1174. Immediate Food Delivery II | Medium | 🔒 LeetCode

Table: `Delivery`

```
TEXT
+-----------------------------+---------+
| Column Name                 | Type    |
+-----------------------------+---------+
| delivery_id                 | int     |
| customer_id                 | int     |
| order_date                  | date    |
| customer_pref_delivery_date | date    |
+-----------------------------+---------+
delivery_id is the primary key of this table.
The table holds information about food delivery to customers that make orders at
```

If the preferred delivery date of the customer is the same as the order date then the order is called immediate otherwise it's called scheduled.

The first order of a customer is the order with the earliest order date that customer made. It is guaranteed that a customer has exactly one first order.

Write an SQL query to find the percentage of immediate orders in the first orders of all customers, rounded to 2 decimal places.

The query result format is in the following example:

```
TEXT
Delivery table:
+-------------+-------------+------------+-----------------------------+
| delivery_id | customer_id | order_date | customer_pref_delivery_date |
+-------------+-------------+------------+-----------------------------+
| 1           | 1           | 2019-08-01 | 2019-08-02                  |
| 2           | 2           | 2019-08-02 | 2019-08-02                  |
| 3           | 1           | 2019-08-11 | 2019-08-12                  |
| 4           | 3           | 2019-08-24 | 2019-08-24                  |
| 5           | 3           | 2019-08-21 | 2019-08-22                  |
| 6           | 2           | 2019-08-11 | 2019-08-13                  |
```

```
| 7           | 4           | 2019-08-09 | 2019-08-09                  |
+-------------+-------------+------------+-----------------------------+

Result table:
+----------------------+
| immediate_percentage |
+----------------------+
| 50.00                |
+----------------------+
The customer id 1 has a first order with delivery id 1 and it is scheduled.
The customer id 2 has a first order with delivery id 2 and it is immediate.
The customer id 3 has a first order with delivery id 5 and it is scheduled.
The customer id 4 has a first order with delivery id 7 and it is immediate.
Hence, half the customers have immediate first orders.
```

Solution

```sql
#Solution- 1:
SELECT ROUND(SUM(CASE WHEN order_date=customer_pref_delivery_date THEN 1 ELSE 0 E
FROM Delivery
WHERE (customer_id, order_date) IN
    (SELECT customer_id, MIN(order_date)
    FROM Delivery
    GROUP BY customer_id)
#Solution- 2:
SELECT ROUND(AVG(CASE WHEN order_date = customer_pref_delivery_date THEN 1 ELSE 0
immediate_percentage
FROM
(SELECT *,
 RANK() OVER(PARTITION BY customer_id ORDER BY order_date) AS rk
FROM delivery) a
WHERE a.rk=1
```

1179. Reformat Department Table | Easy | LeetCode

Table: `Department`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| revenue       | int     |
| month         | varchar |
+---------------+---------+
(id, month) is the primary key of this table.
The table has information about the revenue of each department per month.
The month has values in ["Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","O
```

Write an SQL query to reformat the table such that there is a department id column and a revenue column for each month.

The query result format is in the following example:

```
Department table:
+------+---------+-------+
| id   | revenue | month |
+------+---------+-------+
| 1    | 8000    | Jan   |
| 2    | 9000    | Jan   |
| 3    | 10000   | Feb   |
| 1    | 7000    | Feb   |
| 1    | 6000    | Mar   |
+------+---------+-------+

Result table:
+------+-------------+-------------+-------------+-----+-------------+
| id   | Jan_Revenue | Feb_Revenue | Mar_Revenue | ... | Dec_Revenue |
+------+-------------+-------------+-------------+-----+-------------+
| 1    | 8000        | 7000        | 6000        | ... | null        |
| 2    | 9000        | null        | null        | ... | null        |
| 3    | null        | 10000       | null        | ... | null        |
```

```
+------+-------------+-------------+-------------+-----+-------------+
```

Note that the result table has 13 columns (1 for the department id + 12 for the m

Solution

```sql
SELECT id,
SUM(IF(month='Jan', revenue, NULL)) AS Jan_Revenue,
SUM(IF(month='Feb', revenue, NULL)) AS Feb_Revenue,
SUM(IF(month='Mar', revenue, NULL)) AS Mar_Revenue,
SUM(IF(month='Apr', revenue, NULL)) AS Apr_Revenue,
SUM(IF(month='May', revenue, NULL)) AS May_Revenue,
SUM(IF(month='Jun', revenue, NULL)) AS Jun_Revenue,
SUM(IF(month='Jul', revenue, NULL)) AS Jul_Revenue,
SUM(IF(month='Aug', revenue, NULL)) AS Aug_Revenue,
SUM(IF(month='Sep', revenue, NULL)) AS Sep_Revenue,
SUM(IF(month='Oct', revenue, NULL)) AS Oct_Revenue,
SUM(IF(month='Nov', revenue, NULL)) AS Nov_Revenue,
SUM(IF(month='Dec', revenue, NULL)) AS Dec_Revenue
FROM Department
Group BY id;
```

1193. Monthly Transactions I | Medium | 🔒 LeetCode

Table: `Transactions`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| country       | varchar |
| state         | enum    |
| amount        | int     |
```

```
| trans_date    | date    |
+---------------+---------+
id is the primary key of this table.
The table has information about incoming transactions.
The state column is an enum of type ["approved", "declined"].
```

Write an SQL query to find for each month and country, the number of transactions and their total amount, the number of approved transactions and their total amount.

The query result format is in the following example:

TEXT

```
Transactions table:
+------+---------+----------+--------+------------+
| id   | country | state    | amount | trans_date |
+------+---------+----------+--------+------------+
| 121  | US      | approved | 1000   | 2018-12-18 |
| 122  | US      | declined | 2000   | 2018-12-19 |
| 123  | US      | approved | 2000   | 2019-01-01 |
| 124  | DE      | approved | 2000   | 2019-01-07 |
+------+---------+----------+--------+------------+

Result table:
+----------+---------+-------------+----------------+--------------------+-------
| month    | country | trans_count | approved_count | trans_total_amount | approv
+----------+---------+-------------+----------------+--------------------+-------
| 2018-12  | US      | 2           | 1              | 3000               | 1000
| 2019-01  | US      | 1           | 1              | 2000               | 2000
| 2019-01  | DE      | 1           | 1              | 2000               | 2000
+----------+---------+-------------+----------------+--------------------+-------
```

Solution

SQL

```
WITH t1 AS(
SELECT DATE_FORMAT(trans_date,'%Y-%m') AS month, country, COUNT(state) AS trans_c
```

```
FROM transactions
GROUP BY country, month(trans_date)),

t2 AS (
SELECT DATE_FORMAT(trans_date,'%Y-%m') AS month, country, COUNT(state) AS approve
FROM transactions
WHERE state = 'approved'
GROUP BY country, month(trans_date))

SELECT t1.month, t1.country, COALESCE(t1.trans_count,0) AS trans_count, COALESCE(
FROM t1 LEFT JOIN t2
ON t1.country = t2.country and t1.month = t2.month
```

1194. Tournament Winners | Hard | 🔒 LeetCode

Table: `Players`

TEXT

```
+-------------+-------+
| Column Name | Type  |
+-------------+-------+
| player_id   | int   |
| group_id    | int   |
+-------------+-------+
player_id is the primary key of this table.
Each row of this table indicates the group of each player.
```

Table: `Matches`

TEXT

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| match_id      | int     |
| first_player  | int     |
| second_player | int     |
```

```
| first_score   | int     |
| second_score  | int     |
+---------------+---------+
match_id is the primary key of this table.
Each row is a record of a match, first_player and second_player contain the playe
first_score and second_score contain the number of points of the first_player and
You may assume that, in each match, players belongs to the same group.
```

The winner in each group is the player who scored the maximum total points within the group. In the case of a tie, the lowest player_id wins.

Write an SQL query to find the winner in each group.

The query result format is in the following example:

TEXT

