Structured Query Language project by Navjoth Singh on Music Store Data

Question Set 1 – Easy (5 Questions)

Q1: Who is the senior most employee based on job title?

SQL Query

- ➢ select employee_id, last_name, first_name, title, levels from employee
- ➢ order by levels desc limit 1

Data Output

Dashboard   Properties   SQL   Statistics   Dependencies   Dependents   Processes   ⬚ Music_Store_Data_Analysis/postgres@PostgreSQL 16*

Music_Store_Data_Analysis/postgres@PostgreSQL 16   ∨

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3   |
4   -- Q1. Who is the senior most employee based on job title?
5
6   select employee_id, last_name, first_name, title, levels from employee
7   order by levels desc limit 1
```

Data Output   Messages   Notifications

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

Q2: Which countries have the most Invoices?

SQL Query

- ➢ select cu.country, count(invoice_id) as Count_of_invoices from invoice as inv
- ➢ full join customer as cu
- ➢ on cu.customer_id = inv.customer_id
- ➢ group by cu.country
- ➢ order by Count_of_invoices desc
- ➢ limit 5

Data Output

| Dashboard | Properties | SQL | Statistics | Dependencies | Dependents | Processes | Music_Store_Data_Analysis/postgres@PostgreSQL 16* |

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q2. Which countries have the most Invoices?
5
6   select cu.country, count(invoice_id) as Count_of_invoices from invoice as inv
7   full join customer as cu
8   on cu.customer_id = inv.customer_id
9   group by cu.country
10  order by Count_of_invoices desc
11  limit 5
```

Data Output   Messages   Notifications

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

Q3: Which artists have top 3 values of total invoice?

SQL Query

- ➢ SELECT MAX(ar.artist_id) as artist_id, MAX(ar.name) as artist_name,
- ➢ ROUND(CAST(SUM(inv.total) AS numeric), 2) as Total_invoice_value
- ➢ FROM invoice AS inv
- ➢ JOIN invoice_line ON inv.invoice_id = invoice_line.invoice_id
- ➢ JOIN track ON invoice_line.track_id = track.track_id
- ➢ JOIN album ON track.album_id = album.album_id
- ➢ JOIN artist AS ar ON album.artist_id = ar.artist_id
- ➢ GROUP BY ar.name
- ➢ ORDER BY Total_invoice_value DESC LIMIT 3

Data Output

Dashboard   Properties   SQL   Statistics   Dependencies   Dependents   Processes   Music_Store_Data_Analysis/postgres@PostgreSQL 16*

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q3. Which artists have top 3 values of total invoice?
5
6   SELECT MAX(ar.artist_id) as artist_id, MAX(ar.name) as artist_name,
7   ROUND(CAST(SUM(inv.total) AS numeric), 2) as Total_invoice_value
8   FROM invoice AS inv
9   JOIN invoice_line ON inv.invoice_id = invoice_line.invoice_id   --Joined with linked table
10  JOIN track ON invoice_line.track_id = track.track_id            --Joined with linked table
11  JOIN album ON track.album_id = album.album_id                   --Joined with linked table
12  JOIN artist AS ar ON album.artist_id = ar.artist_id             --Joined with linked table
13  GROUP BY ar.name
14  ORDER BY Total_invoice_value DESC LIMIT 3
```

Data Output   Messages   Notifications

	artist_id text	artist_name text	total_invoice_value numeric
1	94	Jimi Hendrix	2623.50
2	51	Queen	2269.08
3	127	Red Hot Chili Peppers	1484.01

Q4: Which 3 cities have 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 3 cities that have the highest sum of invoice totals. Return both the city name & sum of all invoice totals?

SQL Query

- ➤ select max(cu.city) as City_Name,
- ➤ round(cast(sum(inv.total)as numeric),2) as Total_Invoice from invoice as inv
- ➤ join customer as cu on inv.customer_id = cu.customer_id
- ➤ group by cu.city
- ➤ order by Total_Invoice Desc
- ➤ limit 3

Data Output

| | Dashboard | Properties | SQL | Statistics | Dependencies | Dependents | Processes | Music_Store_Data_Analysis/postgres@PostgreSQL 16* |

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q4. Which 3 cities have the best customers?
5   -- We would like to throw a promotional Music Festival in the city we made the most money.
6   -- Write a query that returns 3 cities that have the highest sum of invoice totals.
7   -- Return both the city name & sum of all invoice totals?
8
9   select max(cu.city) as City_Name,
10  round(cast(sum(inv.total)as numeric),2) as Total_Invoice from invoice as inv
11  join customer as cu on inv.customer_id = cu.customer_id
12  group by cu.city
13  order by Total_Invoice Desc
14  limit 3
```

