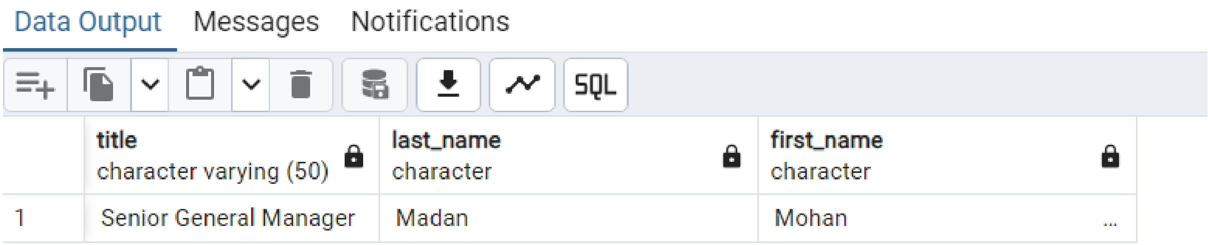
/* Question Set 1 - Beginner */

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

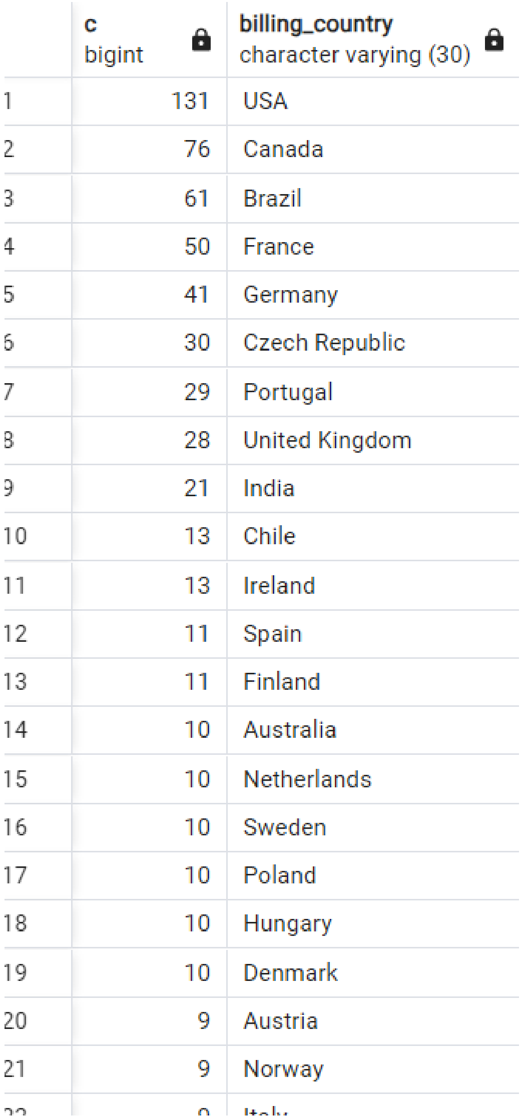
```
SELECT title, last_name, first_name
FROM employee
ORDER BY levels DESC
LIMIT 1
```



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

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

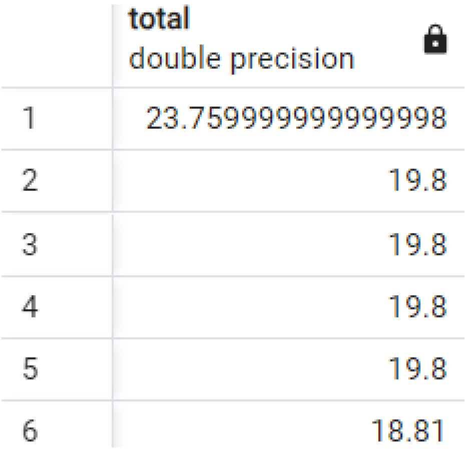
```
SELECT COUNT(*) AS c, billing_country
FROM invoice
GROUP BY billing_country
ORDER BY c DESC
```