```
Players table:
+-----------+------------+
| player_id | group_id   |
+-----------+------------+
| 15        | 1          |
| 25        | 1          |
| 30        | 1          |
| 45        | 1          |
| 10        | 2          |
| 35        | 2          |
| 50        | 2          |
| 20        | 3          |
| 40        | 3          |
+-----------+------------+

Matches table:
+------------+--------------+---------------+-------------+--------------+
| match_id   | first_player | second_player | first_score | second_score |
+------------+--------------+---------------+-------------+--------------+
| 1          | 15           | 45            | 3           | 0            |
| 2          | 30           | 25            | 1           | 2            |
| 3          | 30           | 15            | 2           | 0            |
```

```
| 4           | 40           | 20            | 5           | 2            |
| 5           | 35           | 50            | 1           | 1            |
+-------------+--------------+---------------+-------------+--------------+
```

Result table:

```
+-----------+------------+
| group_id  | player_id  |
+-----------+------------+
| 1         | 15         |
| 2         | 35         |
| 3         | 40         |
+-----------+------------+
```

Solution

SQL

```sql
WITH t1 AS(
SELECT first_player, SUM(first_score) AS total
FROM
(SELECT first_player, first_score
FROM matches
UNION ALL
SELECT second_player, second_score
FROM matches) a
GROUP BY 1),

t2 AS(
SELECT *, COALESCE(total,0) AS score
FROM players p LEFT JOIN t1
ON p.player_id = t1.first_player)

SELECT group_id, player_id
FROM
(SELECT *, ROW_NUMBER() OVER(PARTITION BY group_id ORDER BY group_id, score DESC)
FROM t2) b
WHERE b.rn = 1
```

1204. Last Person to Fit in the Elevator | Medium | 🔒 LeetCode

Table: `Queue`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| person_id   | int     |
| person_name | varchar |
| weight      | int     |
| turn        | int     |
+-------------+---------+
person_id is the primary key column for this table.
This table has the information about all people waiting for an elevator.
The person_id and turn columns will contain all numbers from 1 to n, where n is t
```

The maximum weight the elevator can hold is 1000.

Write an SQL query to find the person_name of the last person who will fit in the elevator without exceeding the weight limit. It is guaranteed that the person who is first in the queue can fit in the elevator.

The query result format is in the following example:

```
TEXT
Queue table
+-----------+-------------------+--------+------+
| person_id | person_name       | weight | turn |
+-----------+-------------------+--------+------+
| 5         | George Washington | 250    | 1    |
| 3         | John Adams        | 350    | 2    |
| 6         | Thomas Jefferson  | 400    | 3    |
| 2         | Will Johnliams    | 200    | 4    |
| 4         | Thomas Jefferson  | 175    | 5    |
| 1         | James Elephant    | 500    | 6    |
+-----------+-------------------+--------+------+
```

```
Result table
+-------------------+
| person_name       |
+-------------------+
| Thomas Jefferson  |
+-------------------+

Queue table is ordered by turn in the example for simplicity.
In the example George Washington(id 5), John Adams(id 3) and Thomas Jefferson(id
Thomas Jefferson(id 6) is the last person to fit in the elevator because he has t
```

Solution

```sql
WITH t1 AS
(
SELECT *,
SUM(weight) OVER(ORDER BY turn) AS cum_weight
FROM queue
ORDER BY turn)

SELECT t1.person_name
FROM t1
WHERE turn = (SELECT MAX(turn) FROM t1 WHERE t1.cum_weight<=1000)
```

1205. Monthly Transactions II | Medium | 🔒 LeetCode

Table: `Transactions`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| country       | varchar |
```

```
| state          | enum    |
| amount         | int     |
| trans_date     | date    |
+----------------+---------+
id is the primary key of this table.
The table has information about incoming transactions.
The state column is an enum of type ["approved", "declined"].
```

Table: `Chargebacks`

```
TEXT
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| trans_id       | int     |
| charge_date    | date    |
+----------------+---------+
Chargebacks contains basic information regarding incoming chargebacks from some t
trans_id is a foreign key to the id column of Transactions table.
Each chargeback corresponds to a transaction made previously even if they were no
```

Write an SQL query to find for each month and country, the number of approved transactions and their total amount, the number of chargebacks and their total amount.

Note: In your query, given the month and country, ignore rows with all zeros.

The query result format is in the following example:

```
TEXT
Transactions table:
+------+---------+----------+--------+------------+
| id   | country | state    | amount | trans_date |
+------+---------+----------+--------+------------+
| 101  | US      | approved | 1000   | 2019-05-18 |
| 102  | US      | declined | 2000   | 2019-05-19 |
| 103  | US      | approved | 3000   | 2019-06-10 |
```

```
| 104  | US      | approved | 4000   | 2019-06-13 |
| 105  | US      | approved | 5000   | 2019-06-15 |
+------+---------+----------+--------+------------+

Chargebacks table:
+------------+------------+
| trans_id   | trans_date |
+------------+------------+
| 102        | 2019-05-29 |
| 101        | 2019-06-30 |
| 105        | 2019-09-18 |
+------------+------------+

Result table:
+----------+---------+----------------+-----------------+-------------------+----
| month    | country | approved_count | approved_amount | chargeback_count  | cha
+----------+`---------+----------------+-----------------+-------------------+---
| 2019-05  | US      | 1              | 1000            | 1                 | 200
| 2019-06  | US      | 3              | 12000           | 1                 | 100
| 2019-09  | US      | 0              | 0               | 1                 | 500
+----------+---------+----------------+-----------------+-------------------+----
```

Solution

```sql
#Solution 1:
WITH t1 AS
(SELECT country, extract('month' FROM trans_date), state, COUNT(*) AS approved_co
FROM transactions
WHERE state = 'approved'
GROUP BY 1, 2, 3),
t2 AS(
SELECT t.country, extract('month' FROM c.trans_date), SUM(amount) AS chargeback_a
FROM chargebacks c LEFT JOIN transactions t
ON trans_id = id
GROUP BY t.country, extract('month' FROM c.trans_date)),
```

```
t3 AS(
SELECT t2.date_part, t2.country, COALESCE(approved_count,0) AS approved_count, CO
FROM t2 LEFT JOIN t1
ON t2.date_part = t1.date_part AND t2.country = t1.country),

t4 AS(
SELECT t1.date_part, t1.country, COALESCE(approved_count,0) AS approved_count, CO
FROM t2 RIGHT JOIN t1
ON t2.date_part = t1.date_part AND t2.country = t1.country)

SELECT *
FROM t3
UNION
SELECT *
FROM t4

#Solution 2:
SELECT month, country,
    SUM(CASE WHEN type='approved' THEN 1 ELSE 0 END) AS approved_count,
    SUM(CASE WHEN type='approved' THEN amount ELSE 0 END) AS approved_amount,
    SUM(CASE WHEN type='chargeback' THEN 1 ELSE 0 END) AS chargeback_count,
    SUM(CASE WHEN type='chargeback' THEN amount ELSE 0 END) AS chargeback_amount
FROM (
    (
    SELECT left(t.trans_date, 7) AS month, t.country, amount,'approved' AS type
    FROM Transactions AS t
    WHERE state='approved'
    )
    UNION ALL (
    SELECT left(c.trans_date, 7) AS month, t.country, amount,'chargeback' AS type
    FROM Transactions AS t JOIN Chargebacks AS c
    ON t.id = c.trans_id
    )
) AS tt
GROUP BY tt.month, tt.country

#Solution 3:
SELECT month, country,
    SUM(CASE WHEN type='approved' THEN count ELSE 0 END) AS approved_count,
    SUM(CASE WHEN type='approved' THEN amount ELSE 0 END) AS approved_amount,
```

```
    SUM(CASE WHEN type='chargeback' THEN count ELSE 0 END) AS chargeback_count,
    SUM(CASE WHEN type='chargeback' THEN amount ELSE 0 END) AS chargeback_amount
FROM (
    (
    SELECT LEFT(t.trans_date, 7) AS month, t.country,
    COUNT(1) AS count, SUM(amount) AS amount,'approved' AS type
    FROM Transactions AS t LEFT JOIN Chargebacks AS c
    ON t.id = c.trans_id
    WHERE state='approved'
    GROUP BY LEFT(t.trans_date, 7), t.country
    )
    union (
    SELECT LEFT(c.trans_date, 7) AS month, t.country,
        COUNT(1) AS count, SUM(amount) AS amount,'chargeback' AS type
    FROM Transactions AS t JOIN Chargebacks AS c
    ON t.id = c.trans_id
    GROUP BY LEFT(c.trans_date, 7), t.country
    )
) AS tt
GROUP BY tt.month, tt.country
```

1211. Queries Quality and Percentage | Easy | 🔒 LeetCode

Table: `Queries`

TEXT

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| query_name  | varchar |
| result      | varchar |
| position    | int     |
| rating      | int     |
+-------------+---------+
There is no primary key for this table, it may have duplicate rows.
This table contains information collected from some queries on a database.
```

```
The position column has a value from 1 to 500.
The rating column has a value from 1 to 5. Query with rating less than 3 is a poo
```

We define query `quality` as:

- The average of the ratio between query rating and its position.

