

Music Store Data Analysis with SQL

Objective: Utilize SQL to conduct comprehensive data analysis aiding the music store in business growth assessment and strategic planning.

Task: Develop and deploy a relational database tailored for a music retail enterprise.

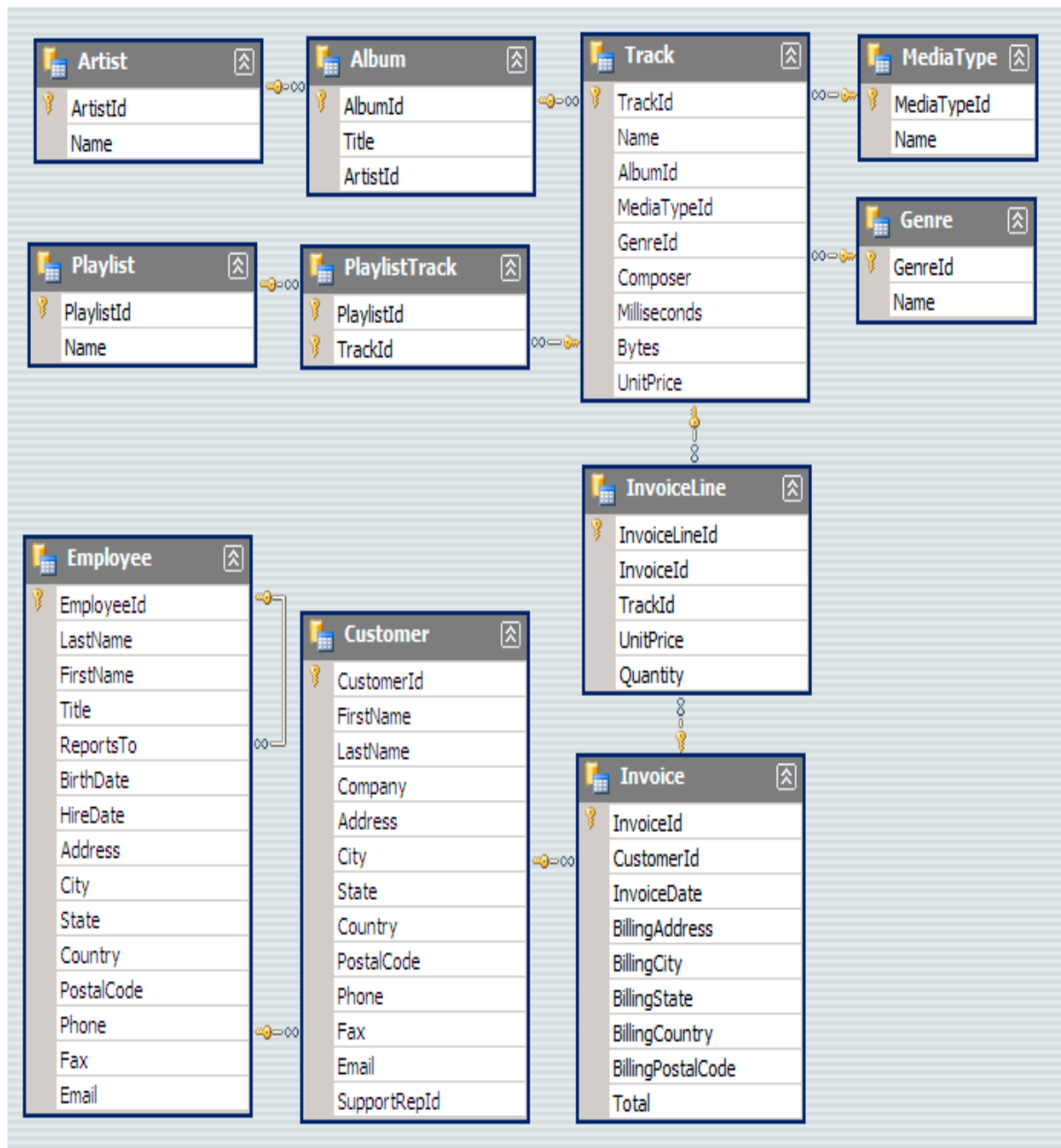
Scope: Implement SQL solutions to streamline data management and retrieval processes pertaining to artists, albums, tracks, customers, and sales.