	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
13	11	Finland
14	10	Australia
15	10	Netherlands
16	10	Sweden
17	10	Poland
18	10	Hungary
19	10	Denmark
20	9	Austria
21	9	Norway
22	9	Italy

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

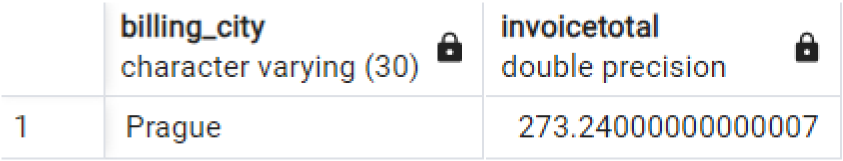
```
SELECT total
FROM invoice
ORDER BY total DESC
```



	total double precision
1	23.759999999999998
2	19.8
3	19.8
4	19.8
5	19.8
6	18.81

/* 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 */

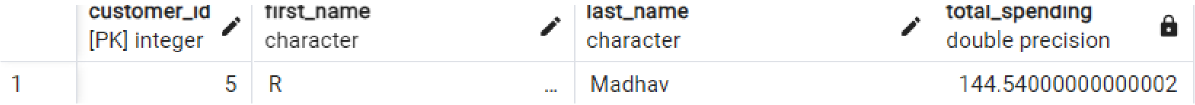
```
SELECT billing_city,SUM(total) AS InvoiceTotal

FROM invoice

GROUP BY billing_city

ORDER BY InvoiceTotal DESC

LIMIT 1;
```



	billing_city character varying (30)	invoicetotal 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.*/

```
SELECT customer.customer_id, first_name, last_name, SUM(total) AS
total_spending
FROM customer
JOIN invoice ON customer.customer_id = invoice.customer_id
GROUP BY customer.customer_id
ORDER BY total_spending DESC
LIMIT 1;
```

