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INNOVATION. AUTOMATION. ANALYTICS

PROJECT ON

Music Store Data Analysis

Our Team Mates

1. S. Anwar Basha
2. M. Reddappa Reddy
3. J. Guravaiah

MUSIC
Presentation

Introduction

- The Music Store Data Analysis project focuses on uncovering business insights from a digital music store's database using SQL.
- This analysis involves designing a relational database, importing structured data, and writing optimized SQL queries to answer key business questions. By exploring customer behavior, sales trends, and music preferences, this project helps identify opportunities to improve customer engagement and revenue.
- Through this project, we aim to transform raw data into valuable insights that support strategic decision-making across marketing, operations, and artist partnerships.

Tables

Artist

artist_id	name
1	AC/DC
2	Accept
3	Aerosmith
4	Alanis Morissette
5	Alice In Chains
6	AntÃ´nio Carlos Jobim
7	Apocalyptica
8	Audioslave
9	BackBeat
10	Billy Cobham

Album

album_id	title	artist_id
1	For Those About To Rock We Salute You	1
2	Balls to the Wall	2
3	Restless and Wild	2
4	Let There Be Rock	1
5	Big Ones	3
6	Jagged Little Pill	4
7	Facelift	5
8	Warner 25 Anos	6
9	Plays Metallica By Four Cellos	7
10	Audioslave	8

Genre

genre_id	name
1	Rock
2	Jazz
3	Metal
4	Alternative & Punk
5	Rock And Roll
6	Blues
7	Latin
8	Reggae
9	Pop
10	Soundtrack

Media type

media_type_id	name
1	MPEG audio file
2	Protected AAC audio file
3	Protected MPEG-4 video file
4	Purchased AAC audio file
5	AAC audio file

Employee

employee_id	last_name	first_name	title	reports_to	levels	birthdate	hire_date	address	city	state	country	postal_c	phone	fax	email
1	Adams	Andrew	General Manager	9	L6	1962-02-18	2016-08-14	11120 Jasper Ave NW	Edmonton	AB	Canada	T5K 2N1	+1 (780) 428-9482	+1 (780) 428-3457	andrew@chinookcorp.com
2	Edwards	Nancy	Sales Manager	1	L4	1958-12-08	2016-05-01	825 8 Ave SW	Calgary	AB	Canada	T2P 2T3	+1 (403) 262-3443	+1 (403) 262-3322	nancy@chinookcorp.com
3	Peacock	Jane	Sales Support Agent	2	L1	1973-08-29	2017-04-01	1111 6 Ave SW	Calgary	AB	Canada	T2P 5M5	+1 (403) 262-3443	+1 (403) 262-6712	jane@chinookcorp.com
4	Park	Margaret	Sales Support Agent	2	L1	1947-09-19	2017-05-03	683 10 Street SW	Calgary	AB	Canada	T2P 5G3	+1 (403) 263-4423	+1 (403) 263-4289	margaret@chinookcorp.com
5	Johnson	Steve	Sales Support Agent	2	L1	1965-03-03	2017-10-17	7727B 41 Ave	Calgary	AB	Canada	T3B 1Y7	1 (780) 836-9987	1 (780) 836-9543	steve@chinookcorp.com
6	Mitchell	Michael	IT Manager	1	L3	1973-07-01	2016-10-17	5827 Bowness Roa...	Calgary	AB	Canada	T3B 0C5	+1 (403) 246-9887	+1 (403) 246-9899	michael@chinookcorp.com
7	King	Robert	IT Staff	6	L2	1970-05-29	2017-01-02	590 Columbia Boule...	Lethbri...	AB	Canada	T1K 5N8	+1 (403) 456-9986	+1 (403) 456-8485	robert@chinookcorp.com
8	Callahan	Laura	IT Staff	6	L2	1968-01-09	2017-03-04	923 7 ST NW	Lethbri...	AB	Canada	T1H 1Y8	+1 (403) 467-3351	+1 (403) 467-8772	laura@chinookcorp.com
9	Madan	Mohan	Senior General M...	NULL	L7	1961-01-26	2016-01-14	1008 Vrinda Ave MT	Edmonton	AB	Canada	T5K 2N1	+1 (780) 428-9482	+1 (780) 428-3457	madan.mohan@chinookcorp.com

