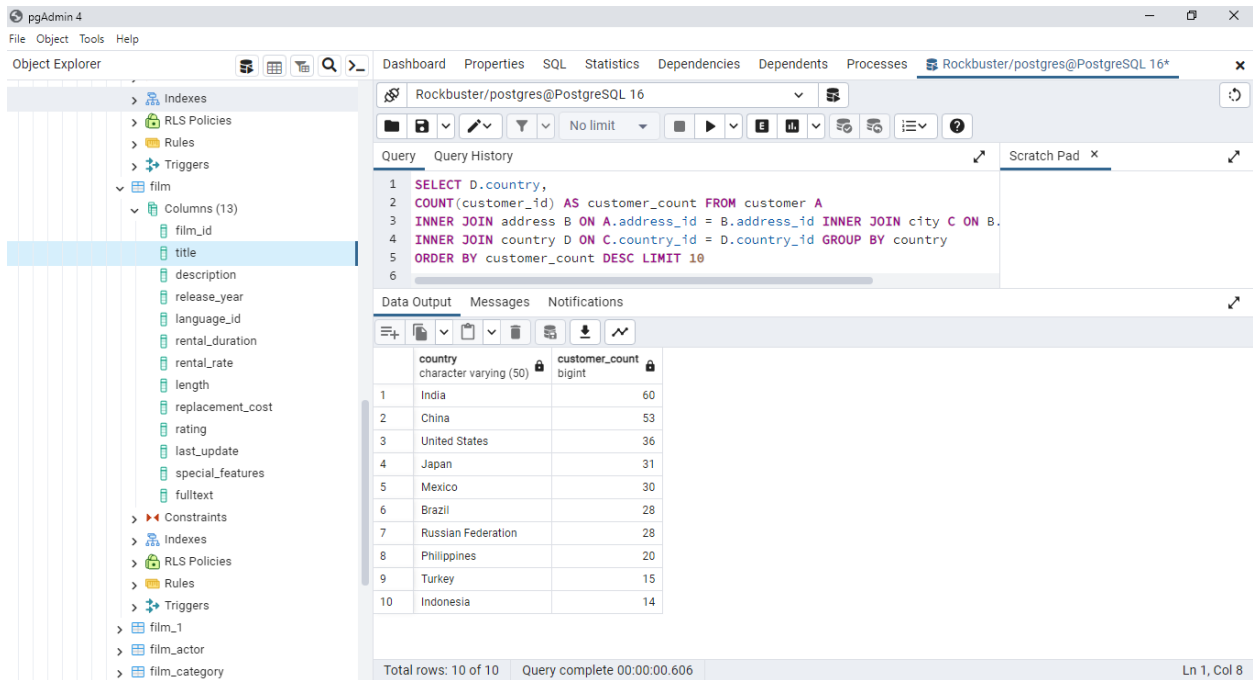


## 3.7: Joining Tables of Data

Step1:



The screenshot shows the pgAdmin 4 interface. On the left, the Object Explorer displays the database structure, with the 'film' table selected. The main pane shows a SQL query in the 'Query' tab. The query is as follows:

```
1 SELECT D.country,  
2 COUNT(customer_id) AS customer_count FROM customer A  
3 INNER JOIN address B ON A.address_id = B.address_id INNER JOIN city C ON B.  
4 INNER JOIN country D ON C.country_id = D.country_id GROUP BY country  
5 ORDER BY customer_count DESC LIMIT 10  
6
```

Below the query, the 'Data Output' tab displays the results of the query. The results are shown in a table with two columns: 'country' and 'customer\_count'.

	country	customer_count
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

At the bottom of the interface, the status bar indicates 'Total rows: 10 of 10' and 'Query complete 00:00:00.606'.

### Explanation:

For this query, I would need country and count of customers. Also I need the count by country which means I need to use GROUP BY. Then, I need to only the top 10 countries, I have to use ORDER BY and LIMIT 10. Then I decided which JOIN to use.

Step2:

```
SELECT D.country,
       C.city,
       COUNT(customer_id) AS customer_count
FROM customer A
      INNER JOIN address B ON A.address_id = B.address_id
      INNER JOIN city C ON B.city_id = C.city_id
      INNER JOIN country D ON C.country_id = D.country_id
WHERE country IN
(
  SELECT D.country
  FROM customer A
        INNER JOIN address B ON A.address_id = B.address_id
        INNER JOIN city C ON B.city_id = C.city_id
        INNER JOIN country D ON C.country_id = D.country_id
  GROUP BY country
  ORDER BY count(customer_id) DESC
  LIMIT 10
)
GROUP BY country, city
ORDER BY customer_count DESC
LIMIT 10
```

## Data Output

	country character varying (50)	city character varying (50)	customer_count 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

### Explanations:

We need to aim to limit the results to the top 10 countries previously identified without hardcoding them. By utilizing the query from the initial question and extracting the country column, you plan to create a list for a more dynamic WHERE clause using "WHERE country IN" instead of hardcoding specific countries. This approach allows for adaptability across different scenarios rather than relying on fixed country names in the query.

Step3:

```
SELECT cstmr3.customer_id,
cstmr3.first_name, cstmr3.last_name, ctry3.country, cty3.city,
SUM(pymnt.amount) AS total_amount_paid FROM payment AS pymnt
INNER JOIN customer AS cstmr3 ON pymnt.customer_id = cstmr3.customer_id INNER JOIN address
AS addr3 ON cstmr3.address_id = addr3.address_id
INNER JOIN city AS cty3 ON addr3.city_id = cty3.city_id
INNER JOIN country AS ctry3 ON cty3.country_id = ctry3.country_id WHERE city IN
(SELECT cty2.city
FROM customer AS cstmr2
INNER JOIN address AS addr2 ON cstmr2.address_id = addr2.address_id INNER JOIN city AS cty2 ON
addr2.city_id = cty2.city_id
INNER JOIN country AS ctry2 ON cty2.country_id = ctry2.country_id WHERE country IN
(SELECT ctry.country FROM customer AS cstmr
INNER JOIN address AS addr ON cstmr.address_id = addr.address_id
INNER JOIN city AS cty ON addr.city_id = cty.city_id
INNER JOIN country AS ctry ON cty.country_id = ctry.country_id GROUP BY country
ORDER BY count(customer_id) DESC LIMIT 10)
GROUP BY country, city
ORDER BY COUNT(customer_id) DESC LIMIT 10)
GROUP BY cstmr3.customer_id,
cstmr3.first_name, cstmr3.last_name, ctry3.country, cty3.city
ORDER BY total_amount_paid DESC LIMIT 5
```

Data Output



	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