We also define `poor query percentage` as:

- The percentage of all queries with rating less than 3.

Write an SQL query to find each `query_name`, the `quality` and `poor_query_percentage`.

Both `quality` and `poor_query_percentage` should be rounded to **2 decimal places**.

The query result format is in the following example:

TEXT

```
Queries table:
+------------+-------------------+----------+--------+
| query_name | result            | position | rating |
+------------+-------------------+----------+--------+
| Dog        | Golden Retriever  | 1        | 5      |
| Dog        | German Shepherd   | 2        | 5      |
| Dog        | Mule              | 200      | 1      |
| Cat        | Shirazi           | 5        | 2      |
| Cat        | Siamese           | 3        | 3      |
| Cat        | Sphynx            | 7        | 4      |
+------------+-------------------+----------+--------+

Result table:
+------------+---------+-----------------------+
| query_name | quality | poor_query_percentage |
+------------+---------+-----------------------+
| Dog        | 2.50    | 33.33                 |
| Cat        | 0.66    | 33.33                 |
+------------+---------+-----------------------+
```

```
Dog queries quality is ((5 / 1) + (5 / 2) + (1 / 200)) / 3 = 2.50
Dog queries poor_ query_percentage is (1 / 3) * 100 = 33.33

Cat queries quality equals ((2 / 5) + (3 / 3) + (4 / 7)) / 3 = 0.66
Cat queries poor_ query_percentage is (1 / 3) * 100 = 33.33
```

Solution

```sql
#Solution 1:
SELECT query_name, ROUND(SUM(rating/position)/COUNT(*),2) AS quality,
ROUND(AVG(CASE WHEN rating<3 THEN 1 ELSE 0 END)*100,2) AS poor_query_percentage
FROM queries
GROUP BY query_name

#Solution 2:
SELECT query_name, ROUND(AVG(rating/position), 2) AS quality,
       ROUND(100*SUM(CASE WHEN rating<3 THEN 1 ELSE 0 END)/COUNT(1), 2) AS poor_q
FROM Queries
GROUP BY query_name
```

1212. Team Scores in Football Tournament | Medium | 🔒 LeetCode

Table: `Teams`

```
+---------------+----------+
| Column Name   | Type     |
+---------------+----------+
| team_id       | int      |
| team_name     | varchar  |
+---------------+----------+
team_id is the primary key of this table.
Each row of this table represents a single football team.
```

Table: `Matches`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| match_id      | int     |
| host_team     | int     |
| guest_team    | int     |
| host_goals    | int     |
| guest_goals   | int     |
+---------------+---------+
match_id is the primary key of this table.
Each row is a record of a finished match between two different teams.
Teams host_team and guest_team are represented by their IDs in the teams table (t
```

You would like to compute the scores of all teams after all matches. Points are awarded as follows:

- A team receives three points if they win a match (Score strictly more goals than the opponent team).
- A team receives one point if they draw a match (Same number of goals as the opponent team).
- A team receives no points if they lose a match (Score less goals than the opponent team).

  Write an SQL query that selects the team*id, team*name and num*points of each team in the tournament after all described matches. Result table should be ordered by num*points (decreasing order). In case of a tie, order the records by team_id (increasing order).

The query result format is in the following example:

```
TEXT
Teams table:
+-----------+--------------+
```

```
| team_id   | team_name    |
+-----------+--------------+
| 10        | Leetcode FC  |
| 20        | NewYork FC   |
| 30        | Atlanta FC   |
| 40        | Chicago FC   |
| 50        | Toronto FC   |
+-----------+--------------+
```

Matches table:

```
+------------+--------------+---------------+-------------+--------------+
| match_id   | host_team    | guest_team    | host_goals  | guest_goals  |
+------------+--------------+---------------+-------------+--------------+
| 1          | 10           | 20            | 3           | 0            |
| 2          | 30           | 10            | 2           | 2            |
| 3          | 10           | 50            | 5           | 1            |
| 4          | 20           | 30            | 1           | 0            |
| 5          | 50           | 30            | 1           | 0            |
+------------+--------------+---------------+-------------+--------------+
```

Result table:

```
+------------+--------------+---------------+
| team_id    | team_name    | num_points    |
+------------+--------------+---------------+
| 10         | Leetcode FC  | 7             |
| 20         | NewYork FC   | 3             |
| 50         | Toronto FC   | 3             |
| 30         | Atlanta FC   | 1             |
| 40         | Chicago FC   | 0             |
+------------+--------------+---------------+
```

Solution

SQL

```sql
#Solution 1:
SELECT Teams.team_id, Teams.team_name,
    SUM(CASE WHEN team_id=host_team AND host_goals>guest_goals THEN 3 ELSE 0 END)
    SUM(CASE WHEN team_id=host_team AND host_goals=guest_goals THEN 1 ELSE 0 END)
```

```
    SUM(CASE WHEN team_id=guest_team AND host_goals<guest_goals THEN 3 ELSE 0 END
    SUM(CASE WHEN team_id=guest_team AND host_goals=guest_goals THEN 1 ELSE 0 END
FROM Teams LEFT JOIN Matches
ON Teams.team_id = Matches.host_team OR Teams.team_id = Matches.guest_team
GROUP BY Teams.team_id
ORDER BY num_points DESC, Teams.team_id ASC

#Solution 2:
SELECT Teams.team_id, Teams.team_name, SUM(if(isnull(num_points), 0, num_points))
FROM Teams LEFT JOIN
    (
        SELECT host_team AS team_id,
            SUM(CASE WHEN host_goals>guest_goals THEN 3
                     WHEN host_goals=guest_goals THEN 1
                     ELSE 0 END) AS num_points
        FROM Matches
        GROUP BY host_team
        UNION ALL
        SELECT guest_team AS team_id,
            SUM(CASE WHEN host_goals<guest_goals THEN 3
                     WHEN host_goals=guest_goals THEN 1
                     ELSE 0 END) AS num_points
        FROM Matches
        GROUP BY guest_team
    ) AS tt
ON Teams.team_id = tt.team_id
GROUP BY Teams.team_id
ORDER BY num_points DESC, Teams.team_id ASC

#Solution 3:
SELECT Teams.team_id, Teams.team_name, IFNULL(SUM(num_points), 0) AS num_points
FROM Teams LEFT JOIN
    (
        SELECT host_team AS team_id,
            SUM(CASE WHEN host_goals>guest_goals THEN 3
                     WHEN host_goals=guest_goals THEN 1
                     ELSE 0 END) AS num_points
        FROM Matches
        GROUP BY host_team
        UNION ALL
```

```
        SELECT guest_team AS team_id,
            SUM(CASE WHEN host_goals<guest_goals THEN 3
                     WHEN host_goals=guest_goals THEN 1
                     ELSE 0 END) AS num_points
        FROM Matches
        GROUP BY guest_team
    ) AS tt
ON Teams.team_id = tt.team_id
GROUP BY Teams.team_id
ORDER BY num_points DESC, Teams.team_id ASC

