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## Cities With Completed Trades (Robinhood)

### QUESTION

Assume you're given the tables containing completed trade orders and user details in a Robinhood trading system.

Write a query to retrieve the top three cities that have the highest number of completed trade orders listed in descending order. Output the city name and the corresponding number of completed trade orders.

#### trades Table:

Column Name	Type
order_id	integer
user_id	integer
price	decimal
quantity	integer
status	string('Completed', 'Cancelled')
timestamp	datetime

#### trades Example Input:

order_id	user_id	price	quantity	status	timestamp
100101	111	9.80	10	Cancelled	08/17/2022 12:00:00

order_id	user_id	price	quantity	status	timestamp
100102	111	10.00	10	Completed	08/17/2022 12:00:00
100259	148	5.10	35	Completed	08/25/2022 12:00:00
100264	148	4.80	40	Completed	08/26/2022 12:00:00
100305	300	10.00	15	Completed	09/05/2022 12:00:00
100400	178	9.90	15	Completed	09/09/2022 12:00:00
100565	265	25.60	5	Completed	12/19/2022 12:00:00

### users Table:

Column Name	Type
user_id	integer
city	string
email	string
signup_date	datetime

### users Example Input:

user_id	city	email	signup_date
111	San Francisco	<a href="mailto:rrok10@gmail.com">rrok10@gmail.com</a>	08/03/2021 12:00:00
148	Boston	<a href="mailto:sailor9820@gmail.com">sailor9820@gmail.com</a>	08/20/2021 12:00:00
178	San Francisco	<a href="mailto:harrypotterfan182@gmail.com">harrypotterfan182@gmail.com</a>	01/05/2022 12:00:00
265	Denver	<a href="mailto:shadower_@hotmail.com">shadower_@hotmail.com</a>	02/26/2022 12:00:00
300	San Francisco	<a href="mailto:houstoncowboy1122@hotmail.com">houstoncowboy1122@hotmail.com</a>	06/30/2022 12:00:00

## Step 1: Identify the problem of the case

To write a query to retrieve the top three cities with the highest number of completed trade orders listed in descending order first need to combine the two data tables. The final output looks like this:

Column Name	Type
city	string
total_orders	integer

## Step 2 : Analyze and solve problems

Đầu tiên output yêu cầu dữ kiện từ hai bảng nên ta cần kết hợp lại với nhau với câu lệnh JOIN, sau đó lọc các đơn hàng đã hoàn thành.

```
SELECT * FROM trades
JOIN users
  ON trades.user_id = users.user_id
WHERE status = 'Completed'
```

Then use the `COUNT()` function to count the number of orders of the city, remember to arrange them in descending order of the number of orders and limit the output in 3 top record.

```
SELECT city
       , COUNT(order_id) total_orders
FROM trades
JOIN users
  ON trades.user_id = users.user_id
WHERE status = 'Completed'
GROUP BY city
ORDER BY total_orders DESC
LIMIT 3
```

The final result:

city	total_orders
San Francisco	4
Boston	3
Denver	2