Customer

customer_id	first_name	last_name	company	address	city	state	country	postal_code	phone	fax	email	support_rep_id
1	LuÃs	GonÃ§a...	Embraer - Empresa ...	Av. Brigadeiro Faria Lima, 2170	SÃ£o JosÃ© dos Ca...	SP	Brazil	12227-000	+55 (12) 3923-5555	+55 (12) 3923-5566	luisg@embraer.com.br	3
2	Leonie	KÃ¶hler		Theodor-Heuss-StraÃŸe 34	Stuttgart		Germany	70174	+49 0711 2842222		leonekohler@surfeu.de	5
3	FranÃ§ois	Tremblay		1498 rue BÃ©langer	MontrÃ©al	QC	Canada	H2G 1A7	+1 (514) 721-4711		ftremblay@gmail.com	3
4	BjÃ¸rn	Hansen		UllevÃ¥lsveien 14	Oslo		Norway	171	+47 22 44 22 22		bjorn.hansen@yahoo.no	4
5	FrantiÅ¡ek	Wichterl...	JetBrains s.r.o.	Klanova 9/506	Prague		Czech Republic	14700	+420 2 4172 5555	+420 2 4172 5555	frantisekw@jetbrains.com	4
6	Helena	HolÃ½		RilskÃ¡ 3174/6	Prague		Czech Republic	14300	+420 2 4177 0449		hholy@gmail.com	5
7	Astrid	Gruber		RotenturmstraÃŸe 4, 1010 I...	Vienne		Austria	1010	+43 01 5134505		astrid.gruber@apple.at	5
8	Daan	Peeters		GrÃ©trystraat 63	Brussels		Belgium	1000	+32 02 219 03 03		daan_peeters@apple.be	4
9	Kara	Nielsen		SÃ¸nder Boulevard 51	Copenhagen		Denmark	1720	+453 3331 9991		kara.nielsen@jubii.dk	4
10	Eduardo	Martins	Woodstock Discos	Rua Dr. FalcÃ£o Filho, 155	SÃ£o Paulo	SP	Brazil	01007-010	+55 (11) 3033-5446	+55 (11) 3033-4564	eduardo@woodstock.c...	4

Invoice

invoice_id	customer_id	invoice_date	billing_address	billing_city	billing_state	billing_country	billing_postal_code	total
1	18	2017-01-03	627 Broadway	New York	NY	USA	10012-2612	15.84
2	30	2017-01-03	230 Elgin Street	Ottawa	ON	Canada	K2P 1L7	9.90
3	40	2017-01-05	8, Rue Hanovre	Paris	None	France	75002	1.98
4	18	2017-01-06	627 Broadway	New York	NY	USA	10012-2612	7.92
5	27	2017-01-07	1033 N Park Ave	Tucson	AZ	USA	85719	16.83
6	31	2017-01-10	194A Chain Lake Drive	Halifax	NS	Canada	B3S 1C5	1.98
7	49	2017-01-12	Ordynacka 10	Warsaw	None	Poland	00-358	10.89
8	59	2017-01-13	3,Raj Bhavan Road	Bangalore	None	India	560001	9.90
9	18	2017-01-18	627 Broadway	New York	NY	USA	10012-2612	8.91
10	31	2017-01-18	194A Chain Lake Drive	Halifax	NS	Canada	B3S 1C5	1.98

Invoice line

invoice_line_id	invoice_id	track_id	unit_price	quantity
1	1	1158	0.99	1
2	1	1159	0.99	1
3	1	1160	0.99	1
4	1	1161	0.99	1
5	1	1162	0.99	1
6	1	1163	0.99	1
7	1	1164	0.99	1
8	1	1165	0.99	1
9	1	1166	0.99	1
10	1	1167	0.99	1