#Solution 4:
WITH t1 AS(
SELECT c.host_id, c.host_name, c.host_points
FROM(
SELECT a.match_id, a.team_id AS host_id, a.team_name AS host_name, b.team_id AS g
CASE WHEN a.host_goals > a.guest_goals THEN 3
     WHEN a.host_goals = a.guest_goals THEN 1
     ELSE 0 END AS host_points,
CASE WHEN a.host_goals < a.guest_goals THEN 3
     WHEN a.host_goals = a.guest_goals THEN 1
     ELSE 0 END AS guest_points
FROM(
SELECT *
FROM matches m
JOIN teams t
ON t.team_id = m.host_team) a
JOIN
(SELECT *
FROM matches m
JOIN teams t
ON t.team_id = m.guest_team) b
ON a.match_id = b.match_id) c
UNION ALL
SELECT d.guest_id, d.guest_name, d.guest_points
FROM(
SELECT a.match_id, a.team_id AS host_id, a.team_name AS host_name, b.team_id AS g
CASE WHEN a.host_goals > a.guest_goals THEN 3
     WHEN a.host_goals = a.guest_goals THEN 1
     ELSE 0 END AS host_points,
```

```
CASE WHEN a.host_goals < a.guest_goals THEN 3
     WHEN a.host_goals = a.guest_goals THEN 1
     ELSE 0 END AS guest_points
FROM(
SELECT *
FROM matches m
JOIN teams t
ON t.team_id = m.host_team) a
JOIN
(SELECT *
FROM matches m
JOIN teams t
ON t.team_id = m.guest_team) b
ON a.match_id = b.match_id) d)

SELECT team_id, team_name, coalesce(total,0) AS num_points
FROM teams t2
LEFT JOIN(
SELECT host_id, host_name, SUM(host_points) AS total
FROM t1
GROUP BY host_id, host_name) e
ON t2.team_id = e.host_id
ORDER BY num_points DESC, team_id
```

1225. Report Contiguous Dates | Hard | 🔒 LeetCode

Table: `Failed`

TEXT

```
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| fail_date    | date    |
+--------------+---------+
Primary key for this table is fail_date.
Failed table contains the days of failed tasks.
```

Table: `Succeeded`

```
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| success_date | date    |
+--------------+---------+
Primary key for this table is success_date.
Succeeded table contains the days of succeeded tasks.
```

A system is running one task every day. Every task is independent of the previous tasks. The tasks can fail or succeed.

Write an SQL query to generate a report of period_state for each continuous interval of days in the period from 2019-01-01 to 2019-12-31.

period*state is 'failed' if tasks in this interval failed or 'succeeded' if tasks in this interval succeeded. Interval of days are retrieved as start*date and end_date.

Order result by start_date.

The query result format is in the following example:

```
Failed table:
+-------------------+
| fail_date         |
+-------------------+
| 2018-12-28        |
| 2018-12-29        |
| 2019-01-04        |
| 2019-01-05        |
+-------------------+

Succeeded table:
+-------------------+
| success_date      |
+-------------------+
```

```
| 2018-12-30        |
| 2018-12-31        |
| 2019-01-01        |
| 2019-01-02        |
| 2019-01-03        |
| 2019-01-06        |
+-------------------+
```

Result table:

```
+--------------+--------------+--------------+
| period_state | start_date   | end_date     |
+--------------+--------------+--------------+
| succeeded    | 2019-01-01   | 2019-01-03   |
| failed       | 2019-01-04   | 2019-01-05   |
| succeeded    | 2019-01-06   | 2019-01-06   |
+--------------+--------------+--------------+
```

The report ignored the system state in 2018 as we care about the system in the pe
From 2019-01-01 to 2019-01-03 all tasks succeeded and the system state was "succe
From 2019-01-04 to 2019-01-05 all tasks failed and system state was "failed".
From 2019-01-06 to 2019-01-06 all tasks succeeded and system state was "succeeded

Solution

SQL

```sql
#Solution 1:
WITH t1 AS(
SELECT MIN(success_date) AS start_date, MAX(success_date) AS end_date, state
FROM(
SELECT *, date_sub(success_date, interval ROW_NUMBER() OVER(ORDER BY success_date
FROM succeeded
WHERE success_date BETWEEN "2019-01-01" AND "2019-12-31") a
GROUP BY diff),

t2 AS(
SELECT MIN(fail_date) AS start_date, MAX(fail_date) AS end_date, state
```

```
FROM(
SELECT *, date_sub(fail_date, interval ROW_NUMBER() OVER(ORDER BY fail_date) day)
FROM failed
WHERE fail_date BETWEEN "2019-01-01" AND "2019-12-31") b
GROUP BY diff)


SELECT
CASE WHEN c.state = 1 THEN "succeeded"
ELSE "failed"
END AS period_state,start_date, end_date
FROM(
SELECT *
FROM t1

UNION ALL

SELECT *
FROM t2) c
ORDER BY start_date

#Solution 2:
## First generate a list of dates
##   succeeded 2019-01-01
##   succeeded 2019-01-02
##   ...
##   failed 2019-01-04
##   ...
## Add group id for contiguous ranges
## Notice: dates themselves are contiguous
##
SELECT period_state, MIN(date) AS start_date, MAX(date) AS end_date
FROM (
    SELECT period_state, date,
         @rank := CASE WHEN @prev = period_state THEN @rank ELSE @rank+1 END AS r
         @prev := period_state AS prev
    FROM (
        SELECT 'failed' AS period_state, fail_date AS date
        FROM Failed
        WHERE fail_date BETWEEN '2019-01-01' AND '2019-12-31'
```

```
        UNION
        SELECT 'succeeded' AS period_state, success_date AS date
        FROM Succeeded
        WHERE success_date BETWEEN '2019-01-01' AND '2019-12-31') AS t,
        (SELECT @rank:=0, @prev:='') AS rows
    ORDER BY date ASC) AS tt
GROUP BY rank
ORDER BY rank
```

1241. Number of Comments per Post | Easy | 🔒 LeetCode

Table: `Submissions`

```
TEXT
+---------------+----------+
| Column Name   | Type     |
+---------------+----------+
| sub_id        | int      |
| parent_id     | int      |
+---------------+----------+
There is no primary key for this table, it may have duplicate rows.
Each row can be a post or comment on the post.
parent_id is null for posts.
parent_id for comments is sub_id for another post in the table.
```

Write an SQL query to find number of comments per each post.

Result table should contain `post_id` and its corresponding `number_of_comments`, and must be sorted by `post_id` in ascending order.

`Submissions` may contain duplicate comments. You should count the number of unique comments per post.

`Submissions` may contain duplicate posts. You should treat them as one post.

The query result format is in the following example:

```
Submissions table:
+---------+------------+
| sub_id  | parent_id  |
+---------+------------+
| 1       | Null       |
| 2       | Null       |
| 1       | Null       |
| 12      | Null       |
| 3       | 1          |
| 5       | 2          |
| 3       | 1          |
| 4       | 1          |
| 9       | 1          |
| 10      | 2          |
| 6       | 7          |
+---------+------------+

Result table:
+---------+--------------------+
| post_id | number_of_comments |
+---------+--------------------+
| 1       | 3                  |
| 2       | 2                  |
| 12      | 0                  |
+---------+--------------------+

The post with id 1 has three comments in the table with id 3, 4 and 9. The commen
The post with id 2 has two comments in the table with id 5 and 10.
The post with id 12 has no comments in the table.
The comment with id 6 is a comment on a deleted post with id 7 so we ignored it.
```

Solution

```sql
SELECT a.sub_id AS post_id, coalesce(b.number_of_comments,0) AS number_of_comment
FROM(
```