Data Output   Messages   Notifications

	city_name text	total_invoice numeric
1	Prague	273.24
2	Mountain View	169.29
3	London	166.32

Question 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 Query

- select cu.customer_id, cu.city, cu.country, cu.email, cu.phone,
- cu.first_name || '' || cu.last_name as full_name,
- round(cast(sum(inv.total)as numeric),2) as Total_Invoice from invoice as inv
- join customer as cu on inv.customer_id = cu.customer_id
- GROUP BY cu.customer_id
- order by Total_Invoice Desc
- limit 3

Data Output

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q5. Who is the best customer? The customer who has spent the most money will be declared the best customer.
5   -- Write a query that returns the person who has spent the most money.
6
7   select cu.customer_id, cu.city, cu.country, cu.email, cu.phone,
8   cu.first_name || ' ' || cu.last_name as full_name,
9   round(cast(sum(inv.total)as numeric),2) as Total_Invoice from invoice as inv
10  join customer as cu on inv.customer_id = cu.customer_id
11  GROUP BY cu.customer_id
12  order by Total_Invoice Desc
13  limit 3
14
```

Data Output   Messages   Notifications

customer_id [PK] integer	city character varying (50)	country character varying (50)	email character varying (50)	phone character varying (50)	full_name text	total_invoice numeric
5	Prague	Czech Republic	r.madhav@jetbrains.com	+420 2 4172 5555	R Madhav	144.54
6	Prague	Czech Republic	hholy@gmail.com	+420 2 4177 0449	Helena Holý	128.70
46	Dublin	Ireland	hughoreilly@apple.ie	+353 01 6792424	Hugh O'Reilly	114.84

Question Set 2 – Moderate (3 Questions)

Q6: Write 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 Query

- ➢ SELECT distinct cu.email, cu.first_name || '' || cu.last_name as Full_Name,
- ➢ genre.name, cu.country,cu.phone,cu.address
- ➢ FROM customer AS cu
- ➢ Join invoice as inv on cu.customer_id = inv.customer_id
- ➢ JOIN invoice_line ON inv.invoice_id = invoice_line.invoice_id
- ➢ JOIN track ON invoice_line.track_id = track.track_id
- ➢ JOIN genre ON track.genre_id = genre.genre_id
- ➢ where genre.name in ('Rock')
- ➢ ORDER BY cu.email

Data Output

pard   Properties   SQL   Statistics   Dependencies   Dependents   Processes   🗄 Music_Store_Data_Analysis/postgres@PostgreSQL 16*   ⟩_ Music_Stor...

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q6. Write query to return the email, first name, last name, & Genre of all Rock Music listeners.
5   -- Return your list ordered alphabetically by email starting with A?
6
7   SELECT distinct cu.email, cu.first_name || ' ' || cu.last_name as Full_Name,
8   genre.name, cu.country,cu.phone,cu.address
9   FROM customer AS cu
10  Join invoice as inv on cu.customer_id = inv.customer_id
11  JOIN invoice_line ON inv.invoice_id = invoice_line.invoice_id
12  JOIN track ON invoice_line.track_id = track.track_id
13  JOIN genre ON track.genre_id = genre.genre_id
14  where genre.name in ('Rock')
15  ORDER BY cu.email
```

Data Output   Messages   Notifications

	email character varying (50)	full_name text	name character varying (120)	country character varying (50)	phone character varying (50)	address character varying (120)
1	aaronmitchell@yahoo.ca	Aaron Mitchell	Rock	Canada	+1 (204) 452-6452	696 Osborne Street
2	alero@uol.com.br	Alexandre Rocha	Rock	Brazil	+55 (11) 3055-3278	Av. Paulista, 2022
3	astrid.gruber@apple.at	Astrid Gruber	Rock	Austria	+43 01 5134505	Rotenturmstraße 4, 1010 Innere Stadt

