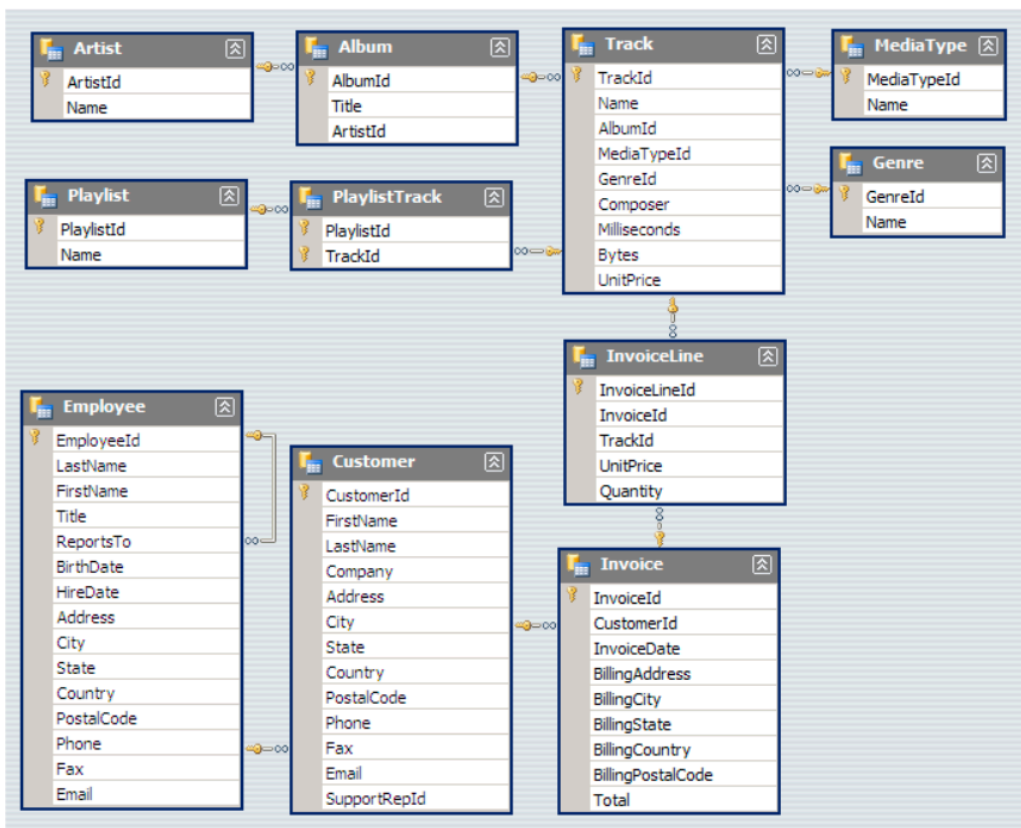


## Data Analysis of a Music Store using SQL

### Tables:

Artist  
Album  
Track  
MediaType  
Playlist  
PlaylistTrack  
Genre  
Employee  
Customer  
Invoice  
InvoiceLine

### Schema:



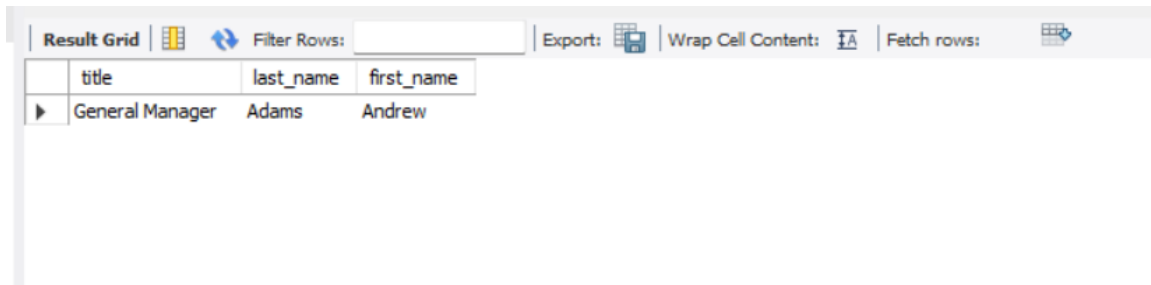
## Managerial Questions:

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

#### CODE:

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

#### OUTPUT:



The screenshot shows a database interface with a 'Result Grid' tab. The grid displays the results of a query. The columns are 'title', 'last\_name', and 'first\_name'. The first row shows 'General Manager', 'Adams', and 'Andrew'. The interface includes a 'Filter Rows' field, an 'Export' button, a 'Wrap Cell Content' checkbox, and a 'Fetch rows' button.

	title	last_name	first_name
▶	General Manager	Adams	Andrew

Based on job title, **Andrew Adams** holds the most senior position among employees.