```
SELECT DISTINCT sub_id FROM submissions WHERE parent_id IS NULL) a
LEFT JOIN(
SELECT parent_id, count(DISTINCT(sub_id)) AS number_of_comments
FROM submissions
GROUP BY parent_id
HAVING parent_id = any(SELECT sub_id from submissions WHERE parent_id IS NULL)) b
ON a.sub_id = b.parent_id
ORDER BY post_id
```

1251. Average Selling Price | Easy | 🔒 LeetCode

Table: `Prices`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| start_date    | date    |
| end_date      | date    |
| price         | int     |
+---------------+---------+
(product_id, start_date, end_date) is the primary key for this table.
Each row of this table indicates the price of the product_id in the period from s
For each product_id there will be no two overlapping periods. That means there wi
```

Table: `UnitsSold`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| purchase_date | date    |
| units         | int     |
+---------------+---------+
```

```
There is no primary key for this table, it may contain duplicates.
Each row of this table indicates the date, units and product_id of each product s
```

Write an SQL query to find the average selling price for each product.

average_price should be rounded to 2 decimal places.

The query result format is in the following example:

TEXT

```
Prices table:
+------------+------------+------------+--------+
| product_id | start_date | end_date   | price  |
+------------+------------+------------+--------+
| 1          | 2019-02-17 | 2019-02-28 | 5      |
| 1          | 2019-03-01 | 2019-03-22 | 20     |
| 2          | 2019-02-01 | 2019-02-20 | 15     |
| 2          | 2019-02-21 | 2019-03-31 | 30     |
+------------+------------+------------+--------+

UnitsSold table:
+------------+---------------+-------+
| product_id | purchase_date | units |
+------------+---------------+-------+
| 1          | 2019-02-25    | 100   |
| 1          | 2019-03-01    | 15    |
| 2          | 2019-02-10    | 200   |
| 2          | 2019-03-22    | 30    |
+------------+---------------+-------+

Result table:
+------------+---------------+
| product_id | average_price |
+------------+---------------+
| 1          | 6.96          |
| 2          | 16.96         |
+------------+---------------+
Average selling price = Total Price of Product / Number of products sold.
```

```
Average selling price for product 1 = ((100 * 5) + (15 * 20)) / 115 = 6.96
Average selling price for product 2 = ((200 * 15) + (30 * 30)) / 230 = 16.96
```

Solution

```sql
SELECT UnitsSold.product_id, ROUND(SUM(units*price)/SUM(units), 2) AS average_pri
FROM UnitsSold INNER JOIN Prices
ON UnitsSold.product_id = Prices.product_id
AND UnitsSold.purchase_date BETWEEN Prices.start_date AND Prices.end_date
GROUP BY UnitsSold.product_id
```

1264. Page Recommendations | Medium | 🔒 LeetCode

Table: `Friendship`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| user1_id      | int     |
| user2_id      | int     |
+---------------+---------+
(user1_id, user2_id) is the primary key for this table.
Each row of this table indicates that there is a friendship relation between user
```

Table: `Likes`

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| user_id     | int     |
| page_id     | int     |
```

```
+-------------+---------+
(user_id, page_id) is the primary key for this table.
Each row of this table indicates that user_id likes page_id.
```

Write an SQL query to recommend pages to the user with `user_id = 1` using the pages that your friends liked. It should not recommend pages you already liked.

Return result table in any order without duplicates.

The query result format is in the following example:

TEXT

```
Friendship table:
+----------+----------+
| user1_id | user2_id |
+----------+----------+
| 1        | 2        |
| 1        | 3        |
| 1        | 4        |
| 2        | 3        |
| 2        | 4        |
| 2        | 5        |
| 6        | 1        |
+----------+----------+

Likes table:
+---------+---------+
| user_id | page_id |
+---------+---------+
| 1       | 88      |
| 2       | 23      |
| 3       | 24      |
| 4       | 56      |
| 5       | 11      |
| 6       | 33      |
| 2       | 77      |
| 3       | 77      |
| 6       | 88      |
+---------+---------+
```

```
Result table:
+------------------+
| recommended_page |
+------------------+
| 23               |
| 24               |
| 56               |
| 33               |
| 77               |
+------------------+
User one is friend with users 2, 3, 4 and 6.
Suggested pages are 23 from user 2, 24 from user 3, 56 from user 3 and 33 from us
Page 77 is suggested from both user 2 and user 3.
Page 88 is not suggested because user 1 already likes it.
```

Solution

```sql
SELECT DISTINCT page_id AS recommended_page
FROM Likes
WHERE user_id IN (SELECT user2_id
    FROM Friendship
    WHERE user1_id=1
    UNION
    SELECT user1_id
    FROM Friendship
    WHERE user2_id=1)
    AND page_id NOT IN
        (SELECT page_id
        FROM Likes
        WHERE user_id=1)
```

1270. All People Report to the Given Manager | Medium | 🔒 LeetCode

Table: `Employees`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| employee_id   | int     |
| employee_name | varchar |
| manager_id    | int     |
+---------------+---------+
employee_id is the primary key for this table.
Each row of this table indicates that the employee with ID employee_id and name e
The head of the company is the employee with employee_id = 1.
```

Write an SQL query to find `employee_id` of all employees that directly or indirectly report their work to the head of the company.

The indirect relation between managers will not exceed 3 managers as the company is small.

Return result table in any order without duplicates.

The query result format is in the following example:

```
TEXT
Employees table:
+-------------+---------------+------------+
| employee_id | employee_name | manager_id |
+-------------+---------------+------------+
| 1           | Boss          | 1          |
| 3           | Alice         | 3          |
| 2           | Bob           | 1          |
| 4           | Daniel        | 2          |
| 7           | Luis          | 4          |
| 8           | Jhon          | 3          |
| 9           | Angela        | 8          |
| 77          | Robert        | 1          |
+-------------+---------------+------------+
```

```
Result table:
+-------------+
| employee_id |
+-------------+
| 2           |
| 77          |
| 4           |
| 7           |
+-------------+

The head of the company is the employee with employee_id 1.
The employees with employee_id 2 and 77 report their work directly to the head of
The employee with employee_id 4 report his work indirectly to the head of the com
The employee with employee_id 7 report his work indirectly to the head of the com
The employees with employee_id 3, 8 and 9 don't report their work to head of comp
```

Solution

```sql
#Solution 1:
## t3: directly report to employee_id 1
## t2: directly report to t3
## t1: directly report to t2
SELECT t1.employee_id
FROM Employees AS t1 INNER JOIN Employees AS t2
ON t1.manager_id = t2.employee_id
JOIN Employees AS t3
ON t2.manager_id = t3.employee_id
WHERE t3.manager_id = 1 AND t1.employee_id != 1

#Solution 2:
SELECT distinct employee_id
FROM (
SELECT employee_id
FROM Employees
WHERE manager_id IN
```

```sql
(SELECT employee_id
FROM Employees
WHERE manager_id IN
    (SELECT employee_id
    FROM Employees
    WHERE manager_id = 1))
UNION
SELECT employee_id
FROM Employees
WHERE manager_id IN
    (SELECT employee_id
    FROM Employees
    WHERE manager_id = 1)
UNION
SELECT employee_id
    FROM Employees
    WHERE manager_id = 1) AS t
WHERE employee_id != 1

#Solution 3:
SELECT employee_id
FROM employees
WHERE manager_id = 1 AND employee_id != 1
UNION
SELECT employee_id
FROM employees
WHERE manager_id = any (SELECT employee_id
FROM employees
WHERE manager_id = 1 AND employee_id != 1)
UNION
SELECT employee_id
FROM employees
WHERE manager_id = any (SELECT employee_id
FROM employees
WHERE manager_id = any (SELECT employee_id
FROM employees
WHERE manager_id = 1 AND employee_id != 1))
```

1280. Students and Examinations| Easy | 🔒 LeetCode

Table: `Students`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| student_id    | int     |
| student_name  | varchar |
+---------------+---------+
student_id is the primary key for this table.
Each row of this table contains the ID and the name of one student in the school.
```

Table: `Subjects`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| subject_name | varchar |
+--------------+---------+
subject_name is the primary key for this table.
Each row of this table contains a name of one subject in the school.
```