Q7: 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 Query

- select ar.artist_id, ar.name , count(ge.name) as Count_of_rock_music
- from artist as ar
- join album as al on al.artist_id = ar.artist_id
- join track as tr on tr.album_id = al.album_id
- join genre as ge on ge.genre_id = tr.genre_id
- where ge.name like 'Rock'
- group by ar.name, ar.artist_id
- order by Count_of_rock_music desc
- limit 10

Data Output

Dashboard   Properties   SQL   Statistics   Dependencies   Dependents   Processes   Music_Store_D...   Music_Store_Data_Analysis/postgres@PostgreSQL

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q7. Let's invite the artists who have written the most rock music in our dataset.
5   -- Write a query that returns the Artist name and total track count of the top 10 rock bands?
6
7   select ar.artist_id, ar.name , count(ge.name) as Count_of_rock_music
8   from artist as ar
9   join album as al on al.artist_id = ar.artist_id
10  join track as tr on tr.album_id = al.album_id
11  join genre as ge on ge.genre_id = tr.genre_id
12  where ge.name like 'Rock'
13  group by ar.name, ar.artist_id
14  order by Count_of_rock_music desc
15  limit 10
```

Data Output   Messages   Notifications

	artist_id [PK] character varying (50)	name character varying (120)	count_of_rock_music bigint
1	22	Led Zeppelin	114
2	150	U2	112
3	58	Deep Purple	92

Q8: 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 Query

- ➢ SELECT name, milliseconds, bytes, unit_price
- ➢ FROM track
- ➢ WHERE milliseconds > (SELECT AVG(milliseconds) FROM track)
- ➢ ORDER BY milliseconds DESC
- ➢ limit 5

Data Output

| Dashboard | Properties | SQL | Statistics | Dependencies | Dependents | Processes | Music_Store_D... | Music_Store_Data_Analysis/postgres@PostgreSQL |

Music_Store_Data_Analysis/postgres@PostgreSQL 16

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q8. Return all the track names that have a song length longer than the average song length.
5   -- Return the Name and Milliseconds for each track. Order by the song length with the longest songs listed first?
6
7   SELECT name, milliseconds, bytes, unit_price
8   FROM track
9   WHERE milliseconds > (SELECT AVG(milliseconds) FROM track)
10  ORDER BY milliseconds DESC
11  limit 5
```

Data Output   Messages   Notifications

	name character varying (150)	milliseconds integer	bytes integer	unit_price double precision
1	Occupation / Precipice	5286953	1054423946	1.99
2	Through a Looking Glass	5088838	1059546140	1.99
3	Greetings from Earth, Pt...	2960293	536824558	1.99
4	The Man With Nine Lives	2956998	577829804	1.99
5	Battlestar Galactica, Pt. 2	2956081	521387924	1.99

Question Set 3 - Advance (3 Questions)

Q9: Find how much amount spent by each customer on best-selling artists? Write a query to return customer name, artist name and total spent?

SQL Query

- ➤ with best_selling_artist as(
  - o select art.artist_id, art.name, round(cast(sum(invl.unit_price*invl.quantity) as numeric),2)
  - o as total_invoice from invoice as inv
  - o join invoice_line as invl on invl.invoice_id = inv.invoice_id
  - o join track as trk on trk.track_id = invl.track_id
  - o join album as alb on alb.album_id = trk.album_id
  - o join artist as art on art.artist_id = alb.artist_id
  - o group by 1,2
  - o order by 3 Desc
  - o limit 1)
- ➤ Select cu.customer_id, cu.first_name || ' ' || cu.last_name as Full_Name_of_Customer,
- ➤ max(art.name) as Artist_Name, max(art.artist_id) as artist_id, round(cast(sum(invl.quantity*invl.unit_price) as numeric),2)
- ➤ as total_incoice from customer as cu
- ➤ join Invoice as inv on inv.customer_id = cu.customer_id
- ➤ join invoice_line as invl on invl.invoice_id = inv.invoice_id
- ➤ join track as trk on trk.track_id = invl.track_id
- ➤ join album as alb on alb.album_id = trk.album_id
- ➤ join best_selling_artist as art on art.artist_id = alb.artist_id
- ➤ group by 1,2
- ➤ order by 5 Desc

Data Output

Q10: 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 quantity 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 Query (This can be solve with the help of RowNumber() & RECURSIVE Query)