Track

track_id	name	album_id	media_type_id	genre_id	composer	milliseconds	bytes	unit_price
1	For Those About To Rock (We Salute You)	1	1	1	Angus Young, Malcolm Young, Brian Johnson	343719	11170334	0.99
2	Balls to the Wall	2	2	1		342562	5510424	0.99
3	Fast As a Shark	3	2	1	F. Baltes, S. Kaufman, U. Dirkscneider & W. Hof...	230619	3990994	0.99
4	Restless and Wild	3	2	1	F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dir...	252051	4331779	0.99
5	Princess of the Dawn	3	2	1	Deaffy & R.A. Smith-Diesel	375418	6290521	0.99
6	Put The Finger On You	1	1	1	Angus Young, Malcolm Young, Brian Johnson	205662	6713451	0.99
7	Let's Get It Up	1	1	1	Angus Young, Malcolm Young, Brian Johnson	233926	7636561	0.99
8	Inject The Venom	1	1	1	Angus Young, Malcolm Young, Brian Johnson	210834	6852860	0.99
9	Snowballed	1	1	1	Angus Young, Malcolm Young, Brian Johnson	203102	6599424	0.99
10	Evil Walks	1	1	1	Angus Young, Malcolm Young, Brian Johnson	263497	8611245	0.99

Playlist

playlist_id	name
1	Music
2	Movies
3	TV Shows
4	Audiobooks
5	90â€™s Music
6	Audiobooks
7	Movies
8	Music
9	Music Videos
10	TV Shows