Table: `Examinations`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| student_id   | int     |
| subject_name | varchar |
+--------------+---------+
There is no primary key for this table. It may contain duplicates.
Each student from Students table takes every course from Subjects table.
Each row of this table indicates that a student with ID student_id attended the e
```

Write an SQL query to find the number of times each student attended each exam.

Order the result table by student*id and subject*name.

The query result format is in the following example:

```
Students table:
+------------+--------------+
| student_id | student_name |
+------------+--------------+
| 1          | Alice        |
| 2          | Bob          |
| 13         | John         |
| 6          | Alex         |
+------------+--------------+
Subjects table:
+--------------+
| subject_name |
+--------------+
| Math         |
| Physics      |
| Programming  |
+--------------+
Examinations table:
+------------+--------------+
| student_id | subject_name |
+------------+--------------+
| 1          | Math         |
| 1          | Physics      |
| 1          | Programming  |
| 2          | Programming  |
| 1          | Physics      |
| 1          | Math         |
| 13         | Math         |
| 13         | Programming  |
| 13         | Physics      |
| 2          | Math         |
```

```
| 1          | Math         |
+------------+--------------+
Result table:
+------------+--------------+--------------+----------------+
| student_id | student_name | subject_name | attended_exams |
+------------+--------------+--------------+----------------+
| 1          | Alice        | Math         | 3              |
| 1          | Alice        | Physics      | 2              |
| 1          | Alice        | Programming  | 1              |
| 2          | Bob          | Math         | 1              |
| 2          | Bob          | Physics      | 0              |
| 2          | Bob          | Programming  | 1              |
| 6          | Alex         | Math         | 0              |
| 6          | Alex         | Physics      | 0              |
| 6          | Alex         | Programming  | 0              |
| 13         | John         | Math         | 1              |
| 13         | John         | Physics      | 1              |
| 13         | John         | Programming  | 1              |
+------------+--------------+--------------+----------------+
The result table should contain all students and all subjects.
Alice attended Math exam 3 times, Physics exam 2 times and Programming exam 1 tim
Bob attended Math exam 1 time, Programming exam 1 time and didn't attend the Phys
Alex didn't attend any exam.
John attended Math exam 1 time, Physics exam 1 time and Programming exam 1 time.
```

Solution

```sql
#Solution 1: count with null
SELECT Students.student_id, student_name, Subjects.subject_name, COUNT(Examinatio
FROM Students JOIN Subjects
LEFT JOIN Examinations
ON Students.student_id = Examinations.student_id AND Subjects.subject_name = Exam
GROUP BY Students.student_id, subject_name

#Solution 2: using ISNULL
SELECT Students.student_id, student_name, Subjects.subject_name, SUM(IF(ISNULL(Ex
```

```
FROM Students JOIN Subjects
LEFT JOIN Examinations
ON Students.student_id = Examinations.student_id AND Subjects.subject_name = Exam
GROUP BY Students.student_id, subject_name

#Solution 3: coalesce
SELECT a.student_id AS student_id, a.student_name AS student_name, a.subject_name
FROM(
SELECT *
FROM students
CROSS JOIN subjects
GROUP BY student_id, student_name, subject_name) a
LEFT JOIN
(SELECT e.student_id, student_name, subject_name, COUNT(*) AS attended_exams
FROM examinations e JOIN students s
ON e.student_id = s.student_id
GROUP BY e.student_id, student_name, subject_name) b
ON a.student_id = b.student_id AND a.subject_name =b.subject_name
ORDER BY a.student_id ASC, a.subject_name ASC
```

1285. Find the Start and End Number of Continuous Ranges | Medium | 🔒 LeetCode

Table: `Logs`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| log_id        | int     |
+---------------+---------+
id is the primary key for this table.
Each row of this table contains the ID in a log Table.
```

Since some IDs have been removed from Logs. Write an SQL query to find the start and end number of continuous ranges in table Logs.

Order the result table by start_id.

The query result format is in the following example:

```
Logs table:
+------------+
| log_id     |
+------------+
| 1          |
| 2          |
| 3          |
| 7          |
| 8          |
| 10         |
+------------+

Result table:
+------------+--------------+
| start_id   | end_id       |
+------------+--------------+
| 1          | 3            |
| 7          | 8            |
| 10         | 10           |
+------------+--------------+
The result table should contain all ranges in table Logs.
From 1 to 3 is contained in the table.
From 4 to 6 is missing in the table
From 7 to 8 is contained in the table.
Number 9 is missing in the table.
Number 10 is contained in the table.
```

Solution

```sql
#Solution 1:
SELECT MIN(log_id) AS start_id, MAX(log_id) AS end_id
FROM(
```

```
SELECT log_id, log_id-ROW_NUMBER() OVER (ORDER BY log_id) AS rk
FROM logs) a
GROUP BY rk

#Solution 2: Add temporary columns of rank and prev
SELECT MIN(log_id) AS START_ID, MAX(log_id) AS END_ID
FROM (SELECT log_id,
        @rank := CASE WHEN @prev = log_id-1 THEN @rank ELSE @rank+1 END AS rank,
        @prev := log_id AS prev
    FROM Logs,
       (SELECT @rank:=0, @prev:=-1) AS rows) AS tt
GROUP BY rank
ORDER BY START_ID

# Solution 3: Find the starting and ending sequences, then merge two AS one table
## find the starting sequence: 1, 7, 10
## find the ending sequence: 3, 8, 10
## merge them AS one table
SELECT start_id, MIN(end_id) AS end_id
FROM (SELECT t1.log_id AS start_id
    FROM logs AS t1 LEFT JOIN logs AS t2
    ON t1.log_id-1 = t2.log_id
    WHERE t2.log_id IS NULL) tt_start join
    (SELECT t1.log_id AS end_id
    FROM logs AS t1 LEFT JOIN logs AS t2
    ON t1.log_id+1 = t2.log_id
    WHERE t2.log_id IS NULL) tt_end
WHERE start_id<=end_id
GROUP BY start_id
```

1294. Weather Type in Each Country | Easy | 🔒 LeetCode

Table: `Countries`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
```

```
+---------------+---------+
| country_id    | int     |
| country_name  | varchar |
+---------------+---------+
country_id is the primary key for this table.
Each row of this table contains the ID and the name of one country.
```

Table: `Weather`

```TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| country_id    | int     |
| weather_state | varchar |
| day           | date    |
+---------------+---------+
(country_id, day) is the primary key for this table.
Each row of this table indicates the weather state in a country for one day.
```

Write an SQL query to find the type of weather in each country for November 2019.

The type of weather is Cold if the average weather*state is less than or equal 15, Hot if the average weather*state is greater than or equal 25 and Warm otherwise.

Return result table in any order.

The query result format is in the following example:

```TEXT
Countries table:
+------------+--------------+
| country_id | country_name |
+------------+--------------+
| 2          | USA          |
| 3          | Australia    |
| 7          | Peru         |
| 5          | China        |
```

```
| 8          | Morocco      |
| 9          | Spain        |
+------------+--------------+
Weather table:
+------------+---------------+------------+
| country_id | weather_state | day        |
+------------+---------------+------------+
| 2          | 15            | 2019-11-01 |
| 2          | 12            | 2019-10-28 |
| 2          | 12            | 2019-10-27 |
| 3          | -2            | 2019-11-10 |
| 3          | 0             | 2019-11-11 |
| 3          | 3             | 2019-11-12 |
| 5          | 16            | 2019-11-07 |
| 5          | 18            | 2019-11-09 |
| 5          | 21            | 2019-11-23 |
| 7          | 25            | 2019-11-28 |
| 7          | 22            | 2019-12-01 |
| 7          | 20            | 2019-12-02 |
| 8          | 25            | 2019-11-05 |
| 8          | 27            | 2019-11-15 |
| 8          | 31            | 2019-11-25 |
| 9          | 7             | 2019-10-23 |
| 9          | 3             | 2019-12-23 |
+------------+---------------+------------+
Result table:
+--------------+--------------+
| country_name | weather_type |
+--------------+--------------+
| USA          | Cold         |
| Austraila    | Cold         |
| Peru         | Hot          |
| China        | Warm         |
| Morocco      | Hot          |
+--------------+--------------+
Average weather_state in USA in November is (15) / 1 = 15 so weather type is Cold
Average weather_state in Austraila in November is (-2 + 0 + 3) / 3 = 0.333 so wea
Average weather_state in Peru in November is (25) / 1 = 25 so weather type is Hot
Average weather_state in China in November is (16 + 18 + 21) / 3 = 18.333 so weat
```

