

Question Set 1 - Easy

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

QueryQuery History

123

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

Data OutputMessagesNotifications

	first_name character	last_name character	title character varying (50)
1	Mohan	Madan	Senior General Manager

/* Q2: Which countries have the most Invoices? */

QueryQuery History

1234

SELECT COUNT(*) AS c, billing_country
FROM invoice
GROUP BY billing_country
ORDER BY c DESC

Data OutputMessagesNotifications

	c bigint	billing_country character varying (30)
1	131	USA
2	76	Canada
3	61	Brazil
4	50	France
5	41	Germany
6	30	Czech Republic
7	29	Portugal
8	28	United Kingdom
9	21	India
10	13	Chile
11	13	Ireland
12	11	Spain

Total rows: 24 of 24Query complete 00:00:00.133

/* Q3: What are top 3 values of total invoice? */

Query		Query History	
1	SELECT	total, billing_country	
2	FROM	invoice	
3	ORDER BY	total DESC	
4	LIMIT	3	

Data Output		Messages	Notifications
	total double precision		billing_country character varying (30)
1	23.759999999999998		France
2	19.8		Canada
3	19.8		Canada

/* Q4: 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 */

Query		Query History	
1	SELECT	billing_city, SUM(total) as Invoice_Total	
2	FROM	invoice GROUP BY billing_city	
3	ORDER BY	Invoice_Total DESC	
4	LIMIT	1	

Data Output		Messages	Notifications
	billing_city character varying (30)		invoice_total double precision
1	Prague		273.24000000000007

/* 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.*/

Query		Query History	
1	SELECT	customer.customer_id, customer.first_name, customer.last_name,	
2	SUM(invoice.total) AS total	FROM customer	
3	JOIN invoice ON	customer.customer_id = invoice.customer_id	
4	GROUP BY	customer.customer_id	
5	ORDER BY	total DESC	
6	LIMIT	1	

Data Output		Messages	Notifications
	customer_id [PK] integer	first_name character	last_name character
1	5	R	Madhav
			total double precision
			144.54000000000002

/* 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. */

QueryQuery History

1

SELECT DISTINCT email,first_name, last_name FROM customer

2

JOIN invoice ON customer.customer_id = invoice.customer_id

3

JOIN invoice_line ON invoice.invoice_id = invoice_line.invoice_id

4

WHERE track_id IN (

5

SELECT track_id FROM track

6

JOIN genre ON track.genre_id=genre.genre_id

7

WHERE genre.name LIKE 'Rock'

8

)

9

ORDER BY email

Data OutputMessagesNotifications

	email character varying (50)	first_name character	last_name character
1	aaronmitchell@yahoo.ca	Aaron	Mitchell
2	alero@uol.com.br	Alexandre	Rocha
3	astrid.gruber@apple.at	Astrid	Gruber
4	bjorn.hansen@yahoo.no	Bjørn	Hansen
5	camille.bernard@yahoo.fr	Camille	Bernard
6	daan_peeters@apple.be	Daan	Peeters
7	diego.gutierrez@yahoo.ar	Diego	Gutiérrez
8	dmiller@comcast.com	Dan	Miller
9	dominiquelafehyre@gmail.c	Dominique	Lefebvre

/* 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. */

QueryQuery History

1

SELECT artist.artist_id, artist.name,COUNT(artist.artist_id) AS number_of_songs FROM track

2

JOIN album ON album.album_id = track.album_id

3

JOIN artist ON artist.artist_id = album.artist_id

4

JOIN genre ON genre.genre_id = track.genre_id

5

WHERE genre.name LIKE 'Rock'

6

GROUP BY artist.artist_id

7

ORDER BY number_of_songs DESC

8

LIMIT 10;

Data OutputMessagesNotifications

	artist_id [PK] character varying (50)	name character varying (120)	number_of_songs bigint
1	22	Led Zeppelin	114
2	150	U2	112
3	58	Deep Purple	92
4	90	Iron Maiden	81
5	118	Pearl Jam	54
6	152	Van Halen	52
7	51	Queen	45
8	142	The Rolling Stones	41
9	76	Creedence Clearwater Revival	40
10	52	Kiss	35

Total rows: 10 of 10

Query complete 00:00:00.185

/* 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. */

QueryQuery History

1234567

SELECT name, milliseconds
FROM track
WHERE milliseconds > (
SELECT AVG(milliseconds) AS avg_track_length
FROM track)
ORDER BY milliseconds DESC;