Playlist Track

playlist_id	track_id
1	1
8	1
17	1
1	2
8	2
17	2
1	3
5	3
8	3
17	3

ER - Diagram
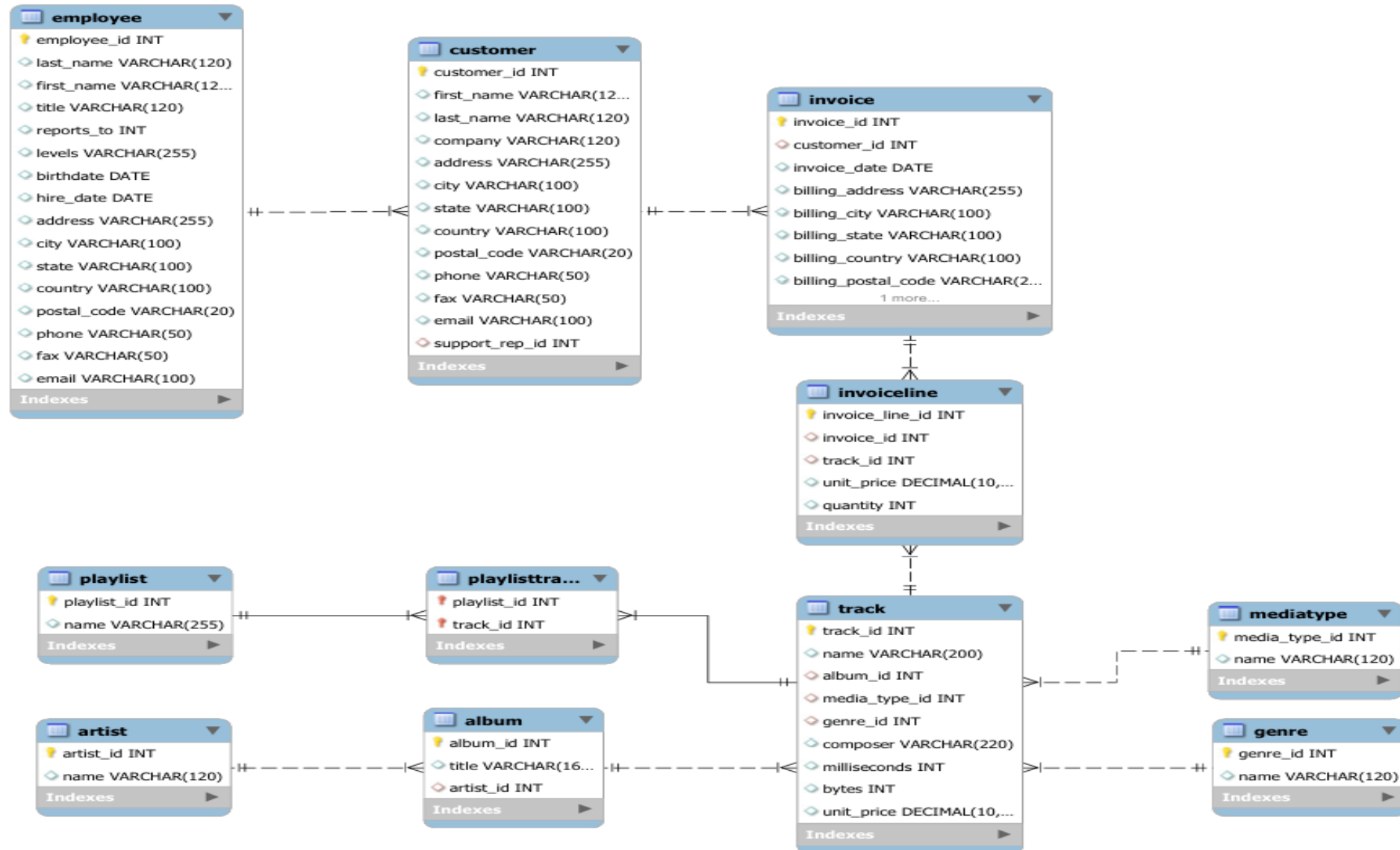
🎯 Problem Statement

o The 🎵 *Music Store* holds rich data on customers, tracks, genres, artists, invoices, and playlists. Without proper analysis, this data remains underutilized and lacks strategic value.
This project aims to:

o ☐ Build a relational database with correct relationships

o ⬇ Import large datasets efficiently into MySQL

o Analyze customer behavior, music trends, and sales performance

o 📊 Derive insights on top customers, popular genres, and regional revenue By

o converting raw data into meaningful insights, the project supports better decision-making and business growth.

Task Queries

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

```sql
SELECT
    employee_id,
    first_name,
    last_name,
    title,
    email,
    hire_date
FROM
    Employee
ORDER BY
    title ASC
LIMIT 1;
```

employee_id	first_name	last_name	title	email	hire_date
1	Andrew	Adams	General Manager	andrew@chinookcorp.com	2016-08-14

2. Which countries have the most Invoices?

```sql
SELECT
    billing_country AS country,
    COUNT(*) AS total_invoices
FROM
    Invoice
GROUP BY
    billing_country
ORDER BY
    total_invoices DESC;
```

country	total_invoices
USA	131
Canada	76
Brazil	61
France	50
Germany	41
Czech Republic	30
Portugal	29
United Kingdom	28
India	21
Ireland	13

3. What are the top 3 values of total invoice?

```sql
SELECT
    invoice_id,
    customer_id,
    total
FROM
    Invoice
ORDER BY
    total DESC
LIMIT 3;
```

invoice_id	customer_id	total
183	42	23.76
92	32	19.80
31	3	19.80

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

```sql
SELECT
    billing_city AS city,
    SUM(total) AS total_revenue
FROM
    Invoice
GROUP BY
    billing_city
ORDER BY
    total_revenue DESC
LIMIT 1;
```


city	total_revenue
Prague	273.24

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

```sql
SELECT c.customer_id, c.first_name, c.last_name, c.email,
    SUM(i.total) AS total_spent
FROM
    Customer c
INNER JOIN
    Invoice i ON c.customer_id = i.customer_id
GROUP BY
    c.customer_id,
    c.first_name,
    c.last_name,
    c.email
ORDER BY
    total_spent DESC
LIMIT 1;
```


customer_id	first_name	last_name	email	total_spent
5	FrantiÅiek	Wichterl...	frantisekw@jetbrains.com	144.54

6. 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

```sql
SELECT
    DISTINCT c.email, c.first_name, c.last_name, g.name AS genre
FROM
    Customer c
INNER JOIN
    Invoice i ON c.customer_id = i.customer_id
INNER JOIN
    InvoiceLine il ON i.invoice_id = il.invoice_id
INNER JOIN
    Track t ON il.track_id = t.track_id
INNER JOIN
    Genre g ON t.genre_id = g.genre_id
WHERE
    g.name = 'Rock'
ORDER BY
    c.email ASC;
```

email	first_name	last_name	genre
aaronmitchell@yahoo.ca	Aaron	Mitchell	Rock
alero@uol.com.br	Alexandre	Rocha	Rock
astrid.gruber@apple.at	Astrid	Gruber	Rock
bjorn.hansen@yahoo.no	BjÃ¸rn	Hansen	Rock
camille.bernard@yahoo.fr	Camille	Bernard	Rock
daan_peeters@apple.be	Daan	Peeters	Rock
diego.gutierrez@yahoo...	Diego	GutiÃ©...	Rock
dmiller@comcast.com	Dan	Miller	Rock
dominiquelefebvre@gm...	Dominique	Lefebvre	Rock
edfrancis@yachoo.ca	Edward	Francis	Rock
eduardo@woodstock.c...	Eduardo	Martins	Rock

