

# SQL MUSIC STORE ANALYSIS...♪

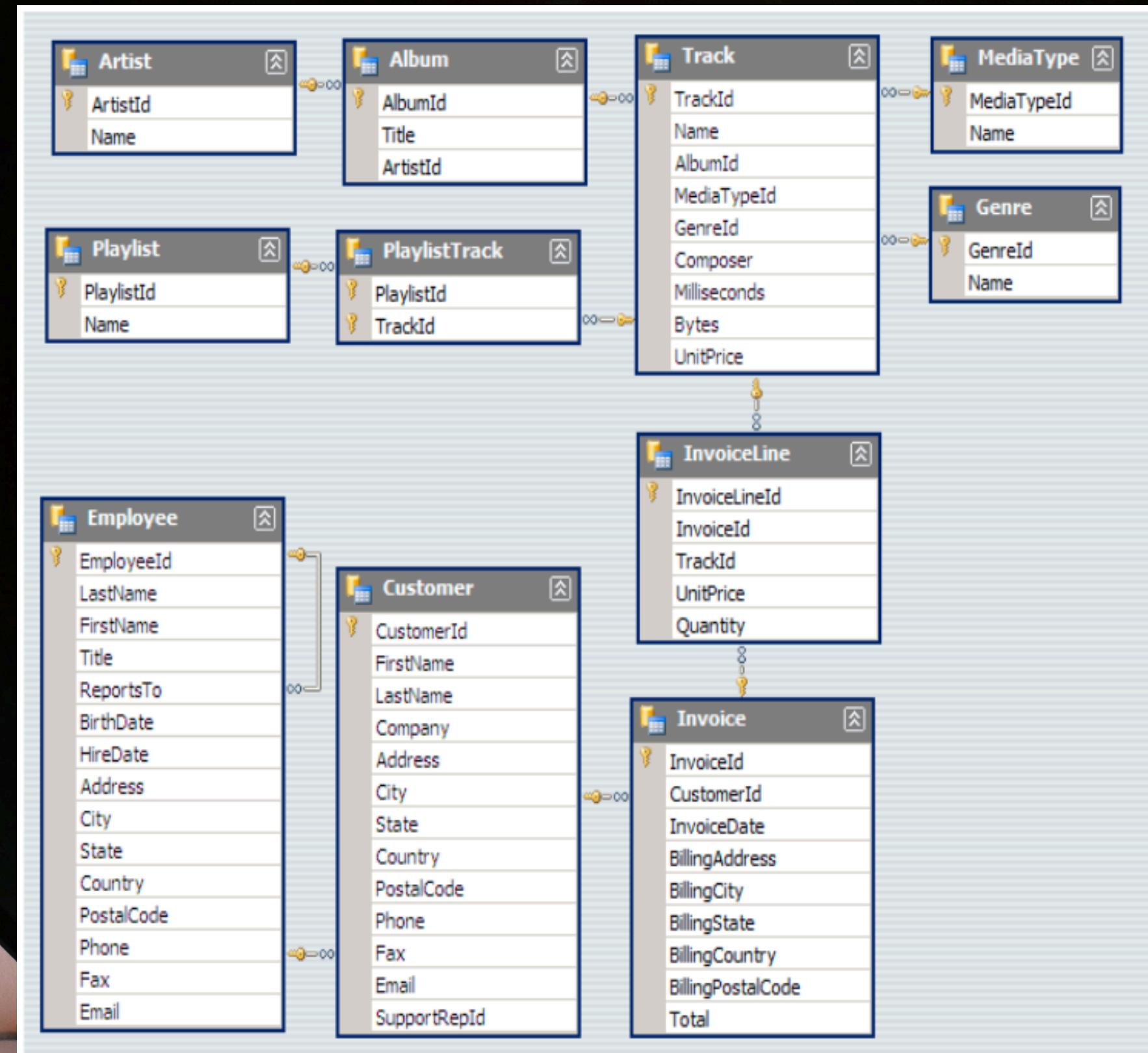
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OBJECTIVE: ANALYSING MUSIC STORE DATA USING SQL TO UNCOVER  
SALES TRENDS, CUSTOMER BEHAVIOR, AND OPTIMIZE INVENTORY  
MANAGEMENT FOR STRATEGIC BUSINESS INSIGHTS.

