

### Ex 3.7 Joining Tables of Data

Write a query to find the top 10 countries for Rockbuster in terms of customer numbers:

```
22 SELECT
23 D.country,
24 COUNT(customer_id) AS Number_of_Customers
25 FROM customer A
26 INNER JOIN address B ON A.address_id = B.address_id
27 INNER JOIN city C ON B.city_id = C.city_id
28 INNER JOIN country D ON C.country_id = D.country_id
29 GROUP BY Country
30 ORDER BY Number_of_customers DESC
31 LIMIT 10
```

Data Output Explain Messages Notifications

	country character varying (50)	number_of_customers 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

```
SELECT
D.country,
COUNT(customer_id) AS Number_of_Customers
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 Number_of_customers DESC
LIMIT 10
```

The request was to find the top 10 countries by number of customers so the 2 columns needed are Country and the count of the customer IDs.

We can get and group the count of customer IDs from the customer table but to get the customer countries, we have to join the customer table to get the city code using the address ID. We can then join the city table to the country table using the city ID to get the country code.

With the joins complete, we can then group the customer ID count by country, sort by the highest count and limit to only show the top 10 countries.

Write a query to find the top 10 cities within the top 10 countries identified in step 1:

```

22 SELECT
23 C.city,
24 D.country,
25 COUNT(customer_id) AS Number_of_Customers
26 FROM customer A
27 INNER JOIN address B ON A.address_id = B.address_id
28 INNER JOIN city C ON B.city_id = C.city_id
29 INNER JOIN country D ON C.country_id = D.country_id
30 WHERE country IN ('India','China','United States','Japan','Mexico','Brazil',
31                  'Russian Federation','Philippines','Turkey','Indonesia')
32 GROUP BY city,country
33 ORDER BY Number_of_Customers DESC
34 LIMIT 10

```

	city character varying (50)	country character varying (50)	number_of_customers bigint
1	Aurora	United States	2
2	Atlixco	Mexico	1
3	Xintai	China	1
4	Adoni	India	1
5	Dhule (Dhulia)	India	1
6	Kurashiki	Japan	1
7	Pingxiang	China	1
8	Sivas	Turkey	1
9	Celaya	Mexico	1
10	So Leopoldo	Brazil	1

The initial query was modified to count the number of customer IDs by city within the top 10 countries initially found. This was done by adding the city to the SELECT command and adding a 'WHERE' clause to filter data for the top 10 countries.

```

SELECT
C.city,
D.country,
COUNT(customer_id) AS Number_of_Customers
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 ('India','China','United States','Japan','Mexico','Brazil',
                  'Russian Federation','Philippines','Turkey','Indonesia')

GROUP BY city,country
ORDER BY Number_of_Customers DESC
LIMIT 10

```

Write a query to find the top 5 customers in the top 10 cities who have paid the highest total amounts to Rockbuster. The customer team would like to reward them for their loyalty!

```

7  SELECT
8  A.customer_id,
9  B.first_name,
10 B.last_name,
11 D.city,
12 E.country,
13 SUM(amount) AS Total_amount_paid
14 FROM payment A
15 INNER JOIN customer B ON A.customer_id = B.customer_id
16 INNER JOIN address C ON B.address_id = C.address_id
17 INNER JOIN city D ON C.city_id = D.city_id
18 INNER JOIN country E ON D.country_id = E.country_id
19 WHERE country IN ('India','China','United States','Japan','Mexico','Brazil',
20                  'Russian Federation','Philippines','Turkey','Indonesia')
21 AND city IN ('Aurora','Atlixco','Xintai','Adoni','Dhule (Dhulia)',
22              'Kurashiki','Pingxiang','Sivas','Celaya','So Leopoldo')
23 GROUP BY A.customer_id,B.first_name,B.last_name,D.city,E.country
24 ORDER BY Total_amount_paid DESC
25 LIMIT 5

```

customer_id	first_name	last_name	city	country	total_amount_paid
84	Sara	Perry	Atlixco	Mexico	128.70
518	Gabriel	Harder	Sivas	Turkey	108.75
587	Sergio	Stanfield	Celaya	Mexico	102.76
537	Clinton	Buford	Aurora	United States	98.76
367	Adam	Gooch	Adoni	India	97.80

```

SELECT
A.customer_id,
B.first_name,
B.last_name,
D.city,
E.country,
SUM(amount) AS Total_amount_paid
FROM payment A
INNER JOIN customer B ON A.customer_id = B.customer_id
INNER JOIN address C ON B.address_id = C.address_id
INNER JOIN city D ON C.city_id = D.city_id
INNER JOIN country E ON D.country_id = E.country_id
WHERE country IN ('India','China','United States','Japan','Mexico','Brazil',
                  'Russian Federation','Philippines','Turkey','Indonesia')
AND city IN ('Aurora','Atlixco','Xintai','Adoni','Dhule (Dhulia)',
              'Kurashiki','Pingxiang','Sivas','Celaya','So Leopoldo')
GROUP BY A.customer_id,B.first_name,B.last_name,D.city,E.country
ORDER BY Total_amount_paid DESC
LIMIT 5

```