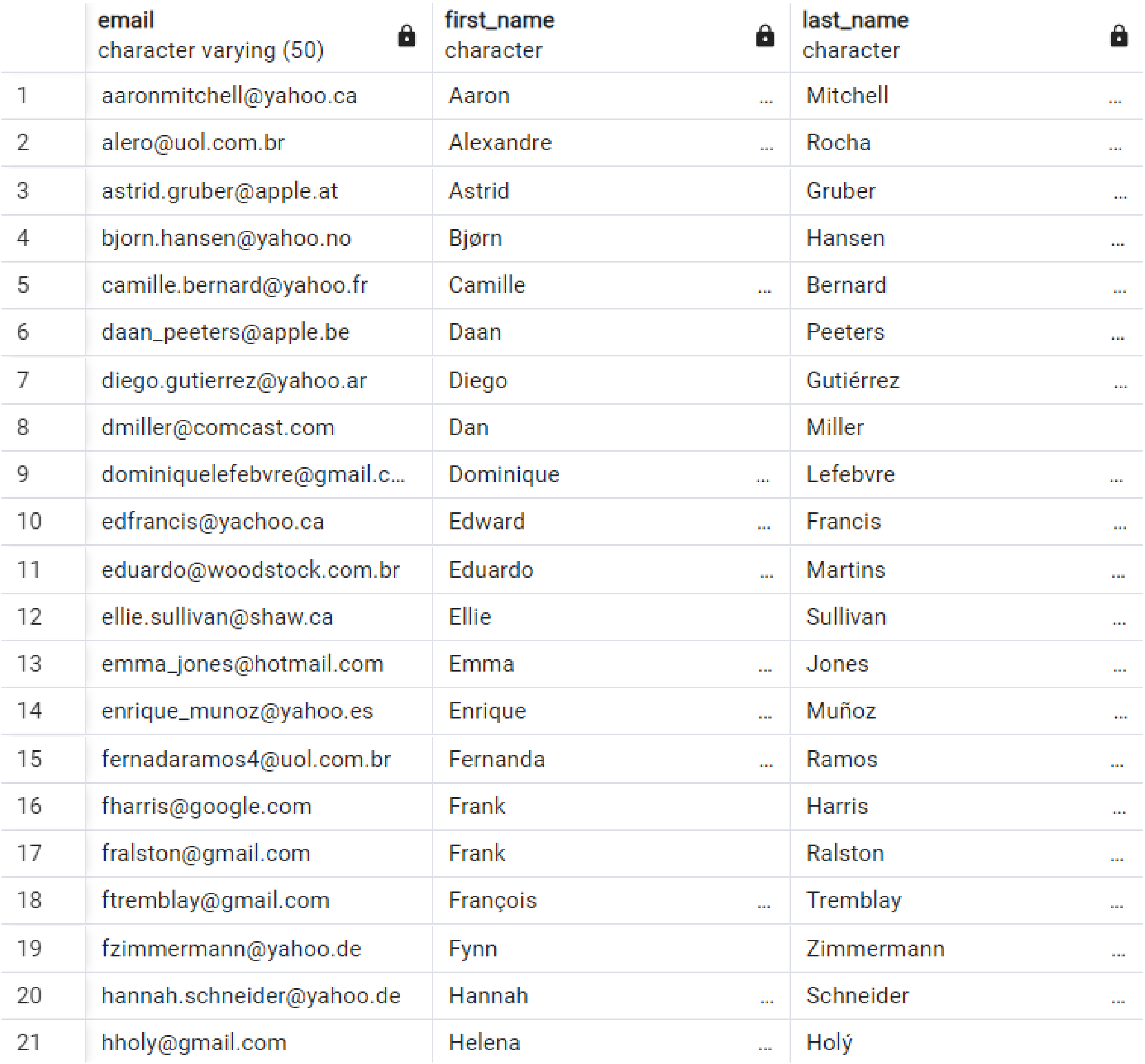


	customer_id [PK] integer	first_name character	last_name character	total_spending double precision
1	5	R ...	Madhav	144.54000000000002

/* 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. */

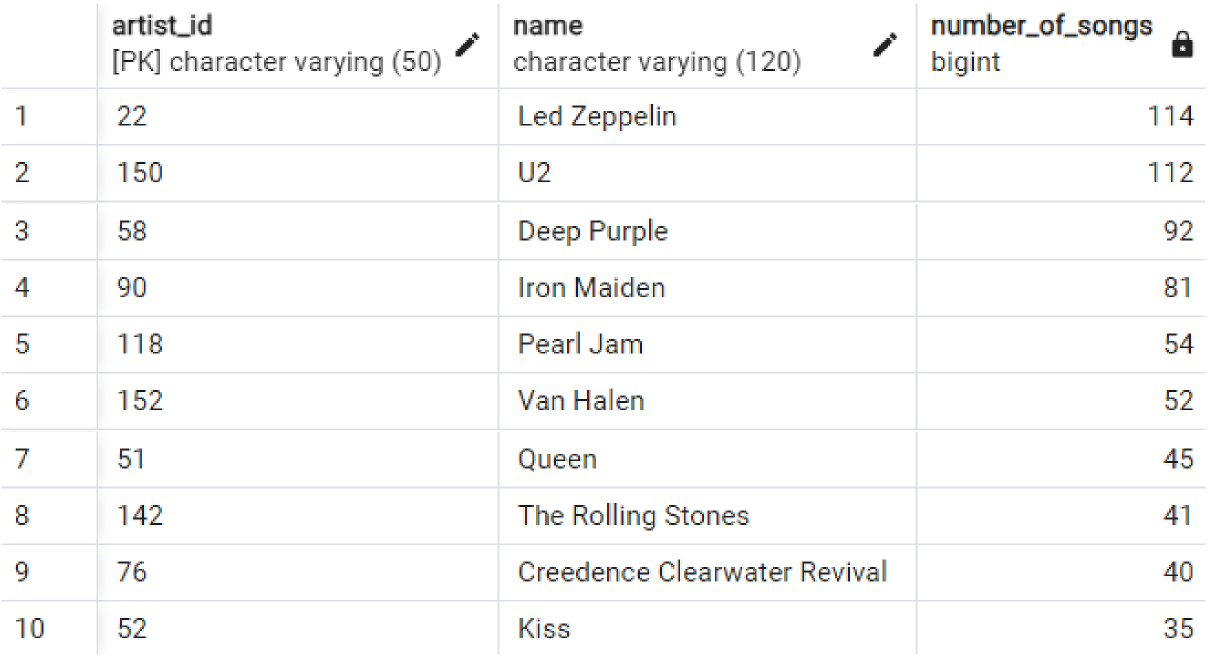
```
SELECT DISTINCT email,first_name, last_name
FROM customer
JOIN invoice ON customer.customer_id = invoice.customer_id
JOIN invoice.line ON invoice.invoice_id = invoiceline.invoice_id
WHERE track_id IN(
        SELECT track_id FROM track
        JOIN genre ON track.genre_id = genre.genre_id
        WHERE genre.name LIKE 'Rock'
)ORDER BY email;
```