TOOL: POSTGRESQL.

DATABASE USED: MUSIC STORE DATA

# DATABASE SCHEMA



# Q1: WHO IS THE SENIOR MOST EMPLOYEE BASED ON JOB TITLE?

```
select first_name, last_name, title from employee  
order by levels desc  
limit 1;
```

	first_name character	last_name character	title character varying (50)
1	Mohan	Madan	Senior General Manager

# Q2: WHICH COUNTRIES HAVE THE MOST INVOICES?

```
select count(invoice_id), billing_country from invoice  
group by billing_country  
order by count(invoice_id) desc;
```

	count bigint	billing_country character varying (30)
1	131	USA
2	76	Canada
3	61	Brazil
4	50	France
5	41	Germany

### Q3: WHAT ARE TOP 3 VALUES OF TOTAL INVOICE?

```
✓ SELECT distinct(total)  
FROM invoice  
ORDER BY total DESC  
limit 3
```

	total	double precision
1	23.759999999999998	
2		19.8
3		18.81

### Q4: WHICH CITY HAS THE BEST CUSTOMERS?

```
select sum(total) as invoice_total, billing_city from invoice  
group by billing_city  
order by sum(total) desc  
limit 3
```

	invoice_total	billing_city
1	273.2400000000007	Prague
2	169.29	Mountain View
3	166.32	London

# Q5: WHO IS THE BEST CUSTOMER? (CUSTOMER THAT SPEND MOST MONEY)

```
select first_name, last_name, sum(total) as total_spend from customer
inner join invoice using(customer_id)
group by first_name, last_name
order by sum(total) desc
```

	first_name character	last_name character	total_spend double precision
1	R	Madhav	144.54000000000002
2	Helena	Holý	128.7
3	Hugh	O'Reilly	114.8399999999997
4	Manoj	Pareek	111.8699999999999
5	Luís	Gonçalves	108.8999999999998
6	Fernanda	Ramos	106.9199999999999
7	João	Fernandes	102.9600000000001
8	François	Tremblay	99.99
9	Wyatt	Girard	99.99
10	Phil	Hughes	98.01
11	Enrique	Muñoz	98.01
12	Jack	Smith	98.01
13	Luis	Rojas	97.0200000000001
14	Dan	Miller	95.0399999999999
15	Fynn	Zimmermann	94.0500000000001
16	Heather	Leacock	92.0700000000001
17	Kathy	Chase	91.0800000000001
18	Edward	Francis	91.08
19	Richard	Cunningham	86.1300000000002
20	Hannah	Schneider	85.14

	first_name character	last_name character	total_spend double precision
21	Patrick	Gray	84.1499999999999
22	Madalena	Sampaio	82.17
23	Leonie	Köhler	82.17
24	Roberto	Almeida	82.17
25	Mark	Taylor	81.18
26	Steve	Murray	79.2
27	Terhi	Hämäläinen	79.2
28	Camille	Bernard	79.2
29	Michelle	Brooks	79.2
30	Ladislav	Kovács	78.21
31	Victor	Stevens	76.23
32	Stanisław	Wójcik	76.2299999999999
33	Ellie	Sullivan	75.2400000000001
34	Joakim	Johansson	75.24
35	Frank	Harris	74.25
36	Niklas	Schröder	73.2599999999999
37	Isabelle	Mercier	73.2599999999999
38	Bjørn	Hansen	72.2700000000001
39	Dominique	Lefebvre	72.27
40	Julia	Barnett	72.27

	first_name character	last_name character	total_spend double precision
40	Julia	Barnett	72.27
41	Puja	Srivastava	71.28
42	Frank	Ralston	71.28
43	Aaron	Mitchell	70.2899999999999
44	Alexandre	Rocha	69.3
45	Astrid	Gruber	69.3
46	Emma	Jones	68.31
47	Jennifer	Peterson	66.33
48	John	Gordon	66.33
49	Johannes	Van der Berg	65.34
50	Marc	Dubois	64.35
51	Martha	Silk	62.3700000000005
52	Eduardo	Martins	60.39
53	Daan	Peeters	60.3899999999999
54	Tim	Goyer	54.4499999999996
55	Lucas	Mancini	50.49
56	Robert	Brown	40.59
57	Diego	Gutiérrez	39.6
58	Kara	Nielsen	37.6199999999999
59	Mark	Philips	29.6999999999996