### 2] Which countries have the most Invoices?

#### CODE:

```
SELECT COUNT(*) AS NO_OF_INVOICES, billing_country FROM invoice GROUP BY  
billing_country ORDER BY NO_OF_INVOICES DESC;
```

#### OUTPUT:



The screenshot shows a database interface with a 'Result Grid' tab. The grid displays the results of a query. The columns are 'NO\_OF\_INVOICES' and 'billing\_country'. The results are ordered by the number of invoices in descending order. The first row shows 131 invoices for the USA. The interface includes a 'Filter Rows' field.

	NO_OF_INVOICES	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
	11	Spain
	10	Poland
	10	Denmark
	10	Australia
	10	Hungary
	10	Sweden
	10	Netherlands
	9	Norway
	9	Italy
	9	Austria
	7	Belgium
	5	Argentina

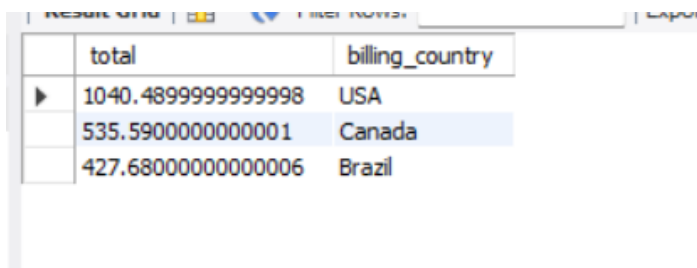
The output indicates that the **USA** has the highest number of invoices.

### 3] Which three countries have the highest total invoice values?

#### CODE:

```
SELECT SUM(total) AS total, billing_country FROM invoice GROUP BY billing_country  
ORDER BY total DESC LIMIT 3;
```

#### OUTPUT:



	total	billing_country
▶	1040.4899999999998	USA
	535.5900000000001	Canada
	427.68000000000006	Brazil

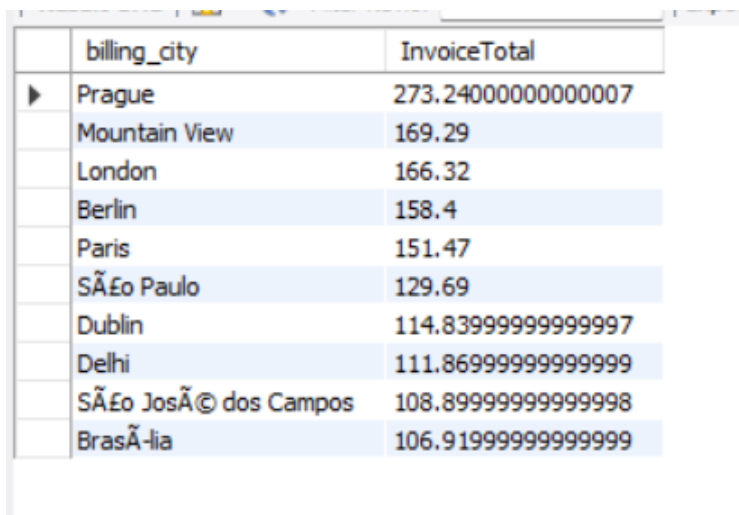
The top three countries with the highest invoice values are **USA, Canada, and Brazil**.