	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	dominiquelefebvre@gmail.c...	Dominique	Lefebvre
10	edfrancis@yachoo.ca	Edward	Francis
11	eduardo@woodstock.com.br	Eduardo	Martins
12	ellie.sullivan@shaw.ca	Ellie	Sullivan
13	emma_jones@hotmail.com	Emma	Jones
14	enrique_munoz@yahoo.es	Enrique	Muñoz
15	fernadaramos4@uol.com.br	Fernanda	Ramos
16	fharris@google.com	Frank	Harris
17	fralston@gmail.com	Frank	Ralston
18	ftremblay@gmail.com	François	Tremblay
19	fzimmermann@yahoo.de	Fynn	Zimmermann
20	hannah.schneider@yahoo.de	Hannah	Schneider
21	hholy@gmail.com	Helena	Holý

/* 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. */

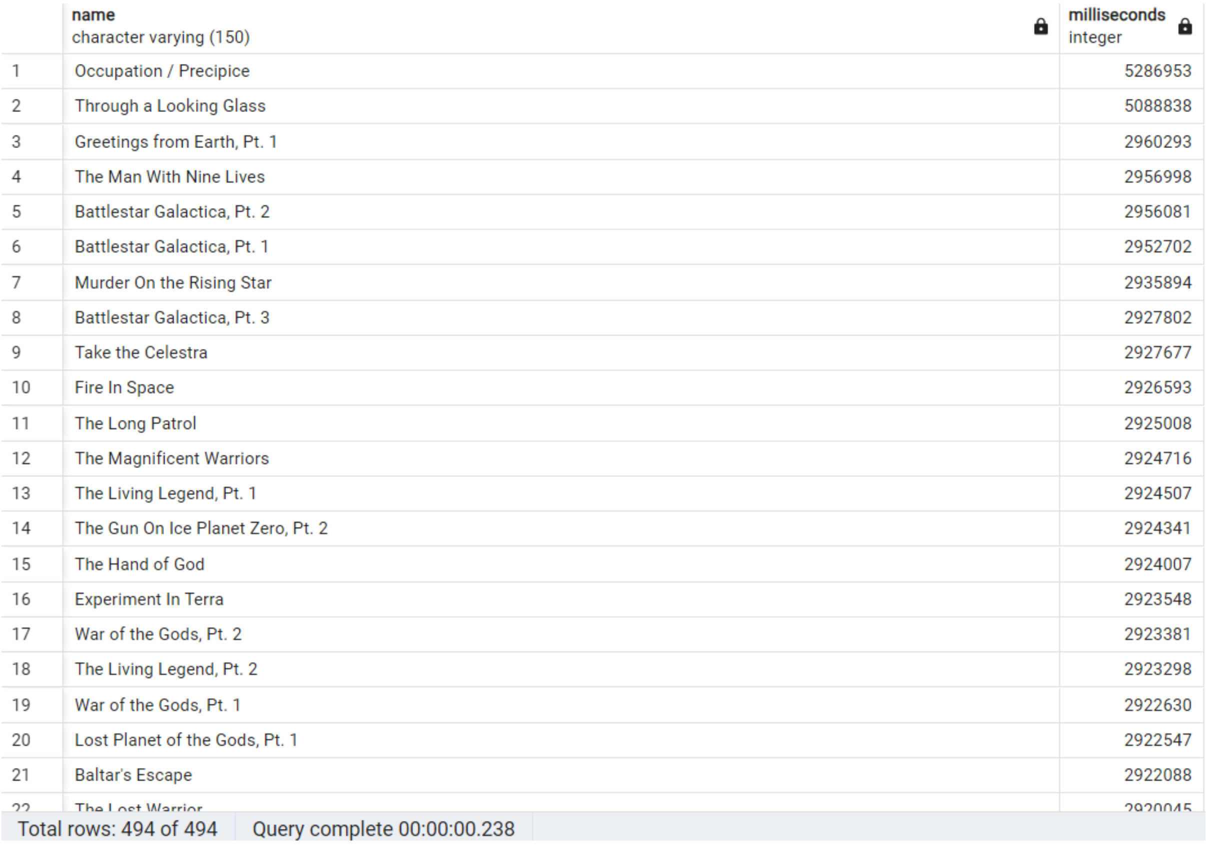
```
SELECT artist.artist_id, artist.name,COUNT(artist.artist_id) AS
number_of_songs

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;
```