# Q.6: WRITE QUERY TO RETURN THE EMAIL, FIRST NAME, LAST NAME, & GENRE OF ALL ROCK MUSIC LISTENERS.

```
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;
```

	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	dominiquelefrevre@gmail.c...	Dominique	Lefebvre
10	edfrancis@yahoo.ca	Edward	Francis
11	eduardo@woodstock.com.br	Eduardo	Martins
12	ellie.sullivan@shaw.ca	Ellie	Sullivan
13	emma_jones@hotmail.com	Emma	Jones
14	enrique_munoz@yahoo.es	Enrique	Muñoz
15	fernadaramos4@uol.com.br	Fernanda	Ramos
16	fharris@google.com	Frank	Harris
17	fralston@gmail.com	Frank	Ralston
18	ftremblay@gmail.com	François	Tremblay
19	fzimmermann@yahoo.de	Fynn	Zimmermann
20	hannah.schneider@yahoo.de	Hannah	Schneider
21	hholy@gmail.com	Helena	Holý

	email character varying (50)	first_name character	last_name character
22	hleacock@gmail.com	Heather	Leacock
23	hughoreilly@apple.ie	Hugh	O'Reilly
24	isabelle_mercier@apple.fr	Isabelle	Mercier
25	jacksmith@microsoft.com	Jack	Smith
26	jenniferp@rogers.ca	Jennifer	Peterson
27	jfernandes@yahoo.pt	João	Fernandes
28	joakim.johansson@yahoo.se	Joakim	Johansson
29	johavanderberg@yahoo.nl	Johannes	Van der Berg
30	johngordon22@yahoo.com	John	Gordon
31	jubarnett@gmail.com	Julia	Barnett
32	kachase@hotmail.com	Kathy	Chase
33	kara.nielsen@jubii.dk	Kara	Nielsen
34	ladislav_kovacs@apple.hu	Ladislav	Kovács
35	leonekohler@surfeu.de	Leonie	Köhler
36	lucas.mancini@yahoo.it	Lucas	Mancini
37	luisg@embraer.com.br	Luís	Gonçalves
38	luisrojas@yahoo.cl	Luis	Rojas
39	manoj.pareek@rediff.com	Manoj	Pareek
40	marc.dubois@hotmail.com	Marc	Dubois
41	mark.taylor@yahoo.au	Mark	Taylor

	email character varying (50)	first_name character	last_name character
40	marc.dubois@hotmail.com	Marc	Dubois
41	mark.taylor@yahoo.au	Mark	Taylor
42	marthasilk@gmail.com	Martha	Silk
43	masampaio@sapo.pt	Madalena	Sampaio
44	michelleb@aol.com	Michelle	Brooks
45	mphilips12@shaw.ca	Mark	Philips
46	nschroder@surfeu.de	Niklas	Schröder
47	patrick.gray@aol.com	Patrick	Gray
48	phil.hughes@gmail.com	Phil	Hughes
49	puja_srivastava@yahoo.in	Puja	Srivastava
50	r.madhav@jetbrains.com	R	Madhav
51	ricunningham@hotmail.com	Richard	Cunningham
52	robbrown@shaw.ca	Robert	Brown
53	roberto.almeida@riotur.gov.br	Roberto	Almeida
54	stanislaw.wójcik@wp.pl	Stanisław	Wójcik
55	steve.murray@yahoo.uk	Steve	Murray
56	terhi.hamalainen@apple.fi	Terhi	Hämäläinen
57	tgoyer@apple.com	Tim	Goyer
58	vstevens@yahoo.com	Victor	Stevens
59	wyatt.girard@yahoo.fr	Wyatt	Girard

# Q7: LET'S INVITE THE ARTISTS WHO HAVE WRITTEN THE MOST ROCK MUSIC IN OUR DATASET.

```
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)	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

# Q8: RETURN ALL THE TRACK NAMES THAT HAVE A SONG LENGTH LONGER THAN THE AVERAGE SONG LENGTH.