- with Popular_music_genre as (
  - select inv.billing_country as country ,pmg.name as genre, count(invl.quantity) as count_of_purchase
  - from invoice as inv join invoice_line as invl on invl.invoice_id = inv.invoice_id
  - join track as tr on tr.track_id = invl.track_id
  - join genre as pmg on pmg.genre_id = tr.genre_id
  - group by 1,2
  - order by 3 desc)
- select pmg.country as Country, pmg.genre as Genere,
- max(pmg.count_of_purchase) as Highest_purchase_of_country
- from Popular_music_genre as pmg
- join (select pmg.country as gof_name, max(pmg.count_of_purchase) as purchase
  - from Popular_music_genre as pmg group by 1)
- as gof on gof.gof_name = pmg.country
- where pmg.count_of_purchase = gof.purchase
- group by 1,2
- order by 3 Desc

Data Output

Dashboard Properties SQL Statistics Dependencies Dependents Processes 🛢 Music_Store_Data_Analysis/postgres@PostgreSQL 16*

Music_Store_Data_Analysis/postgres@PostgreSQL 16   No limit

Query   Query History

```sql
1  -- SQL Project by Navjoth Singh
2  -- Music Store Data Analysis
3
4  -- Q10. We want to find out the most popular music Genre for each country.
5  -- We determine the most popular genre as the genre with the highest quantity of purchases.
6  -- Write a query that returns each country along with the top Genre.
7  -- For countries where the maximum number of purchases is shared return all Genres?
8
9  with Popular_music_genre as (
10     select inv.billing_country as country ,pmg.name as genre, count(invl.quantity) as count_of_purchase
11     from invoice as inv join invoice_line as invl on invl.invoice_id = inv.invoice_id
12     join track as tr on tr.track_id = invl.track_id
13     join genre as pmg on pmg.genre_id = tr.genre_id
```

Data Output   Messages   Notifications

	country character varying (30)	genere character varying (120)	highest_purchase_of_country bigint
1	USA	Rock	561
2	Canada	Rock	333
3	France	Rock	211
4	Brazil	Rock	205

Q11: 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 Query

- ➤ with Popular_music_genre as (
  - o select Sum(invl.unit_price*invl.quantity) as money_spend ,
  - o cu.first_name || ' ' || cu.last_name as full_name,
  - o cu.country,cu.customer_id, Row_Number() Over(partition by cu.country
  - o order by Sum(invl.unit_price*invl.quantity) Desc) as Row_No
  - o from customer as cu join invoice as inv on cu.customer_id = inv.customer_id
  - o join invoice_line as invl on invl.invoice_id = inv.invoice_id
  - o group by 2,3,4
  - o order by 2 Asc, 1 Desc)
- ➤ select * from Popular_music_genre as pmg
- ➤ where Row_No = 1
- ➤ order by pmg.money_spend Desc

Data Output

Dashboard Properties SQL Statistics Dependencies Dependents Processes   Music_Store_Data_Analysis/postgres@PostgreSQL 16*

Music_Store_Data_Analysis/postgres@PostgreSQL 16

No limit

Query   Query History

```
1   -- SQL Project by Navjoth Singh
2   -- Music Store Data Analysis
3
4   -- Q11. Write a query that determines the customer that has spent the most on music for each country.
5   -- Write a query that returns the country along with the top customer and how much they spent.
6   -- For countries where the top amount spent is shared, provide all customers who spent this amount?
7
8   with Popular_music_genre as (
9       select Sum(invl.unit_price*invl.quantity) as money_spend ,
10      cu.first_name || ' ' || cu.last_name as full_name,
11      cu.country,cu.customer_id, Row_Number() Over(partition by cu.country
12      order by Sum(invl.unit_price*invl.quantity) Desc) as Row_No
13      from customer as cu join invoice as inv on cu.customer_id = inv.customer_id
```

Data Output   Messages   Notifications

	money_spend double precision	full_name text	country character varying (50)	customer_id [PK] integer	row_no bigint
1	144.53999999999985	R Madhav	Czech Republic	5	1
2	114.83999999999978	Hugh O'Reilly	Ireland	46	1
3	111.86999999999979	Manoj Pareek	India	58	1
4	108.8999999999998	Luís Gonçalves	Brazil	1	1