Data OutputMessagesNotifications

	name character varying (150)	milliseconds integer
1	Occupation / Precipice	5286953
2	Through a Looking Glass	5088838
3	Greetings from Earth, Pt. 1	2960293
4	The Man With Nine Lives	2956998
5	Battlestar Galactica, Pt. 2	2956081
6	Battlestar Galactica, Pt. 1	2952702
7	Murder On the Rising Star	2935894
8	Battlestar Galactica, Pt. 3	2927802
9	Take the Celestra	2927677
10	Fire In Space	2926593

Total rows: 494 of 494

Query complete 00:00:00.128

/* 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. */

QueryQuery History

1234567891011121314151617181920

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;

Data OutputMessagesNotifications

	customer_id integer	first_name character	last_name character	artist_name character varying (120)	amount_spent double precision
1	46	Hugh	O'Reilly	Queen	27.719999999999985
2	38	Niklas	Schröder	Queen	18.81
3	3	François	Tremblay	Queen	17.82
4	34	João	Fernandes	Queen	16.830000000000002
5	53	Phil	Hughes	Queen	11.88
6	41	Marc	Dubois	Queen	11.88
7	47	Lucas	Mancini	Queen	10.89
8	33	Ellie	Sullivan	Queen	10.89
9	20	Dan	Miller	Queen	3.96
10	5	Madhav	Queen	3.96	
11	23	John	Gordon	Queen	2.9699999999999998
12	54	Steve	Murray	Queen	2.9699999999999998
13	31	Martha	Silk	Queen	2.9699999999999998
14	16	Frank	Harris	Queen	1.98
15	17	Jack	Smith	Queen	1.98

Total rows: 43 of 43Query complete 00:00:00.092

/* 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. */

QueryQuery History

1234567891011121314

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

Data OutputMessagesNotifications

	purchases bigint	country character varying (50)	name character varying (120)	genre_id character varying (50)	rowno bigint
1	17	Argentina	Alternative & Punk	4	1
2	34	Australia	Rock	1	1
3	40	Austria	Rock	1	1
4	26	Belgium	Rock	1	1
5	205	Brazil	Rock	1	1
6	333	Canada	Rock	1	1
7	61	Chile	Rock	1	1
8	143	Czech Republic	Rock	1	1
9	24	Denmark	Rock	1	1
10	46	Finland	Rock	1	1
11	211	France	Rock	1	1
12	194	Germany	Rock	1	1
13	44	Hungary	Rock	1	1
14	102	India	Rock	1	1
15	72	Ireland	Rock	1	1
16	35	Italy	Rock	1	1
17	33	Netherlands	Rock	1	1
18	40	Norway	Rock	1	1
19	40	Poland	Rock	1	1

Total rows: 24 of 24Query complete 00:00:00.189

/* 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. */

QueryQuery History

12345678910111213141516171819

```
WITH RECURSIVE
  customter_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 2,3 DESC),

    country_max_spending AS(
      SELECT billing_country,MAX(total_spending) AS max_spending
      FROM customter_with_country
      GROUP BY billing_country)

  SELECT cc.billing_country, cc.total_spending, cc.first_name, cc.last_name, cc.customer_id
  FROM customter_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;
```

Data OutputMessagesNotifications

	billing_country character varying (30)	total_spending double precision	first_name character		last_name character		customer_id integer
1	Argentina	39.6	Diego	...	Gutiérrez	...	56
2	Australia	81.18	Mark	...	Taylor		55
3	Austria	69.3	Astrid		Gruber	...	7
4	Belgium	60.38999999999999	Daan	...	Peeters	...	8
5	Brazil	108.89999999999998	Luís		Gonçalves	...	1
6	Canada	99.99	François	...	Tremblay	...	3
7	Chile	97.02000000000001	Luis		Rojas		57
8	Czech Republic	144.54000000000002	R		Madhav	...	5
9	Denmark	37.61999999999999	Kara		Nielsen	...	9
10	Finland	79.2	Terhi		Hämäläinen	...	44
11	France	99.99	Wyatt	...	Girard		42
12	Germany	94.05000000000001	Fynn		Zimmermann	...	37
13	Hungary	78.21	Ladislav	...	Kovács	...	45
14	India	111.86999999999999	Manoj	...	Pareek	...	58
15	Ireland	114.83999999999997	Hugh	...	O'Reilly		46

Total rows: 24 of 24Query complete 00:00:00.124