```

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

```

	<b>name</b> character varying (150)	<b>milliseconds</b> 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
12	The Magnificent Warriors	2924716
13	The Living Legend, Pt. 1	2924507
14	The Gun On Ice Planet Zero, Pt. 2	2924341
15	The Hand of God	2924007
16	Experiment In Terra	2923548
17	War of the Gods, Pt. 2	2923381
18	The Living Legend, Pt. 2	2923298
19	War of the Gods, Pt. 1	2922630
20	Lost Planet of the Gods, Pt. 1	2922547

	<b>name</b> character varying (150)	<b>milliseconds</b> integer
21	Baltar's Escape	2922088
22	The Lost Warrior	2920045
23	Lost Planet of the Gods, Pt. 2	2914664
24	The Gun On Ice Planet Zero, Pt. 1	2907615
25	Greetings from Earth, Pt. 2	2903778
26	Crossroads, Pt. 2	2869953
27	The Young Lords	2863571
28	Dave	2825166
29	?	2782333
30	Maternity Leave	2780416
31	Three Minutes	2763666
32	Hero	2713755
33	One of Them	2698791
34	How to Stop an Exploding Man	2687103
35	The Long Con	2679583
36	Live Together, Die Alone, Pt. 2	2656531
37	S.O.S.	2639541
38	One of Us	2638096
39	The Man from Tallahassee	2637637
40	The Cost of Living	2637500

	<b>name</b> character varying (150)	<b>milliseconds</b> integer
41	The Glass Ballerina	2637458
42	Every Man for Himself	2637387
43	Not In Portland	2637345
44	Not In Portland	2637303
45	A Tale of Two Cities	2636970
46	Flashes Before Your Eyes	2636636
47	Stranger In a Strange Land	2636428
48	Left Behind	2635343
49	Tricia Tanaka Is Dead	2635010
50	Lost Survival Guide	2632590
51	The Moth	2631327
52	Torn	2631291
53	Par Avion	2629879
54	Enter 77	2629796
55	Dirty Hands	2627961
56	I Do	2627791
57	Tabula Rasa	2627105
58	Collaborators	2626626
59	The Woman King	2626376
60	Rapture	2624541

	<b>name</b> character varying (150)	<b>milliseconds</b> integer
61	Taking a Break from All Your Worries	2624207
62	The Passage	2623875
63	Crossroads, Pt. 1	2622622
64	Maelstrom	2622372
65	Battlestar Galactica: The Story So Far...	2622250
66	Unfinished Business	2622038
67	The Son Also Rises	2621830
68	Exodus, Pt. 1	2621708
69	Exodus (Part 1)	2620747
70	A Day In the Life	2620245
71	Outlaws	2619887
72	Exodus (Part 3) [Season Finale]	2619869
73	Hearts and Minds	2619462
74	The Eye of Jupiter	2618750
75	Born to Run	2618619
76	Special	2618530
77	Do No Harm	2618487
78	Exodus, Pt. 2	2618000
79	The Greater Good	2617784
80	The Brig	2617325

[TOTAL 494 RECORDS]

# Q9: FIND HOW MUCH AMOUNT SPENT BY EACH CUSTOMER ON ARTISTS?

```
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;
```

	customer_id integer	first_name character	last_name character	artist_name character vary	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
8	33	Ellie	Sullivan	Queen	10.89
9	20	Dan	Miller	Queen	3.96
10	5	R	Madhav	Queen	3.96
11	23	John	Gordon	Queen	2.969999999999998
12	54	Steve	Murray	Queen	2.969999999999998
13	31	Martha	Silk	Queen	2.969999999999998
14	16	Frank	Harris	Queen	1.98
15	17	Jack	Smith	Queen	1.98
16	24	Frank	Ralston	Queen	1.98
17	30	Edward	Francis	Queen	1.98
18	35	Madalena...	Sampaio	Queen	1.98
19	36	Hannah	Schneider	Queen	1.98
20	11	Alexandre...	Rocha	Queen	1.98
21	8	Daan	Peeters	Queen	1.98



	customer_id integer	first_name character	last_name character	artist_name character vary	amount_spent double precision
22	42	Wyatt	Girard	Queen	1.98
23	44	Terhi	Hämäläinen	Queen	1.98
24	1	Luís	Gonçalves	Queen	1.98
25	48	Johannes...	Van der Berg	Queen	1.98
26	49	Stanisław...	Wójcik	Queen	1.98
27	52	Emma	Jones	Queen	1.98
28	57	Luis	Rojas	Queen	1.98
29	15	Jennifer	Peterson	Queen	1.98
30	28	Julia	Barnett	Queen	1.98
31	27	Patrick	Gray	Queen	0.99
32	58	Manoj	Pareek	Queen	0.99
33	45	Ladislav	Kovács	Queen	0.99
34	26	Richard	Cunningham	Queen	0.99
35	59	Puja	Srivastava	Queen	0.99
36	13	Fernanda	Ramos	Queen	0.99
37	6	Helena	Holý	Queen	0.99
38	22	Heather	Leacock	Queen	0.99
39	19	Tim	Goyer	Queen	0.99
40	39	Camille	Bernard	Queen	0.99
41	55	Mark	Taylor	Queen	0.99
42	50	Enrique	Muñoz	Queen	0.99

# Q.10: WRITE A QUERY THAT RETURNS EACH COUNTRY ALONG WITH THE TOP GENRE.