### 4] Which city has the best customers?

#### CODE:

```
SELECT billing_city, SUM(total) AS InvoiceTotal FROM Invoice GROUP BY billing_city ORDER  
BY InvoiceTotal DESC LIMIT 10;
```

#### OUTPUT:



	billing_city	InvoiceTotal
▶	Prague	273.24000000000007
	Mountain View	169.29
	London	166.32
	Berlin	158.4
	Paris	151.47
	SÃo Paulo	129.69
	Dublin	114.83999999999997
	Delhi	111.86999999999999
	SÃo JosÃ dos Campos	108.89999999999998
	BrasÃlia	106.91999999999999

Based on the InvoiceTotal, it is clear that **Prague, Mountain View, and London** are the top-performing cities.

## 5] Who is the best customer?

### CODE:

```
SELECT customer.customer_id, first_name, last_name, country, state, city, SUM(total) AS  
total_spending FROM customer  
JOIN invoice ON customer.customer_id = invoice.customer_id  
GROUP BY customer.customer_id, first_name, last_name, country, state, city  
ORDER BY total_spending DESC  
LIMIT 10;
```

### OUTPUT:

	customer_id	first_name	last_name	country	state	city	total_spending
▶	5	František	Wichterlová	Czech Republic		Prague	144.54000000000002
	6	Helena	Holáň	Czech Republic		Prague	128.7
	46	Hugh	O'Reilly	Ireland	Dublin	Dublin	114.83999999999997
	58	Manoj	Pareek	India		Delhi	111.86999999999999
	1	Luís	Gonçalves	Brazil	SP	São José dos Campos	108.89999999999998
	13	Fernanda	Ramos	Brazil	DF	Brasília	106.91999999999999
	34	João	Fernandes	Portugal		Lisbon	102.96000000000001
	3	François	Tremblay	Canada	QC	Montréal	99.99
	42	Wyatt	Girard	France		Bordeaux	99.99
	53	Phil	Hughes	United Kingdom		London	98.01

František, located in Prague, Czech Republic, emerges as the top-performing customer.

## 6] What are the customer details associated with the genre of rock music?

### CODE:

```
SELECT DISTINCT email as Email, customer.customer_id, first_name as FirstName, last_name
as LastName, country as Country,
state as State, city as City, genre.name as Genre FROM customer
JOIN invoice ON invoice.customer_id=customer.customer_id
JOIN invoice_line ON invoice_line.invoice_id=invoice.invoice_id
JOIN track ON track.track_id=invoice_line.track_id
JOIN genre ON genre.genre_id=track.genre_id
WHERE genre.name LIKE '%Rock%'
ORDER BY Email;
```

### OUTPUT:

	Email	customer_id	FirstName	LastName	Country	State	City	Genre
▶	aaronmitchell@yahoo.ca	32	Aaron	Mitchell	Canada	MB	Winnipeg	Rock
	alero@uol.com.br	11	Alexandre	Rocha	Brazil	SP	SÃ£o Paulo	Rock
	astrid.gruber@apple.at	7	Astrid	Gruber	Austria		Vienne	Rock
	bjorn.hansen@yahoo.no	4	BjÃrn	Hansen	Norway		Oslo	Rock
	camille.bernard@yahoo.fr	39	Camille	Bernard	France		Paris	Rock
	daan_peeters@apple.be	8	Daan	Peeters	Belgium		Brussels	Rock
	diego.gutierrez@yahoo.ar	56	Diego	GutiÃ©rrez	Argentina		Buenos Aires	Rock
	dmiller@comcast.com	20	Dan	Miller	USA	CA	Mountain View	Rock
	dominiquelefebvre@gmail.com	40	Dominique	Lefebvre	France		Paris	Rock
	edfrancis@yahoo.ca	30	Edward	Francis	Canada	ON	Ottawa	Rock
	eduardo@woodstock.com.br	10	Eduardo	Martins	Brazil	SP	SÃ£o Paulo	Rock
	ellie.sullivan@shaw.ca	33	Ellie	Sullivan	Canada	NT	Yellowknife	Rock
	emma_jones@hotmail.com	52	Emma	Jones	United Ki...		London	Rock
	enrique_munoz@yahoo.es	50	Enrique	MuÃ±oz	Spain		Madrid	Rock
	fernadaramos4@uol.com.br	13	Fernanda	Ramos	Brazil	DF	BrasÃ­lia	Rock
	fharris@google.com	16	Frank	Harris	USA	CA	Mountain View	Rock
	fralston@gmail.com	24	Frank	Ralston	USA	IL	Chicago	Rock
	frantisekw@jetbrains.com	5	FrantiÅ¡ek	WichterlovÅ­i	Czech R...		Prague	Rock
	ftremblay@gmail.com	3	FranÃ§ois	Tremblay	Canada	QC	MontrÃ©al	Rock
	fzimmermann@yahoo.de	37	Fynn	Zimmermann	Germany		Frankfurt	Rock