Outcome: Establish a resilient and intuitive database infrastructure capable of supporting diverse functionalities essential for operational excellence in a music retail setting.

Tools Used:Postgresql and pgadmin 4.

Music Store Data Analysis with SQL

Music Database Schema



Music Store Data Analysis with SQL

1.

```
1  /* Question Set 1 - Easy */
2  /* Q1: Who is the senior most employee based on job title? */
3  SELECT *
4  FROM employee
5  ORDER BY levels DESC
6  LIMIT 1
```

	employee_id [PK] character varying (50)	last_name character	first_name character	title character varying (50)	reports_to character varying (30)	levels character varying (10)
1	9	Madan	Mohan	... Senior General Manager	[null]	L7

Music Store Data Analysis with SQL

2.

```
8  /* Q2: Which countries have the most Invoices? */
9  SELECT COUNT(*) AS c, billing_country
10 FROM invoice
11 GROUP BY billing_country
12 ORDER BY c DESC
```

Data Output Messages Notifications



	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
9	21	India
10	13	Chile
11	13	Ireland

Music Store Data Analysis with SQL

3.

```
14 /* Q3: What are top 3 values of total invoice? */
15 SELECT total FROM invoice
16 ORDER BY total DESC
17 LIMIT 3
```

Data Output Messages Notifications



	total	
	double precision	
1	23.759999999999998	
2		19.8
3		19.8

4.

```
19 /* Q4: Which city has the best customers? We would like to throw a promotional Music Festival in the city we made the most money.
20 Write a query that returns one city that has the highest sum of invoice totals.
21 Return both the city name & sum of all invoice totals */
22 SELECT billing_city,SUM(total) AS InvoiceTotal
23 FROM invoice
24 GROUP BY billing_city
25 ORDER BY InvoiceTotal DESC
26 LIMIT 1
```

Data Output Messages Notifications



	billing_city	invoicetotal
	character varying (30)	double precision
1	Prague	273.240000000000007

Music Store Data Analysis with SQL

5.

```
28 /* Q5: Who is the best customer? The customer who has spent the most money will be declared the best customer.
29 Write a query that returns the person who has spent the most money.*/
30 SELECT customer.customer_id, first_name, last_name, SUM(total) AS total_spending
31 FROM customer
32 JOIN invoice ON customer.customer_id = invoice.customer_id
33 GROUP BY customer.customer_id
34 ORDER BY total_spending DESC
35 LIMIT 1
```

Data Output Messages Notifications



	customer_id (PK) integer	first_name character	last_name character	total_spending double precision
1	5	R	...	Madhav

Music Store Data Analysis with SQL

1.

```
37  /* Question Set 2 - Moderate */
38  /* Q1: Write query to return the email, first name, last name, & Genre of all Rock Music listeners.
39  Return your list ordered alphabetically by email starting with A. */
40  SELECT DISTINCT email,first_name, last_name
41  FROM customer
42  JOIN invoice ON customer.customer_id = invoice.customer_id
43  JOIN invoice_line ON invoice.invoice_id = invoice_line.invoice_id
44  WHERE track_id IN(
45      SELECT track_id FROM track
46      JOIN genre ON track.genre_id = genre.genre_id
47      WHERE genre.name LIKE 'Rock'
48  )
49  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
6	daan_peeters@apple.be	Daan	Peeters
7	diego.gutierrez@yahoo.ar	Diego	Gutiérrez
8	dmiller@comcast.com	Dan	Miller
9	dominiquelefebvre@gmail.c...	Dominique	Lefebvre
10	edfrancis@yahoo.ca	Edward	Francis

Music Store Data Analysis with SQL

2.

```
51 /* Q2: Let's invite the artists who have written the most rock music in our dataset.
52 Write a query that returns the Artist name and total track count of the top 10 rock bands. */
53 SELECT artist.artist_id, artist.name, COUNT(artist.artist_id) AS number_of_songs
54 FROM track
55 JOIN album ON album.album_id = track.album_id
56 JOIN artist ON artist.artist_id = album.artist_id
57 JOIN genre ON genre.genre_id = track.genre_id
58 WHERE genre.name LIKE 'Rock'
59 GROUP BY artist.artist_id
60 ORDER BY number_of_songs DESC
61 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
6	152	Van Halen	52
7	51	Queen	45
8	142	The Rolling Stones	41
9	76	Creedence Clearwater Revival	40
10	52	Kiss	35