	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

/* 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,miliseconds
FROM track
WHERE miliseconds > (
        SELECT AVG(miliseconds) AS avg_track_length
        FROM track )
ORDER BY miliseconds DESC;
```



	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
11	The Long Patrol	2925008
12	The Magnificent Warriors	2924716
13	The Living Legend, Pt. 1	2924507
14	The Gun On Ice Planet Zero, Pt. 2	2924341
15	The Hand of God	2924007
16	Experiment In Terra	2923548
17	War of the Gods, Pt. 2	2923381
18	The Living Legend, Pt. 2	2923298
19	War of the Gods, Pt. 1	2922630
20	Lost Planet of the Gods, Pt. 1	2922547
21	Baltar's Escape	2922088
22	The Lost Warrior	2920045

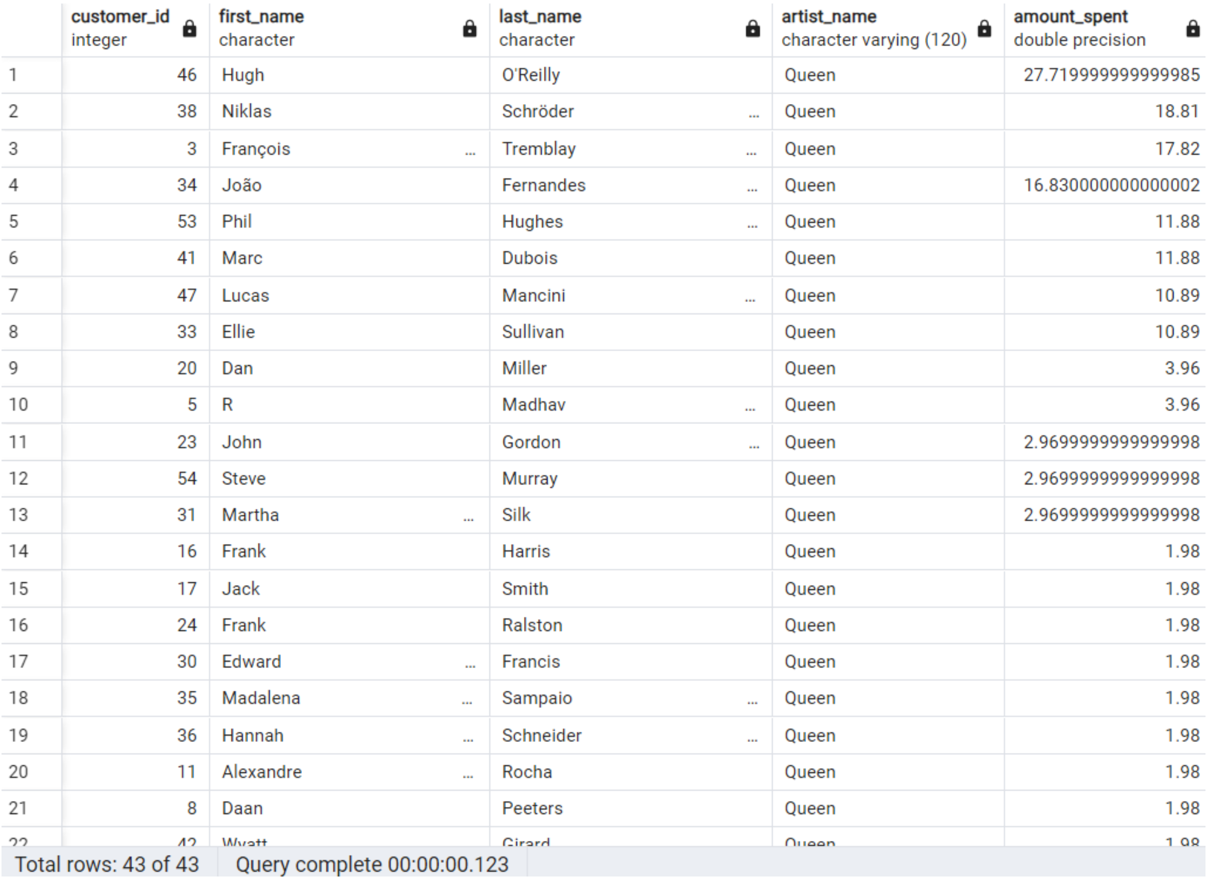
Total rows: 494 of 494   Query complete 00:00:00.238

/* 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 */