Schema Relationship Diagram Between 11 Tables
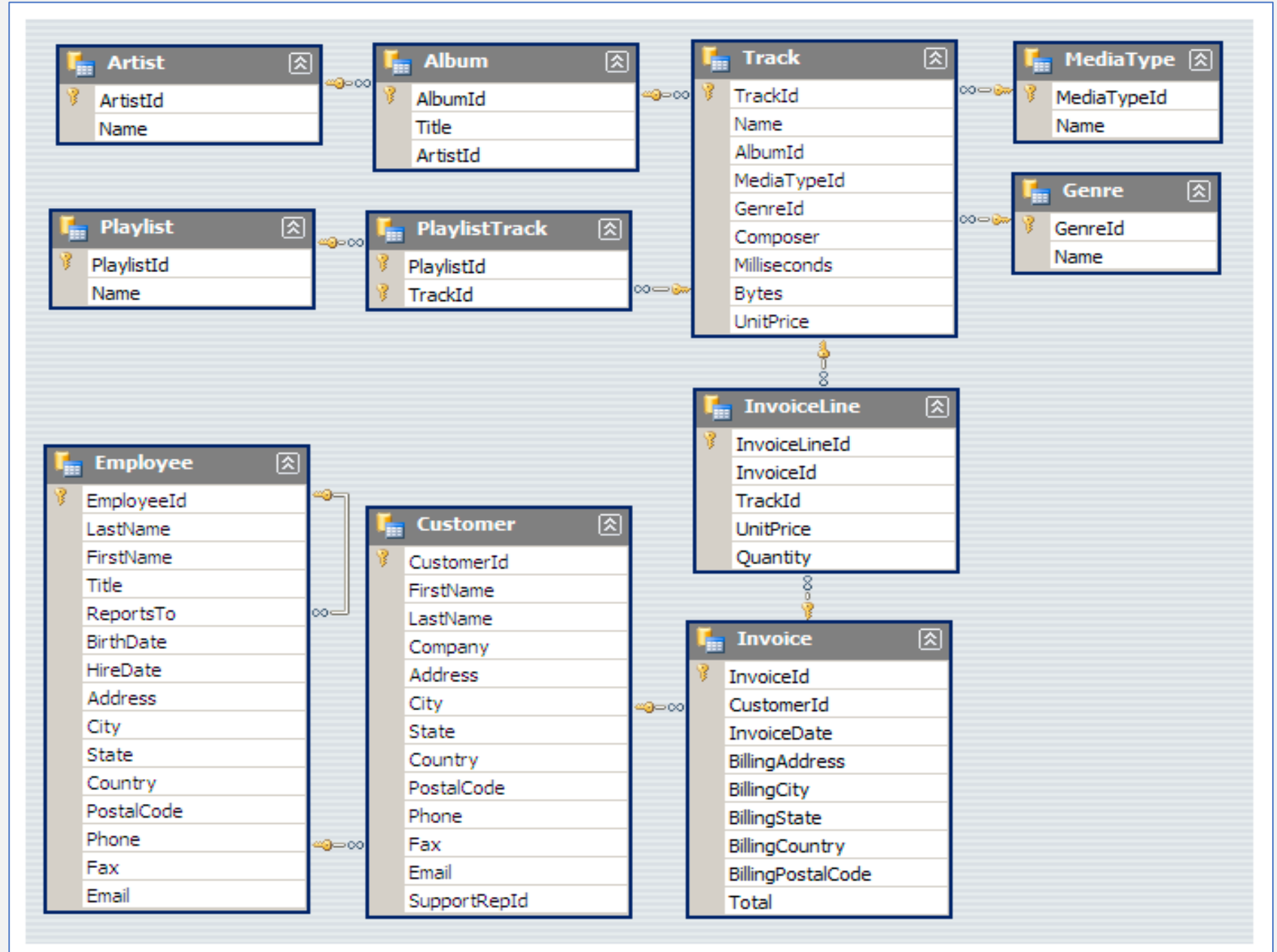
Question Set 1 - Easy

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

2. Which countries have the most Invoices?

3. Which artists have top 3 values of total invoice?

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?

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?

Question Set 2 – Moderate

6. Write 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?

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?

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?

Question Set 3 – Advance

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

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 Quantity 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?

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?