7. 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

```sql
SELECT ar.name AS artist_name,
    COUNT(t.track_id) AS rock_track_count
FROM Track t
INNER JOIN
    Genre g ON t.genre_id = g.genre_id
INNER JOIN
    Album al ON t.album_id = al.album_id
INNER JOIN
    Artist ar ON al.artist_id = ar.artist_id
WHERE
    g.name = 'Rock'
GROUP BY
    ar.artist_id, ar.name
ORDER BY
    rock_track_count DESC
LIMIT 10;
```


artist_name	rock_track_count
Led Zeppelin	114
U2	112
Deep Purple	92
Iron Maiden	81
Pearl Jam	54
Van Halen	52
Queen	45
The Rolling Stones	41
Creedence Clearwater Revival	40
Kiss	35

8. 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

```sql
SELECT
    name AS track_name,
    milliseconds
FROM
    Track
WHERE
    milliseconds > (SELECT AVG(milliseconds) FROM Track)
ORDER BY
    milliseconds DESC;
```

track_name	milliseconds
Occupation / Precipice	5286953
Through a Looking Glass	5088838
Greetings from Earth, Pt. 1	2960293
The Man With Nine Lives	2956998
Battlestar Galactica, Pt. 2	2956081
Battlestar Galactica, Pt. 1	2952702
Murder On the Rising Star	2935894
Battlestar Galactica, Pt. 3	2927802
Take the Celestra	2927677
Fire In Space	2926593
The Long Patrol	2925008
The Magnificent Warriors	2924716
The Living Legend, Pt. 1	2924507
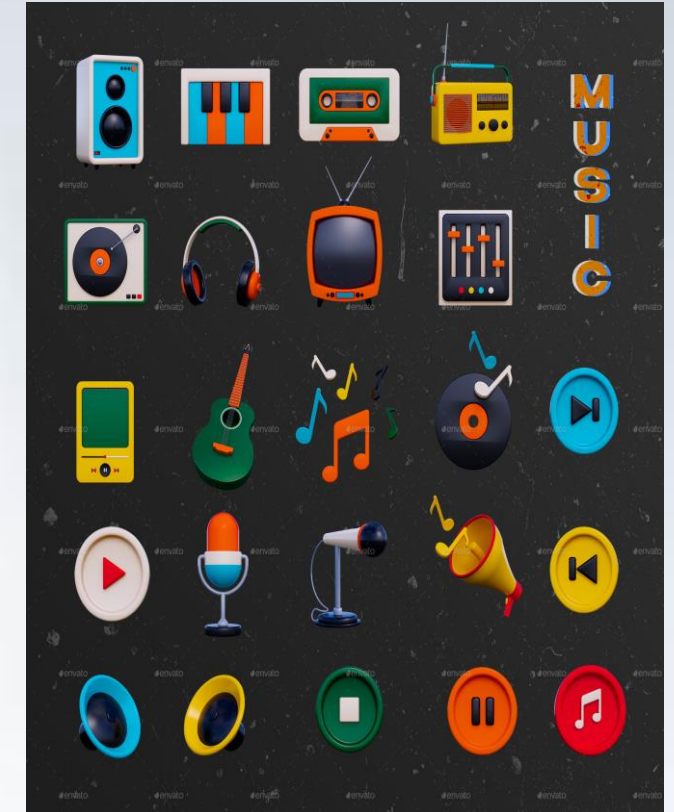
9. Find how much amount is spent by each customer on artists? Write a query to return customer name, artist name and total spent

```sql
SELECT
    CONCAT(c.first_name, ' ', c.last_name) AS customer_name,
    ar.name AS artist_name,
    SUM(il.unit_price * il.quantity) AS total_spent
FROM
    Customer c
INNER JOIN Invoice i ON c.customer_id = i.customer_id
INNER JOIN InvoiceLine il ON i.invoice_id = il.invoice_id
INNER JOIN Track t ON il.track_id = t.track_id
INNER JOIN Album al ON t.album_id = al.album_id
INNER JOIN Artist ar ON al.artist_id = ar.artist_id
GROUP BY
    c.customer_id,
    ar.artist_id
ORDER BY
    total_spent DESC;
```

