Question Set A: level-I

Question 1: *Who is the most senior employee based on job title?*

❖ **Query-**

Select * from employee
Order by levels desc
limit 1

➢ **Conclusion:** Senior General Manager- Madan Mohan, employee id-9, DOB:1961-01-26

Question 2: *Which Country has most number of invoices?*

❖ **Query-**

Select Count(*), billing_country
From invoice
group by billing_country
order by billing_country desc

➢ **Conclusion:** USA with count of 131.

Question 3: *What are top the 3 values of invoices?*

❖ **Query-**

Select total From invoice
Order by total desc
limit 3

➢ **Conclusion**: 23.759, 19.8, 19.8

Question 4: *Which city has the best customers? We would like to throw a promotional Music Festival in the city we made the most money also write a query that returns one city that has the highest sum of Return both the city name & sum of all invoice totals?*

❖ **Query-**

Select Sum(total) as invoice_total, billing_city from invoice
group by billing_city
order by invoice_total desc

➢ **Conclusion:** Prague having invoice total of 273.24

Question 5: *Who is the best customer, The customer who spend more money will be declared the best customer?*

❖ **Query-**

select customer.customer_id, customer.first_name, customer.last_name, sum(invoice.total) as total
from customer
join invoice on customer.customer_id = invoice.customer_id
group by customer.customer_id
order by total desc
limit 1

➢ **Conclusion:** R Madhav, customer id-5, Total spends 144.54$

Question Set B: Moderate level Type

✚ **Question 1:** *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 upto 3 names?*

❖ **Query-**

```
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;
```

➢ **Conclusion:** Aaron Mitchell, email id-aaronmitchell@yahoo.ca
Alexandre Rocha, email id- alero@uol.com.br
Astrid Gruber, email id- astrid.gruber@apple.at

✚ **Question 2:** *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?*

❖ Query-

```
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;
```

➢ **Conclusion:** "Led Zeppelin" with 114 rock music

✚ **Question 3:** *Return all the track names that have a song length longer than the average song length. Return the Name and millisecond for each track. Order by the song length with the longest first?*

❖ **Query-**

```
select name, milliseconds
from track
where milliseconds > (select avg(milliseconds) as avg_track_length
from track)
order by milliseconds desc;
```

➢ **Conclusion:** "Occupation / Precipice", track length 5286953 milliseconds

Question Set C: Advance level Type

Question 1: *Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent? Write top spender name?*

❖ Query-

```
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;
```

➢ **Conclusion:** "Hugh O'Reilly", Customer id- 46, "Artist name- Queen", Amount spends- 27.719$

Question 2: *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? Write about USA?*

❖ Query-method 1:

```
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
```

❖ **Query-method 2:**

```
with recursive
sales_per_country as(
select count(*) as purchases_per_genre, customer.country, genre.name, genre.genre_id
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
),
max_genre_per_country as (select max (purchases_per_genre) as max_genre_number, country
from sales_per_country
group by 2
order by 2)
select sales_per_country.*
from sales_per_country
join max_genre_per_country on sales_per_country.country = max_genre_per_country.country
where sales_per_country.purchases_per_genre = max_genre_per_country.max_genre_number
```

➢ **Conclusion:** "USA", "Music Genre- Rock", "561- Purchases"

⊥ **Question 3:** *Write a query that determines the customer that has on music for each country? Write a query that returns the with the top customer and how much they spent? For country the top amount spent is shared, provide all customers with amount? Write about Argentina ?*

❖ **Query-method 1:**

```
With recursive
customer_with_country as (
select customer.customer_id,first_name,last_name, billing_country, SUM(total) as total_spending
from invoice
join customer on customer.customer_id = invoice.customer_id
group by 1,2,3,4
order by 1,5 desc),

country_max_spending as(
select billing_country, max(total_spending) as max_spending
from customer_with_country
group by billing_country)

select cc.billing_country, cc.total_spending, cc.first_name, cc.last_name, cc.customer_id
from customer_with_country cc

join country_max_spending ms on cc.billing_country = ms.billing_country
where cc.total_spending = ms.max_spending
order by 1;
```

❖ **Query- method 2:**

```
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
```

➢ **Conclusion:** "Diego Gutiérrez ", Customer id-56, "Country-Argentina", Total Spending of 39.6$