```
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;
```



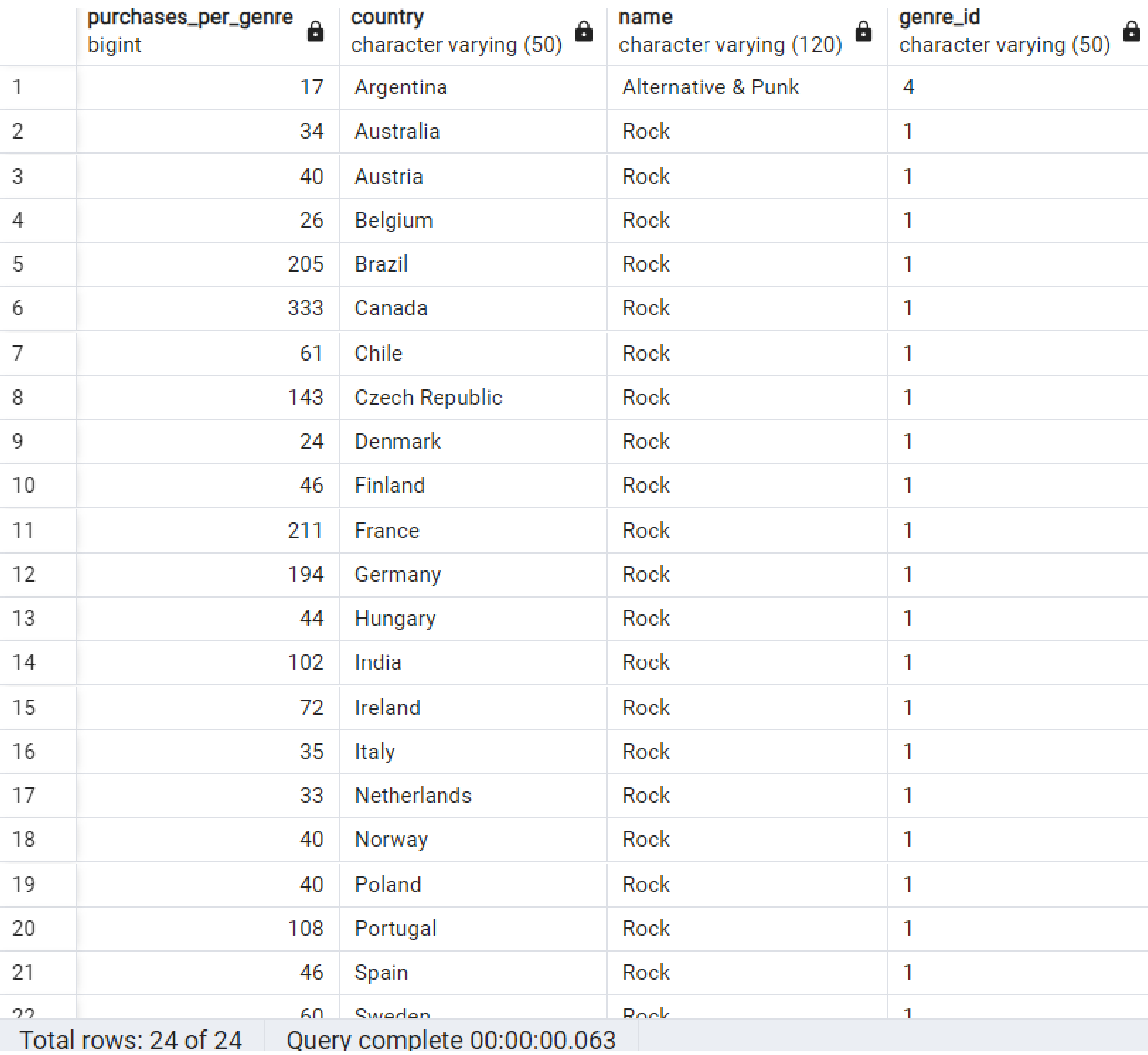
	customer_id integer	first_name character	last_name character	artist_name character varying (120)	amount_spent double precision
1	46	Hugh	O'Reilly	Queen	27.719999999999985
2	38	Niklas	Schröder	Queen	18.81
3	3	François	Tremblay	Queen	17.82
4	34	João	Fernandes	Queen	16.830000000000002
5	53	Phil	Hughes	Queen	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	R	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
16	24	Frank	Ralston	Queen	1.98
17	30	Edward	Francis	Queen	1.98
18	35	Madalena	Sampaio	Queen	1.98
19	36	Hannah	Schneider	Queen	1.98
20	11	Alexandre	Rocha	Queen	1.98
21	8	Daan	Peeters	Queen	1.98
22	42	Wyatt	Girard	Queen	1.98

Total rows: 43 of 43   Query complete 00:00:00.123

/* 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. */