Music Store Data Analysis with SQL

3.

```
63  /* Q3: Return all the track names that have a song length longer than the average song length.
64  Return the Name and Milliseconds for each track. Order by the song length with the longest songs listed first. */
65  SELECT name,milliseconds
66  FROM track
67  WHERE milliseconds > (
68      SELECT AVG(milliseconds) AS avg_track_length
69      FROM track )
70  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
6	Battlestar Galactica, Pt. 1	2952702
7	Murder On the Rising Star	2935894
8	Battlestar Galactica, Pt. 3	2927802
9	Take the Celestra	2927677
10	Fire In Space	2926593
11	The Long Patrol	2925008

Music Store Data Analysis with SQL

1.

```
72 /* Question Set 3 - Advance */
73 /* Q1: Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent */
74 WITH best_selling_artist AS (
75     SELECT artist.artist_id AS artist_id, artist.name AS artist_name, SUM(invoice_line.unit_price*invoice_line.quantity) AS total_sales
76     FROM invoice_line
77     JOIN track ON track.track_id = invoice_line.track_id
78     JOIN album ON album.album_id = track.album_id
79     JOIN artist ON artist.artist_id = album.artist_id
80     GROUP BY 1
81     ORDER BY 3 DESC
82     LIMIT 1
83 )
84 SELECT c.customer_id, c.first_name, c.last_name, bsa.artist_name, SUM(il.unit_price*il.quantity) AS amount_spent
85 FROM invoice i
86 JOIN customer c ON c.customer_id = i.customer_id
87 JOIN invoice_line il ON il.invoice_id = i.invoice_id
88 JOIN track t ON t.track_id = il.track_id
89 JOIN album alb ON alb.album_id = t.album_id
90 JOIN best_selling_artist bsa ON bsa.artist_id = alb.artist_id
91 GROUP BY 1,2,3,4
92 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
6	41	Marc	Dubois	Queen	11.88
7	47	Lucas	Mancini	Queen	10.89

Music Store Data Analysis with SQL

2.

```
94  /* Q2: We want to find out the most popular music Genre for each country. We determine the most popular genre as the genre
95  with the highest amount of purchases. Write a query that returns each country along with the top Genre. For countries where
96  the maximum number of purchases is shared return all Genres. */
97  WITH popular_genre AS
98  (
99      SELECT COUNT(invoice_line.quantity) AS purchases, customer.country, genre.name, genre.genre_id,
100      ROW_NUMBER() OVER(PARTITION BY customer.country ORDER BY COUNT(invoice_line.quantity) DESC) AS RowNo
101  FROM invoice_line
102  JOIN invoice ON invoice.invoice_id = invoice_line.invoice_id
103  JOIN customer ON customer.customer_id = invoice.customer_id
104  JOIN track ON track.track_id = invoice_line.track_id
105  JOIN genre ON genre.genre_id = track.genre_id
106  GROUP BY 2,3,4
107  ORDER BY 2 ASC, 1 DESC
108  )
109  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
6	333	Canada	Rock	1	1
7	61	Chile	Rock	1	1

Music Store Data Analysis with SQL

3.

```
111 /* Q3: Write a query that determines the customer that has spent the most on music for each country.
112 Write a query that returns the country along with the top customer and how much they spent.
113 For countries where the top amount spent is shared, provide all customers who spent this amount. */
114 WITH Customer_with_country AS (
115     SELECT customer.customer_id,first_name,last_name,billing_country,SUM(total) AS total_spending,
116     ROW_NUMBER() OVER(PARTITION BY billing_country ORDER BY SUM(total) DESC) AS RowNo
117     FROM invoice
118     JOIN customer ON customer.customer_id = invoice.customer_id
119     GROUP BY 1,2,3,4
120     ORDER BY 4 ASC,5 DESC)
121 SELECT * FROM Customer_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
6	3	François	Tremblay	Canada	99.99	1
7	57	Luis	Rojas	Chile	97.02000000000001	1

Conclusion:In summary, the Music Store Data Analysis project underscores the critical role of data-driven decision-making within the music retail sector. By examining employee hierarchy, customer behavior, music preferences, and genre popularity, the project offers valuable insights to inform strategic decision-making processes.