/\*  Question Set 1 - Easy \*/

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

SELECT Top 1 title, last\_name, first\_name

FROM employee

ORDER BY levels DESC

/\* Q2: Which top 5 countries have the most Invoices? \*/

SELECT Top 5 COUNT(\*) AS c, billing\_country

FROM invoice

GROUP BY billing\_country

ORDER BY c DESC

/\* Q3: What are top 2 values of total invoice? \*/

SELECT Top 2 total

FROM invoice

ORDER BY total DESC

/\* Q4: Which 2 cities has the best customers? We would like to throw a promotional Music Festival in these cities we made the most money.

Write a query that returns two cities that has the highest sum of invoice totals.

Return both the cities name & sum of all invoice totals \*/

SELECT Top 2 billing\_city,SUM(total) AS InvoiceTotal

FROM invoice

GROUP BY billing\_city

ORDER BY InvoiceTotal DESC

;

/\* Q5: 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.\*/

SELECT Top 2

    c.first\_name,

    c.last\_name,

    c.customer\_id,

    SUM(i.total) AS total\_spending

FROM

    customer c

JOIN

    invoice i ON c.customer\_id = i.customer\_id

GROUP BY

    c.first\_name,

    c.last\_name,

    c.customer\_id

ORDER BY

    total\_spending DESC;

/\* Question Set 2 - Moderate \*/

/\* Q1: 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. \*/

/\*Method 1 \*/

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;

/\* Method 2 \*/

SELECT DISTINCT email AS Email,first\_name AS FirstName, last\_name AS LastName, genre.name AS Name

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;

/\* Q2: 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. \*/

SELECT Top 10 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, artist.name

ORDER BY number\_of\_songs DESC

;

/\* Q3: 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. \*/

SELECT name,milliseconds

FROM track

WHERE milliseconds > (

    SELECT AVG(milliseconds) AS avg\_track\_length

    FROM track )

ORDER BY milliseconds DESC;

/\* Question Set 3 - Advance \*/

/\* Q1: Find how much amount spent by each customer on artists? Write a query to return customer name, artist name and total spent \*/

/\* Steps to Solve: First, find which artist has earned the most according to the InvoiceLines. Now use this artist to find

which customer spent the most on this artist. For this query, you will need to use the Invoice, InvoiceLine, Track, Customer,

Album, and Artist tables. Note, this one is tricky because the Total spent in the Invoice table might not be on a single product,

so you need to use the InvoiceLine table to find out how many of each product was purchased, and then multiply this by the price

for each artist. \*/

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 (

    SELECT Top 1

        artist.artist\_id AS artist\_id,

        artist.name AS artist\_name

    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

        artist.artist\_id, artist.name

    ORDER BY

        SUM(invoice\_line.unit\_price \* invoice\_line.quantity) DESC

) bsa ON bsa.artist\_id = alb.artist\_id

GROUP BY

    c.customer\_id,

    c.first\_name,

    c.last\_name,

    bsa.artist\_name

ORDER BY

    amount\_spent DESC;

/\* Q2: 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. \*/

/\* Steps to Solve:  There are two parts in question- first most popular music genre and second need data at country level. \*/

/\* Method 1: Using CTE \*/

WITH popular\_genre AS

(

    SELECT

        COUNT(invoice\_line.quantity) AS purchases,

        customer.country,

        genre.name AS 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

        customer.country,

        genre.name,

        genre.genre\_id

)

SELECT

    purchases,

    country,

    genre\_name,

    genre\_id

FROM

    popular\_genre

WHERE

    RowNo = 1;

/\* Method 2: : Using Recursive \*/

WITH 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

        customer.country,

        genre.name,

        genre.genre\_id

),

max\_genre\_per\_country AS (

    SELECT

        MAX(purchases\_per\_genre) AS max\_genre\_number,

        country

    FROM

        sales\_per\_country

    GROUP BY

        country

)

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

ORDER BY

    sales\_per\_country.country, sales\_per\_country.purchases\_per\_genre DESC;

/\* Q3: 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. \*/

/\* Steps to Solve:  Similar to the above question. There are two parts in question-

first find the most spent on music for each country and second filter the data for respective customers. \*/

/\* Method 1: using CTE \*/

WITH Customter\_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

        customer.customer\_id,

        first\_name,

        last\_name,

        billing\_country

),

Top\_Customers\_Per\_Country AS (

    SELECT

        \*,

        ROW\_NUMBER() OVER(PARTITION BY billing\_country ORDER BY total\_spending DESC) AS RowNum

    FROM

        Customter\_with\_country

)

SELECT

    customer\_id,

    first\_name,

    last\_name,

    billing\_country,

    total\_spending

FROM

    Top\_Customers\_Per\_Country

WHERE

    RowNum = 1;

/\* Thank You :) \*/