```

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

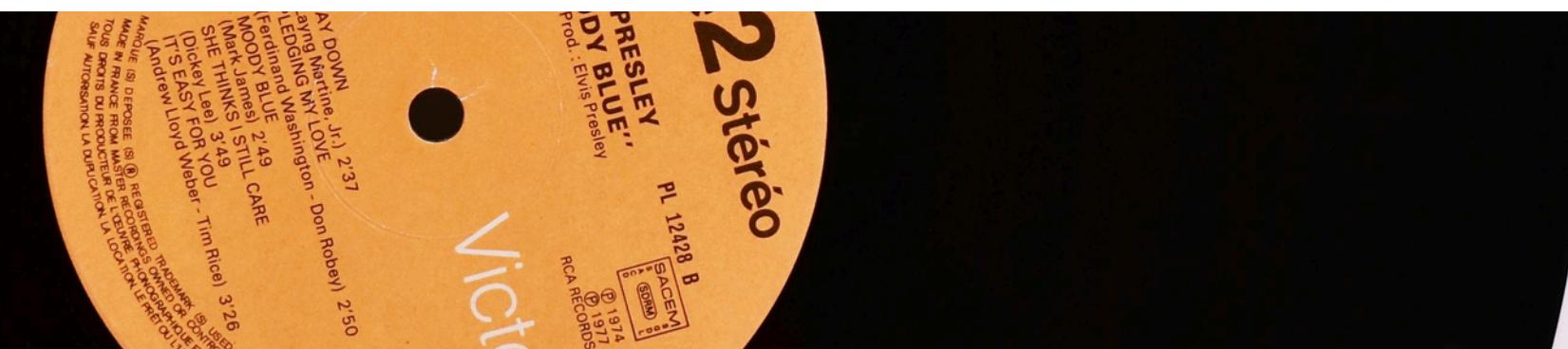
```

	purchases 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
8	143	Czech Republic	Rock	1	1
9	24	Denmark	Rock	1	1
10	46	Finland	Rock	1	1
11	211	France	Rock	1	1
12	194	Germany	Rock	1	1

13	44	Hungary	Rock	1	1
14	102	India	Rock	1	1
15	72	Ireland	Rock	1	1
16	35	Italy	Rock	1	1
17	33	Netherlands	Rock	1	1
18	40	Norway	Rock	1	1
19	40	Poland	Rock	1	1
20	108	Portugal	Rock	1	1
21	46	Spain	Rock	1	1
22	60	Sweden	Rock	1	1
23	166	United Kingdom	Rock	1	1
24	561	USA	Rock	1	1

# Q11: WRITE A QUERY THAT DETERMINES THE CUSTOMER THAT HAS SPENT THE MOST ON MUSIC FOR EACH COUNTRY.

```
WITH Customer_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 Customer_with_country WHERE RowNo <= 1
```





## SOME OF MY FINDINGS FROM THE SOLUTIONS OF THE QUERIES:

- Total sales of the Music Store is 4709.5 dollars.
- Western countries contribute the most to sales. Especially in US the total sales was 1040.48 dollars. This can help in tailoring marketing strategies to different regions and allocating resources effectively.
- 7.67 dollars was the average invoice value which is helpful to understand the typical spending per transaction.
- “Madhav R”was the valuable customer with total spending of 144.54 dollars.
- “Jimi Hendrix”, “Queen”, “Red Hot Chili Peppers” was the top 3 artists to contribute in the total revenue.

# THANK YOU VERY MUCH!