**7] Which artists have written the highest number of rock music tracks in our dataset, and what is the total track count for the top 10 rock bands?**

**CODE:**

```
SELECT DISTINCT(artist.artist_id) AS ARTIST_ID, artist.name AS ARTIST_NAME,  
COUNT(DISTINCT(track_id)) AS TOTAL_NO_OF_TRACKS FROM artist  
JOIN album ON album.artist_id=artist.artist_id  
JOIN track on track.album_id=album.album_id  
GROUP BY ARTIST_ID, ARTIST_NAME  
ORDER BY TOTAL_NO_OF_TRACKS DESC  
LIMIT 10;
```

**OUTPUT:**

	ARTIST_ID	ARTIST_NAME	TOTAL_NO_OF_TRACKS
▶	18	Chico Science & NaÃ§Ã£o Zumbi	36
	19	Cidade Negra	31
	8	Audioslave	26
	16	Caetano Veloso	21
	17	Chico Buarque	20
	1	AC/DC	18
	11	Black Label Society	18
	12	Black Sabbath	17
	13	Body Count	17
	21	Various Artists	17

8] Which tracks have a song length longer than the average song length, and what are their names and durations in milliseconds? Can you order the results by song length, with the longest songs listed first?

**CODE:**

```
SELECT DISTINCT(track.track_id) AS TRACK_ID, track.name AS TRACK_NAME,  
SUM(milliseconds) AS SONG_LENGTH_IN_MILLISECONDS FROM track  
WHERE milliseconds>(SELECT AVG(milliseconds) FROM track)  
GROUP BY TRACK_ID, TRACK_NAME  
ORDER BY SONG_LENGTH_IN_MILLISECONDS DESC;
```

**OUTPUT:**

Result Grid	Filter Rows:	Export:	Wrap Cell Content:
TRACK_ID	TRACK_NAME	SONG_LENGTH_IN_MILLISECONDS	
350	How Many More Times	711836	
357	Advance Romance	677694	
154	Sleeping Village	644571	
349	You Shook Me(2)	619467	
204	Talkin' 'Bout Women Obviously	589531	
127	Stratus	582086	
142	No More Tears	555075	
192	The Alchemist	509413	
156	Wheels Of Confusion / The Straightener	494524	
187	Book Of Thel	494393	
50	You Oughta Know (Alternate)	491885	
208	Terra	482429	
124	Snoopy's search-Red baron	456071	
223	Sozinho (Hitmakers Classic Mix)	436636	
78	Master Of Puppets	436453	
196	Stone Crazy	433397	
145	Snowblind	420022	
281	Computadores Fazem Arte	404323	
189	Jerusalem	402390	
340	Dazed and Confused	401920	
176	The Winner Loses	392254	
56	Love, Hate, Love	387134	
245	Construção / Deus Lhe Pague	383059	

Result 21 x

9] Find how much amount is spent by each customer on artists? Write a query to return customer name, artist name and total spent.

### CODE:

```
SELECT CONCAT(first_name,' ',last_name) AS CUSTOMER_NAME, artist.name AS
ARTIST_NAME, SUM(invoice_line.unit_price*invoice_line.quantity) AS
TOTAL_AMOUNT_SPENT FROM customer
JOIN invoice ON invoice.customer_id=customer.customer_id
JOIN invoice_line ON invoice_line.invoice_id=invoice.invoice_id
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 CUSTOMER_NAME, ARTIST_NAME
ORDER BY TOTAL_AMOUNT_SPENT DESC;
```

