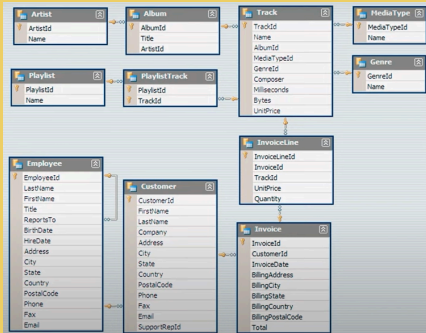# MUSIC STORE ANALYSIS

Objective

The main goal of the music store is to achieve sustainable business growth while tackling current challenges. To support this, we need to analyse datasets using SQL and help the music store understand its business growth by answering straightforward questions.

Schema

Artist
- Artist Id
- Name

Album
- Album Id
- Title
- Artist Id

Track
- Track Id
- Name
- Album Id
- Media Type Id
- Genre Id
- Composer
- Milliseconds
- Bytes
- Unit Price

Media Type
- Media Type Id
- Name

Genre
- Genre Id
- Name

Playlist
- Playlist Id
- Name

Playlist Track
- Playlist Id
- Track Id

Employee
- Employee Id
- Last Name
- First Name
- Title
- Reports To
- Birth Date
- Hire Date
- Address
- City
- State
- Country
- Postal Code
- Phone
- Fax
- Email

Customer
- Customer Id
- First Name
- Last Name
- Company
- Address
- City
- State
- Country
- Postal Code
- Phone
- Fax
- Email
- Support Rep Id

Invoice Line
- Invoice Line Id
- Invoice Id
- Track Id
- Unit Price
- Quantity

Invoice
- Invoice Id
- Customer Id
- Invoice Date
- Billing Address
- Billing City
- Billing State
- Billing Country
- Billing Postal Code
- Total

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

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

title	last_name	first_name
▶ General Manager	Adams	Andrew

2.Which countries have the most Invoices?

```sql
SELECT COUNT(*) , billing_country
FROM invoice
GROUP BY billing_country
ORDER BY 1 DESC
```

COUNT(*)	billing_country
131	USA
76	Canada
61	Brazil
50	France
41	Germany
30	Czech Republic
29	Portugal
28	United Kingdom
21	India
13	Ireland
13	Chile
11	Finland

3.What are top 3 values of total invoice?

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

total
23.759999999999998
19.8
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.

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

billing_city	InvoiceTotal
Prague	273.24000000000007

5. Who is the best customer?

```sql
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;
```

customer_id	first_name	last_name	total_spending
5	FrantiÅiek	WichterlovÃi	144.54000000000002

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

```sql
SELECT DISTINCT customer.email, customer.first_name, customer.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.track_id FROM track
    JOIN genre ON track.genre_id = genre.genre_id
    WHERE genre.name LIKE 'Rock'
)
ORDER BY customer.email;
```

email	first_name	last_name
aaronmitchell@yahoo.ca	Aaron	Mitchell
alero@uol.com.br	Alexandre	Rocha
astrid.gruber@apple.at	Astrid	Gruber
bjorn.hansen@yahoo.no	BjÃ_rn	Hansen
camille.bernard@yahoo.fr	Camille	Bernard
daan_peeters@apple.be	Daan	Peeters
diego.gutierrez@yahoo.ar	Diego	GutiÃ©rrez
dmiller@comcast.com	Dan	Miller
dominiquelefebvre@gmail.com	Dominique	Lefebvre
edfrancis@yachoo.ca	Edward	Francis
eduardo@woodstock.com.br	Eduardo	Martins
ellie.sullivan@shaw.ca	Ellie	Sullivan
emma_jones@hotmail.com	Emma	Jones
enrique_munoz@yahoo.es	Enrique	MuÃ±oz
fernadaramos4@uol.com.br	Fernanda	Ramos
fharris@google.com	Frank	Harris