```
Average weather_state in Morocco in November is (25 + 27 + 31) / 3 = 27.667 so we
We know nothing about average weather_state in Spain in November so we don't incl
```

Solution

```sql
SELECT country_name, CASE WHEN AVG(weather_state) <= 15 THEN "Cold"
                          WHEN AVG(weather_state) >= 25 THEN "Hot"
                          ELSE "Warm" END AS weather_type
FROM Countries INNER JOIN Weather
ON Countries.country_id = Weather.country_id
WHERE MONTH(day) = 11
GORUP BY country_name
```

1303. Find the Team Size | Easy | 🔒 LeetCode

Table: `Employee`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| employee_id   | int     |
| team_id       | int     |
+---------------+---------+
employee_id is the primary key for this table.
Each row of this table contains the ID of each employee and their respective team
```

Write an SQL query to find the team size of each of the employees.

Return result table in any order.

The query result format is in the following example:

```
Employee Table:
+-------------+------------+
| employee_id | team_id    |
+-------------+------------+
|     1       |     8      |
|     2       |     8      |
|     3       |     8      |
|     4       |     7      |
|     5       |     9      |
|     6       |     9      |
+-------------+------------+
Result table:
+-------------+------------+
| employee_id | team_size  |
+-------------+------------+
|     1       |     3      |
|     2       |     3      |
|     3       |     3      |
|     4       |     1      |
|     5       |     2      |
|     6       |     2      |
+-------------+------------+
Employees with Id 1,2,3 are part of a team with team_id = 8.
Employees with Id 4 is part of a team with team_id = 7.
Employees with Id 5,6 are part of a team with team_id = 9.
```

Solution

```sql
SELECT employee_id, b.team_size
FROM employee e
JOIN
(
SELECT team_id, count(team_id) AS team_size
FROM employee
GROUP BY team_id) b
ON e.team_id = b.team_id
```

1308. Running Total for Different Genders | Medium | 🔒 LeetCode

Table: `Scores`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| player_name   | varchar |
| gender        | varchar |
| day           | date    |
| score_points  | int     |
+---------------+---------+
(gender, day) is the primary key for this table.
A competition is held between females team and males team.
Each row of this table indicates that a player_name and with gender has scored sc
Gender is 'F' if the player is in females team and 'M' if the player is in males
```

Write an SQL query to find the total score for each gender at each day.

Order the result table by gender and day

The query result format is in the following example:

```
TEXT
Scores table:
+-------------+--------+------------+--------------+
| player_name | gender | day        | score_points |
+-------------+--------+------------+--------------+
| Aron        | F      | 2020-01-01 | 17           |
| Alice       | F      | 2020-01-07 | 23           |
| Bajrang     | M      | 2020-01-07 | 7            |
| Khali       | M      | 2019-12-25 | 11           |
| Slaman      | M      | 2019-12-30 | 13           |
```

```
| Joe         | M      | 2019-12-31 | 3           |
| Jose        | M      | 2019-12-18 | 2           |
| Priya       | F      | 2019-12-31 | 23          |
| Priyanka    | F      | 2019-12-30 | 17          |
+-------------+--------+------------+-------------+
Result table:
+--------+------------+-------+
| gender | day        | total |
+--------+------------+-------+
| F      | 2019-12-30 | 17    |
| F      | 2019-12-31 | 40    |
| F      | 2020-01-01 | 57    |
| F      | 2020-01-07 | 80    |
| M      | 2019-12-18 | 2     |
| M      | 2019-12-25 | 13    |
| M      | 2019-12-30 | 26    |
| M      | 2019-12-31 | 29    |
| M      | 2020-01-07 | 36    |
+--------+------------+-------+
For females team:
First day is 2019-12-30, Priyanka scored 17 points and the total score for the te
Second day is 2019-12-31, Priya scored 23 points and the total score for the team
Third day is 2020-01-01, Aron scored 17 points and the total score for the team i
Fourth day is 2020-01-07, Alice scored 23 points and the total score for the team
For males team:
First day is 2019-12-18, Jose scored 2 points and the total score for the team is
Second day is 2019-12-25, Khali scored 11 points and the total score for the team
Third day is 2019-12-30, Slaman scored 13 points and the total score for the team
Fourth day is 2019-12-31, Joe scored 3 points and the total score for the team is
Fifth day is 2020-01-07, Bajrang scored 7 points and the total score for the team
```

Solution

SQL

```sql
#Solution 1:
SELECT gender, day,
SUM(score_points) OVER(PARTITION BY gender ORDER BY day) AS total
```

```
FROM scores
GROUP BY 1,2
ORDER BY 1,2

#Solution 2:
SELECT t1.gender, t1.day, SUM(t2.score_points) AS total
FROM Scores AS t1 JOIN Scores AS t2
ON t1.gender = t2.gender
AND t1.day>=t2.day
GROUP BY t1.gender, t1.day
```

1321. Restaurant Growth | Medium | 🔒 LeetCode

Table: `Customer`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
| visited_on    | date    |
| amount        | int     |
+---------------+---------+
(customer_id, visited_on) is the primary key for this table.
This table contains data about customer transactions in a restaurant.
visited_on is the date on which the customer with ID (customer_id) have visited t
amount is the total paid by a customer.
```

You are the restaurant owner and you want to analyze a possible expansion (there will be at least one customer every day).

Write an SQL query to compute moving average of how much customer paid in a 7 days window (current day + 6 days before) .

The query result format is in the following example:

Return result table ordered by visited_on.

`average_amount` should be rounded to 2 decimal places, all dates are in the format ('YYYY-MM-DD').

TEXT

```
Customer table:
+-------------+--------------+--------------+-------------+
| customer_id | name         | visited_on   | amount      |
+-------------+--------------+--------------+-------------+
| 1           | Jhon         | 2019-01-01   | 100         |
| 2           | Daniel       | 2019-01-02   | 110         |
| 3           | Jade         | 2019-01-03   | 120         |
| 4           | Khaled       | 2019-01-04   | 130         |
| 5           | Winston      | 2019-01-05   | 110         |
| 6           | Elvis        | 2019-01-06   | 140         |
| 7           | Anna         | 2019-01-07   | 150         |
| 8           | Maria        | 2019-01-08   | 80          |
| 9           | Jaze         | 2019-01-09   | 110         |
| 1           | Jhon         | 2019-01-10   | 130         |
| 3           | Jade         | 2019-01-10   | 150         |
+-------------+--------------+--------------+-------------+

Result table:
+--------------+--------------+----------------+
| visited_on   | amount       | average_amount |
+--------------+--------------+----------------+
| 2019-01-07   | 860          | 122.86         |
| 2019-01-08   | 840          | 120            |
| 2019-01-09   | 840          | 120            |
| 2019-01-10   | 1000         | 142.86         |
+--------------+--------------+----------------+

1st moving average from 2019-01-01 to 2019-01-07 has an average_amount of (100 +
2nd moving average from 2019-01-02 to 2019-01-08 has an average_amount of (110 +
3rd moving average from 2019-01-03 to 2019-01-09 has an average_amount of (120 +
4th moving average from 2019-01-04 to 2019-01-10 has an average_amount of (130 +
```