### OUTPUT:

Result Grid   Filter Rows:   Export:   Wrap Cell Content: <a href="#">FA</a>		
CUSTOMER_NAME	ARTIST_NAME	TOTAL_AMOUNT_SPENT
Steve Murray	AC/DC	17.82
Jennifer Peterson	Aerosmith	14.850000000000001
Mark Taylor	Aerosmith	14.850000000000001
Fernanda Ramos	Antônio Carlos Jobim	13.860000000000001
Leonie Kähler	Audioslave	13.860000000000001
Edward Francis	Alanis Morissette	12.870000000000001
Emma Jones	Alanis Morissette	12.870000000000001
João Fernandes	Alanis Morissette	12.870000000000001
Victor Stevens	Alice In Chains	11.88
Phil Hughes	AC/DC	10.89
Kathy Chase	AC/DC	10.89
Stanisław Wójcik	Buddy Guy	10.89
Stanisław Wójcik	AC/DC	9.9
Luís Gonçalves	AC/DC	7.920000000000001
Kathy Chase	Black Sabbath	7.920000000000001
François Tremblay	Apocalyptica	7.920000000000001
Frank Ralston	AC/DC	7.920000000000001
Frank Ralston	Black Sabbath	6.930000000000001
Martha Silk	AC/DC	3.96
François Tremblay	Black Sabbath	3.96
Luís Gonçalves	Aerosmith	2.969999999999998
Dan Miller	Alice In Chains	2.969999999999998

Result 16 x



**10] We want to find out the most popular music genres 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**

**CODE:**

```
WITH popular_genre AS (
SELECT SUM(invoice_line.quantity) AS PURCHASES, customer.country, genre.name,
genre.genre_id,
ROW_NUMBER() OVER(partition by customer.country ORDER BY SUM(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;
```

**OUTPUT:**

	PURCHASES	country	name	genre_id	RowNo
▶	1	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
	3	Italy	Rock	1	1
	6	Netherlands	Rock	1	1
	2	Norway	Metal	3	1
	14	Poland	Rock	1	1

Result 12 x

**The query showcases the most frequently purchased genre for each country, along with the respective number of purchases.**

**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**

**CODE:**

```
WITH customer_with_country AS (
SELECT customer.customer_id AS CUSTOMER_ID, CONCAT(first_name,',',last_name) AS
CUSTOMER_NAME,
billing_country AS BILLING_COUNTRY, SUM(total) AS TOTAL_SPENDING, ROW_NUMBER()
OVER(partition by billing_country ORDER BY SUM(total) DESC) AS RowNo
FROM customer
JOIN invoice ON invoice.customer_id=customer.customer_id
GROUP BY 1,2,3
ORDER BY 4 ASC,5 DESC)
SELECT * FROM customer_with_country WHERE RowNo<=1;
```

**OUTPUT:**

	CUSTOMER_ID	CUSTOMER_NAME	BILLING_COUNTRY	TOTAL_SPENDING	RowNo
▶	9	KaraNielsen	Denmark	37.619999999999999	1
	56	DiegoGutiérrez	Argentina	39.6	1
	47	LucasMancini	Italy	50.49	1
	8	DaanPeeters	Belgium	60.389999999999999	1
	48	JohannesVan der Berg	Netherlands	65.34	1
	7	AstridGruber	Austria	69.3	1
	4	BjörnHansen	Norway	72.270000000000001	1
	51	JoakimJohansson	Sweden	75.24	1
	49	StanisławWójcik	Poland	76.229999999999999	1
	45	LadislavKovács	Hungary	78.21	1
	44	TerhiHämäläinen	Finland	79.2	1
	55	MarkTaylor	Australia	81.18	1
	37	FynnZimmermann	Germany	94.050000000000001	1
	57	LuisRojas	Chile	97.020000000000001	1
	50	EnriqueMuñoz	Spain	98.01	1
	53	PhilHughes	United Kingdom	98.01	1
	17	JackSmith	USA	98.01	1
	42	WyattGirard	France	99.99	1
	3	FrançoisTremblay	Canada	99.99	1
	34	JoãoFernandes	Portugal	102.960000000000001	1
	1	LuísGonçalves	Brazil	108.899999999999998	1
	58	ManojPareek	India	111.869999999999999	1
	46	HughO'Reilly	Ireland	114.839999999999997	1

**The provided query retrieves the highest-spending customers for each country, identifying those who have made the largest total purchases.**