Medium

Table: Customers

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
+---------------+---------+
```
customer_id is the column with unique values for this table.
This table contains information about the customers.

Table: Orders

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| order_date    | date    |
| customer_id   | int     |
| product_id    | int     |
+---------------+---------+
```
order_id is the column with unique values for this table.
This table contains information about the orders made by customer_id.
No customer will order the same product **more than once** in a single day.

Table: Products

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| product_name  | varchar |
| price         | int     |
+---------------+---------+
```
product_id is the column with unique values for this table.
This table contains information about the products.

Write a solution to find the most frequently ordered product(s) for each customer.

The result table should have the product_id and product_name for each customer_id who ordered at least one order.

Return the result table in **any order**.

The result format is in the following example.

Example 1:

Input:
Customers table:
```
+-------------+-------+
| customer_id | name  |
+-------------+-------+
```

1	Alice
2	Bob
3	Tom
4	Jerry
5	John

+-------------+-------+

Orders table:

order_id	order_date	customer_id	product_id
1	2020-07-31	1	1
2	2020-07-30	2	2
3	2020-08-29	3	3
4	2020-07-29	4	1
5	2020-06-10	1	2
6	2020-08-01	2	1
7	2020-08-01	3	3
8	2020-08-03	1	2
9	2020-08-07	2	3
10	2020-07-15	1	2

Products table:

product_id	product_name	price
1	keyboard	120
2	mouse	80
3	screen	600
4	hard disk	450

Output:

customer_id	product_id	product_name
1	2	mouse
2	1	keyboard
2	2	mouse
2	3	screen
3	3	screen
4	1	keyboard

Explanation:

Alice (customer 1) ordered the mouse three times and the keyboard one time, so the mouse is the most frequently ordered product for them.
Bob (customer 2) ordered the keyboard, the mouse, and the screen one time, so those are the most frequently ordered products for them.
Tom (customer 3) only ordered the screen (two times), so that is the most frequently ordered product for them.
Jerry (customer 4) only ordered the keyboard (one time), so that is the most frequently ordered product for them.
John (customer 5) did not order anything, so we do not include them in the result table.

```
# Write your MySQL query statement below
WITH CTE AS (SELECT customer_id,product_id,COUNT(order_id) AS C
FROM Orders
GROUP BY customer_id,product_id
ORDER BY customer_id,COUNT(order_id) DESC),
CTE2 AS (SELECT customer_id,product_id,product_name,RANK() OVER (PARTITION BY customer_id
ORDER BY C DESC) AS R
```

```
FROM CTE
JOIN Products USING (product_id))

SELECT customer_id,product_id,product_name
FROM CTE2
WHERE R=1
```