```
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;
```

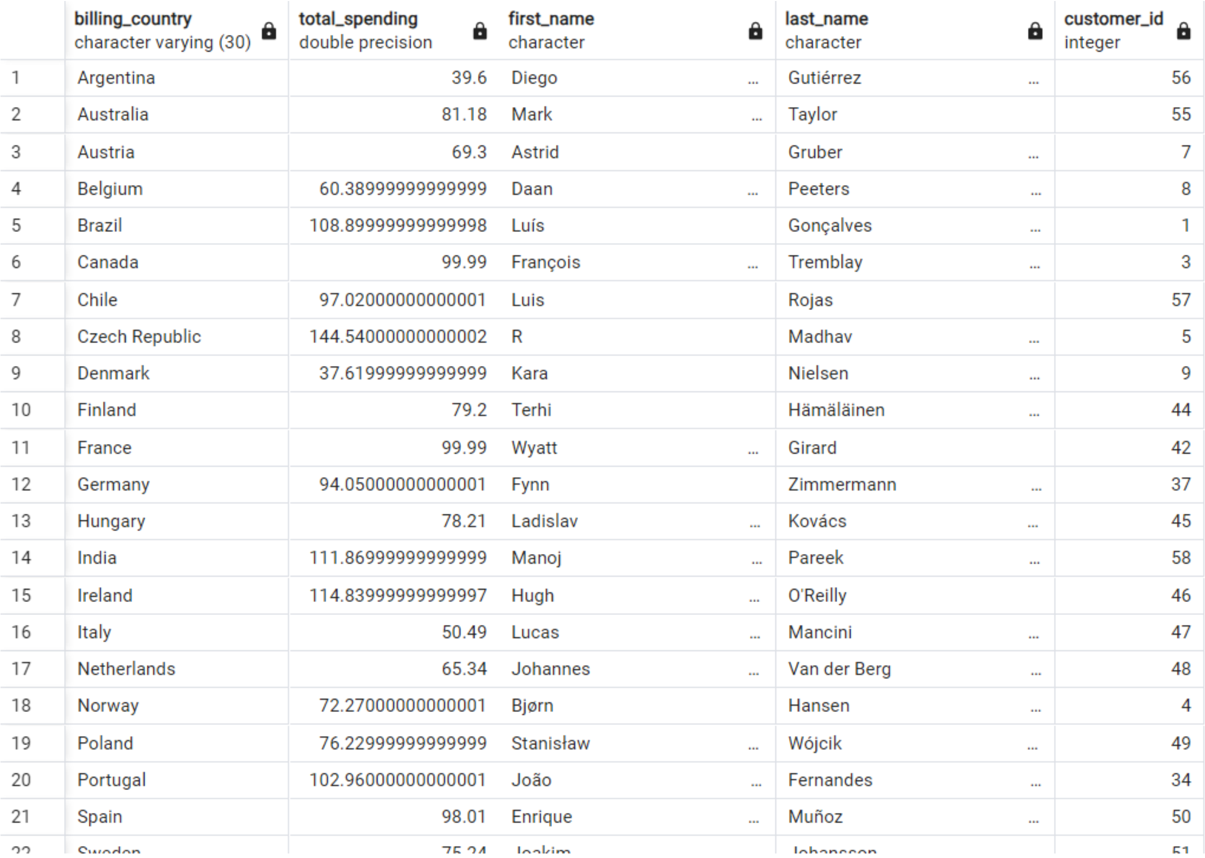


	purchases_per_genre bigint	country character varying (50)	name character varying (120)	genre_id character varying (50)
1	17	Argentina	Alternative & Punk	4
2	34	Australia	Rock	1
3	40	Austria	Rock	1
4	26	Belgium	Rock	1
5	205	Brazil	Rock	1
6	333	Canada	Rock	1
7	61	Chile	Rock	1
8	143	Czech Republic	Rock	1
9	24	Denmark	Rock	1
10	46	Finland	Rock	1
11	211	France	Rock	1
12	194	Germany	Rock	1
13	44	Hungary	Rock	1
14	102	India	Rock	1
15	72	Ireland	Rock	1
16	35	Italy	Rock	1
17	33	Netherlands	Rock	1
18	40	Norway	Rock	1
19	40	Poland	Rock	1
20	108	Portugal	Rock	1
21	46	Spain	Rock	1
22	60	Sweden	Rock	1

Total rows: 24 of 24   Query complete 00:00:00.063

/* 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. */

```
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;
```



	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
16	Italy	50.49	Lucas	Mancini	47
17	Netherlands	65.34	Johannes	Van der Berg	48
18	Norway	72.27000000000001	Bjørn	Hansen	4
19	Poland	76.22999999999999	Stanisław	Wójcik	49
20	Portugal	102.96000000000001	João	Fernandes	34
21	Spain	98.01	Enrique	Muñoz	50
22	Sweden	75.24	Joakim	Johansson	51