7. Let's invite the artists who have written the most rock music in our dataset.

```sql
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 , artist.name
ORDER BY number_of_songs DESC
LIMIT 10;
```

artist_id	name	number_of_songs
1	AC/DC	18
3	Aerosmith	15
8	Audioslave	14
22	Led Zeppelin	14
4	Alanis Morissette	13
5	Alice In Chains	12
23	Frank Zappa & Captain Beefheart	9
2	Accept	4

8. Return all the track names that have a song length longer than the average song length.

```sql
SELECT Name, Milliseconds
FROM track
WHERE Milliseconds > (
    SELECT AVG(Milliseconds) AS avg_track_length
    FROM track
)
ORDER BY Milliseconds DESC;
```

Name	Milliseconds
How Many More Times	711836
Advance Romance	677694
Sleeping Village	644571
You Shook Me(2)	619467
Talkin' 'Bout Women Obviously	589531
Stratus	582086
No More Tears	555075
The Alchemist	509413
Wheels Of Confusion / The Straightener	494524
Book Of Thel	494393
You Oughta Know (Alternate)	491885
Terra	482429
Snoopy's search-Red baron	456071
Sozinho (Hitmakers Classic Mix)	436636
Master Of Puppets	

9. Find how much amount spent by each customer on artists?

```sql
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)
    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 1,2
    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	first_name	last_name	artist_name	amount_spent
1	Luís	Gonçalves	AC/DC	7.920000000000001
2	Leonie	Köhler	AC/DC	0.99
3	Frantíšek	Wichterlová	AC/DC	1.98
6	Helena	Holý	AC/DC	2.9699999999999998
7	Astrid	Gruber	AC/DC	0.99
8	Daan	Peeters	AC/DC	0.99
9	Kara	Nielsen	AC/DC	1.98
10	Eduardo	Martins	AC/DC	0.99
13	Fernanda	Ramos	AC/DC	0.99
14	Mark	Philips	AC/DC	0.99
15	Jennifer	Peterson	AC/DC	0.99
16	Frank	Harris	AC/DC	2.9699999999999998
17	Jack	Smith	AC/DC	0.99
18	Tim	Goyer	AC/DC	0.99

10. We want to find out the most popular music Genre for each country.

```sql
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	country	name	genre_id	RowNo
7	Argentina	Rock	1	1
18	Australia	Rock	1	1
6	Austria	Rock	1	1
5	Belgium	Rock	1	1
26	Brazil	Rock	1	1
57	Canada	Rock	1	1
7	Chile	Rock	1	1
14	Czech Republic	Rock	1	1
6	Denmark	Rock	1	1
6	Finland	Rock	1	1
26	France	Rock	1	1
28	Germany	Rock	1	1
4	Hungary	Rock	1	1
13	India	Rock	1	1
2	Ireland	Rock	1	1

11. Write a query that determines the customer that has spent the most on music for each country.

```sql
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
```

customer_id	first_name	last_name	billing_country	total_spending	RowNo
56	Diego	GutiÃ©rrez	Argentina	39.6	1
55	Mark	Taylor	Australia	81.18	1
7	Astrid	Gruber	Austria	69.3	1
8	Daan	Peeters	Belgium	60.3899999999999	1
1	LuÃs	GonÃ§alves	Brazil	108.899999999998	1
3	FranÃ§oise	Tremblay	Canada	99.99	1
57	Luis	Rojas	Chile	97.0200000000001	1
5	FrantiÅ¡ek	Wichterlovﾃ	Czech Republic	144.540000000000002	1
9	Kara	Nielsen	Denmark	37.619999999999999	1
44	Terhi	HÃ¤mÃ¤lÃ¤inen	Finland	79.2	1
42	Wyatt	Girard	France	99.99	1
37	Fynn	Zimmermann	Germany	94.0500000000001	1
45	Ladislav	KovÃ¡cs	Hungary	78.21	1
58	Manoj	Pareek	India	111.869999999999999	1
46	Hugh	O'Reilly	Ireland	114.839999999999997	1
47	Lucas	Mancini	Italy	50.49	1

Key Insights:

1. Most Popular Genre: Rock 🎸

2. Top Artist: AC/DC 🎤

3. Top Country for Music Purchases: United States

4. Best City for a Promotional Music Festival: Prague

Stores