Answers 3.7

1. TOP 10 counties by number of customers.

In this query, we need only the number of the customers and the country. So, I used the INNER JOIN function for multiple tables. The primary tables for aggregation are customer and country. However, to link them with a combined key, it's necessary to include all relevant tables in the query. Additionally, we need to group the customers by country and arrange them in descending order. Since we don't require all the records, we limit the output to the top 10. For me, this query was not hard to write and in a very short time, we had only the records and columns we needed for analyses.

```sql
SELECT country, COUNT(customer_id) AS number_customer
FROM customer
INNER JOIN address ON customer.address_id = address.address_id
INNER JOIN city ON address.city_id = city.city_id
INNER JOIN country ON city.country_id = country.country_id
GROUP BY country
ORDER BY COUNT(customer_id) DESC
LIMIT 10
```

Data Output Messages Notifications

	country character varying (50)	number_customer bigint
1	India	60
2	China	53
3	United States	36
4	Japan	31
5	Mexico	30
6	Brazil	28
7	Russian Federation	28
8	Philippines	20
9	Turkey	15
10	Indonesia	14

2. TOP 10 cities by customers.

This query took a little more time than the previous one. Here we needed to leave the same JOIN command and add cities to the query. To show them in the table I added them to the SELECT line and the GROUP BY function. At this point, our table would show all the cities with the biggest number of customers, so to limit it only to our top 10 countries I used WHERE with the IN operator. In this line, I just listed all 10 countries.

```
SELECT country, city, COUNT(customer_id) AS number_customer
FROM customer
INNER JOIN address ON customer.address_id = address.address_id
INNER JOIN city ON address.city_id = city.city_id
INNER JOIN country ON city.country_id = country.country_id
WHERE country IN('India', 'China', 'United States','Japan', 'Mexico', 'Brazil',
                 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')
GROUP BY country, city
ORDER BY COUNT(customer_id) DESC
LIMIT 10
```

Data Output | Messages | Notifications

	country character varying (50)	city character varying (50)	number_customer bigint
1	United States	Aurora	2
2	Mexico	Acua	1
3	United States	Citrus Heights	1
4	Japan	Iwaki	1
5	India	Ambattur	1
6	China	Shanwei	1
7	Brazil	So Leopoldo	1
8	Russian Federation	Teboksary	1
9	China	Tianjin	1
10	Indonesia	Cianjur	1

3. TOP 5 customers from TOP 10 cities that paid the biggest amount.

The last query and of course the most challenging one gives us the output of the top 5 customers that paid the biggest amount to the company. So here we need to use one more table - payment. At first, I wrote what we needed to show on the final table. Customer_id is present in more than one table, so I clarified it with the name of the table and connected it with a comma. Also, I added an alias for the total_amount column and to show the complete amount I used the SUM function. I connected the payment table with the customer_id key and to show the customers only from the top 10 cities I added them in the WHERE line. After that, we needed to make the customer_id column grouped and order the table by the amount. Then the company needed only 5 customers, so I limited the records to 5.

Query | Query History | Scratch Pad

```
SELECT customer.customer_id, first_name, last_name, country, city,
SUM(amount) AS total_amount_paid
FROM customer
INNER JOIN address ON customer.address_id = address.address_id
INNER JOIN city ON address.city_id = city.city_id
INNER JOIN country ON city.country_id = country.country_id
INNER JOIN payment ON customer.customer_id = payment.customer_id
WHERE country IN('India', 'China', 'United States','Japan', 'Mexico', 'Brazil',
                 'Russian Federation', 'Philippines', 'Turkey', 'Indonesia')
                 AND city IN('Aurora', 'Acua', 'Citrus Heights', 'Iwaki', 'Ambattur',
                 'Shanwei', 'So Leopoldo', 'Teboksary', 'Tianjin', 'Cianjur')
GROUP BY customer.customer_id, country, city
ORDER BY SUM(amount) DESC
LIMIT 5
```

Data Output | Messages | Notifications

	customer_id integer	first_name character varying (45)	last_name character varying (45)	country character varying (50)	city character varying (50)	total_amount_paid numeric
1	225	Arlene	Harvey	India	Ambattur	111.76
2	424	Kyle	Spurlock	China	Shanwei	109.71
3	240	Marlene	Welch	Japan	Iwaki	106.77
4	486	Glen	Talbert	Mexico	Acua	100.77
5	537	Clinton	Buford	United States	Aurora	98.76