customer_name	artist_name	total_spent
Hugh O'Reilly	Queen	27.72
Wyatt Girard	Frank Sinatra	23.76
FranÃ§ois Tremblay	The Who	19.80
FrantiÅ¡ek WichterlovÃ¡	Kiss	19.80
Helena HolÃ½	Red Hot Chili Peppers	19.80
Robert Brown	Creedence Clearwater Revival	19.80
Aaron Mitchell	James Brown	19.80
Heather Leacock	House Of Pain	18.81
Niklas SchrÃ¶der	Queen	18.81
Hugh O'Reilly	Nirvana	18.81
LuÃs GonÃ§alves	The Cult	17.82
FranÃ§ois Tremblay	Queen	17.82

10. 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

```sql
WITH GenrePurchaseCount AS ( SELECT c.country, g.name AS genre_name,
        COUNT(*) AS purchase_count
    FROM Customer c
    INNER JOIN Invoice i ON c.customer_id = i.customer_id
    INNER JOIN InvoiceLine il ON i.invoice_id = il.invoice_id
    INNER JOIN Track t ON il.track_id = t.track_id
    INNER JOIN Genre g ON t.genre_id = g.genre_id
    GROUP BY c.country, g.genre_id, g.name ),
GenreRanked AS ( SELECT country, genre_name, purchase_count,
        RANK() OVER ( PARTITION BY country ORDER BY purchase_count DESC ) AS genre_rank
    FROM GenrePurchaseCount )
SELECT country, genre_name, purchase_count
FROM GenreRanked
WHERE genre_rank = 1
ORDER BY country, genre_name;
```

country	genre_name	purchase_count
Argentina	Alternative & Punk	17
Australia	Rock	34
Austria	Rock	40
Belgium	Rock	26
Brazil	Rock	205
Canada	Rock	333
Chile	Rock	61
Czech Republic	Rock	143
Denmark	Rock	24
Finland	Rock	46
France	Rock	211
Germany	Rock	194
Hungary	Rock	44
India	Rock	102

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

```sql
WITH CustomerSpending AS ( SELECT c.country, c.customer_id,
        CONCAT(c.first_name, ' ', c.last_name) AS customer_name,
        SUM(i.total) AS total_spent
    FROM
        Customer c
    INNER JOIN Invoice i ON c.customer_id = i.customer_id
    GROUP BY
        c.country, c.customer_id, customer_name ),
RankedCustomers AS ( SELECT country, customer_name, total_spent,
        RANK() OVER ( PARTITION BY country ORDER BY total_spent DESC ) AS spending_rank
    FROM
        CustomerSpending )
SELECT country, customer_name, total_spent
FROM RankedCustomers
WHERE spending_rank = 1
ORDER BY country, customer_name;
```

country	customer_name	total_spent
Argentina	Diego GutiÃ©rrez	39.60
Australia	Mark Taylor	81.18
Austria	Astrid Gruber	69.30
Belgium	Daan Peeters	60.39
Brazil	LuÃs GonÃ§alves	108.90
Canada	FranÃ§ois Tremblay	99.99
Chile	Luis Rojas	97.02
Czech Republic	FrantiÅ¡ek WichterlovÃ½	144.54
Denmark	Kara Nielsen	37.62
Finland	Terhi HÃ¤mÃ¤lÃ¤inen	79.20
France	Wyatt Girard	99.99
Germany	Fynn Zimmermann	94.05
Hungary	Ladislav KovÃ¡cs	78.21
India	Manoj Pareek	111.87

Conclusion

o The Music Store Data Analysis project successfully demonstrated how structured database design and advanced SQL queries can turn raw data into valuable business insights.

o By importing and analyzing data across multiple tables such as customers, invoices, tracks, and genres we were able to:

o Identify top-performing customers and high-revenue regions

o Discover popular music genres and top artists

o Understand customer spending patterns and sales trends

o This project not only strengthened SQL and database management skills but also provided a practical understanding of how data-driven decisions can enhance business performance and customer engagement.

thank you