9: Write a query to return the email, first name, last name, & Genre of all Rock Music listeners.

Astrid

Bjørn

Camille

bjorn.hansen@yahoo....

camille.bernard@yah...

character varying (120)

Rock

Rock

Rock

Rock

Rock

Gruber

Hansen

Bernard

```
SELECT DISTINCT email, firstname, lastname
FROM customer
JOIN invoice ON customer.customer_id = invoice.customer_id
JOIN invoiceline ON invoice.invoice_id = invoiceline.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'
                                                  email
                                                                     firstname
                                                                                    lastname
                                                  character varying (50)
                                                                                    character (50)
                                                                      character (50)
                                                  aaronmitchell@yahoo...
                                                                                    Mitchell
                                                                      Aaron
ORDER BY email;
                                                  alero@uol.com.br
                                                                      Alexandre
                                                                                    Rocha
                                                  astrid.gruber@apple.at
```

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Q10: 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) |
|---|---------------------------------------|---------------------------------|
| 1 | 22 | Led Zeppelin |
| 2 | 150 | U2 |
| 3 | 58 | Deep Purple |
| 4 | 90 | Iron Maiden |
| 5 | 118 | Pearl Jam |
| 6 | 152 | Van Halen |
| 7 | 51 | Queen |
| 8 | 142 | The Rolling Stones |

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.

| | customer_id integer | first_name character (50) | last_name character (50) | billing_country character varying (30) | total_spending double precision | rowno bigint | â |
|---|---------------------|------------------------------|-----------------------------|--|---------------------------------|-----------------|---|
| 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 | 108.8999999999998 | | 1 |

Data-Driven Actionable Strategies

Personalized Campaigns: Use insights from the data to create personalized marketing campaigns, offering recommendations and promotions that match individual customer preferences.

Target High-Value Segments: Identify high-value customer segments and target them with exclusive offers, premium packages, and personalized experiences to maximize revenue.

Identify Key Revenue Sources: Focus on products, services, or genres that generate the highest revenue and explore opportunities to expand these offerings.

Bundling schemes: Develop bundling and upselling strategies to increase the average transaction value, such as offering discounts on related tracks or genres.

Promotional Events: Plan and execute promotional events, such as music festivals or exclusive online releases, in top-performing regions to boost sales.

Loyalty Programs: Develop loyalty programs that reward repeat purchases and long-term customer engagement, including exclusive access to new releases or VIP events.

Feedback and Engagement: Regularly collect customer feedback to understand their preferences and improve service offerings. Engage with customers through newsletters, surveys, and personalized communication.

Geographic Expansion: Focus on regions with high sales potential and consider expanding marketing efforts and distribution channels in these areas.

Regular Track Performance Analysis: Regularly analyze the performance of different tracks and genres to understand what resonates most with customers and adjust the approach accordingly create personalized playlists for them.

Exclusive Content: Offer exclusive content, such as behind-the-scenes videos, interviews, or early access to new releases, to attract and retain customers.