Solution

```sql
#Solution 1:
SELECT visited_on, SUM(amount) OVER(ORDER BY visited_on ROWS 6 PRECEDING),
round(avg(amount) OVER(ORDER BY visited_on ROWS 6 PRECEDING),2)
FROM
(
    SELECT visited_on, SUM(amount) AS amount
    FROM customer
    GROUP BY visited_on
    ORDER BY visited_on
) a
ORDER BY visited_on offset 6 ROWS

#Solution 2:
SELECT t1.visited_on,
    SUM(t2.amount) AS amount,
    round(avg(t2.amount), 2) AS average_amount
FROM (
    SELECT visited_on, SUM(amount) AS amount
    FROM Customer
    GROUP BY visited_on) AS t1
    inner join
     (
    SELECT visited_on, SUM(amount) AS amount
    FROM Customer
    GROUP BY visited_on) AS t2
ON t2.visited_on BETWEEN DATE_SUB(t1.visited_on, INTERVAL 6 DAY) and t1.visited_o
GROUP BY t1.visited_on
HAVING COUNT(1)=7
```

1322. Ads Performance | Easy | 🔒 LeetCode

Table: `Ads`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| ad_id         | int     |
| user_id       | int     |
| action        | enum    |
+---------------+---------+
(ad_id, user_id) is the primary key for this table.
Each row of this table contains the ID of an Ad, the ID of a user and the action
The action column is an ENUM type of ('Clicked', 'Viewed', 'Ignored').
```

A company is running Ads and wants to calculate the performance of each Ad.

Performance of the Ad is measured using Click-Through Rate (CTR) where:

$$CTR = \begin{cases} 0, & \text{if Ad total clicks + Ad total views = 0} \\ \frac{\text{Ad total clicks}}{\text{Ad total clicks + Ad total views}} \times 100, & \text{otherwise} \end{cases}$$

Write an SQL query to find the ctr of each Ad.

Round `ctr` to 2 decimal points. **Order** the result table by `ctr` *in descending order* and by `ad_id` in ascending order in case of a tie.

The query result format is in the following example:

```
Ads table:
+-------+---------+---------+
| ad_id | user_id | action  |
+-------+---------+---------+
| 1     | 1       | Clicked |
| 2     | 2       | Clicked |
| 3     | 3       | Viewed  |
| 5     | 5       | Ignored |
| 1     | 7       | Ignored |
| 2     | 7       | Viewed  |
| 3     | 5       | Clicked |
| 1     | 4       | Viewed  |
```

```
| 2     | 11      | Viewed  |
| 1     | 2       | Clicked |
+-------+---------+---------+
Result table:
+-------+-------+
| ad_id | ctr   |
+-------+-------+
| 1     | 66.67 |
| 3     | 50.00 |
| 2     | 33.33 |
| 5     | 0.00  |
+-------+-------+
for ad_id = 1, ctr = (2/(2+1)) * 100 = 66.67
for ad_id = 2, ctr = (1/(1+2)) * 100 = 33.33
for ad_id = 3, ctr = (1/(1+1)) * 100 = 50.00
for ad_id = 5, ctr = 0.00, Note that ad_id = 5 has no clicks or views.
Note that we don't care about Ignored Ads.
Result table is ordered by the ctr. in case of a tie we order them by ad_id
```

Solution

SQL

```sql
#Solution 1:
SELECT ad_id,
    (CASE WHEN clicks+views = 0 THEN 0 ELSE ROUND(clicks/(clicks+views)*100, 2) E
FROM
    (SELECT ad_id,
        SUM(CASE WHEN action='Clicked' THEN 1 ELSE 0 END) AS clicks,
        SUM(CASE WHEN action='Viewed' THEN 1 ELSE 0 END) AS views
    FROM Ads
    GROUP BY ad_id) AS t
ORDER BY ctr DESC, ad_id ASC

#Solution 2:
WITH t1 AS(
SELECT ad_id, SUM(CASE WHEN action in ('Clicked') THEN 1 ELSE 0 END) AS clicked
FROM ads
GROUP BY ad_id
```

```
)

, t2 AS
(
SELECT ad_id AS ad, SUM(CASE WHEN action in ('Clicked','Viewed') THEN 1 ELSE 0 EN
FROM ads
GROUP BY ad_id
)

SELECT a.ad_id, coalesce(round((clicked +0.0)/nullif((total +0.0),0)*100,2),0) AS
FROM
(
select *
FROM t1 JOIN t2
ON t1.ad_id = t2.ad) a
ORDER BY ctr DESC, ad_id
```

1327. List the Products Ordered in a Period | Easy | 🔒 LeetCode

Table: `Products`

```
TEXT
+------------------+---------+
| Column Name      | Type    |
+------------------+---------+
| product_id       | int     |
| product_name     | varchar |
| product_category | varchar |
+------------------+---------+
product_id is the primary key for this table.
This table contains data about the company's products.
```

Table: `Orders`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| order_date    | date    |
| unit          | int     |
+---------------+---------+
There is no primary key for this table. It may have duplicate rows.
product_id is a foreign key to Products table.
unit is the number of products ordered in order_date.
```

Write an SQL query to get the names of products with greater than or equal to 100 units ordered in February 2020 and their amount.

Return result table in any order.

The query result format is in the following example:

```
Products table:
+-------------+-----------------------+------------------+
| product_id  | product_name          | product_category |
+-------------+-----------------------+------------------+
| 1           | Leetcode Solutions    | Book             |
| 2           | Jewels of Stringology | Book             |
| 3           | HP                    | Laptop           |
| 4           | Lenovo                | Laptop           |
| 5           | Leetcode Kit          | T-shirt          |
+-------------+-----------------------+------------------+

Orders table:
+--------------+--------------+----------+
| product_id   | order_date   | unit     |
+--------------+--------------+----------+
| 1            | 2020-02-05   | 60       |
| 1            | 2020-02-10   | 70       |
| 2            | 2020-01-18   | 30       |
| 2            | 2020-02-11   | 80       |
```

```
| 3            | 2020-02-17   | 2        |
| 3            | 2020-02-24   | 3        |
| 4            | 2020-03-01   | 20       |
| 4            | 2020-03-04   | 30       |
| 4            | 2020-03-04   | 60       |
| 5            | 2020-02-25   | 50       |
| 5            | 2020-02-27   | 50       |
| 5            | 2020-03-01   | 50       |
+--------------+--------------+----------+

Result table:
+--------------------+---------+
| product_name       | unit    |
+--------------------+---------+
| Leetcode Solutions | 130     |
| Leetcode Kit       | 100     |
+--------------------+---------+

Products with product_id = 1 is ordered in February a total of (60 + 70) = 130.
Products with product_id = 2 is ordered in February a total of 80.
Products with product_id = 3 is ordered in February a total of (2 + 3) = 5.
Products with product_id = 4 was not ordered in February 2020.
Products with product_id = 5 is ordered in February a total of (50 + 50) = 100.
```

Solution

```sql
#Solution 1:
SELECT a.product_name, a.unit
FROM
(SELECT p.product_name, SUM(unit) AS unit
FROM orders o
JOIN products p
ON o.product_id = p.product_id
WHERE MONTH(order_date)=2 and YEAR(order_date) = 2020
GROUP BY o.product_id) a
WHERE a.unit>=100
```

```
#Solution 2:
SELECT product_name, SUM(unit) AS unit
FROM Products JOIN Orders
ON Products.product_id = Orders.product_id
WHERE left(order_date, 7) = "2020-02"
GROUP BY Products.product_id
HAVING SUM(unit)>=100
```

1336. Number of Transactions per Visit | Hard | 🔒 LeetCode

Table: `Visits`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| user_id       | int     |
| visit_date    | date    |
+---------------+---------+
(user_id, visit_date) is the primary key for this table.
Each row of this table indicates that user_id has visited the bank in visit_date.
```

Table: `Transactions`

```
TEXT
+------------------+---------+
| Column Name      | Type    |
+------------------+---------+
| user_id          | int     |
| transaction_date | date    |
| amount           | int     |
+------------------+---------+
There is no primary key for this table, it may contain duplicates.
Each row of this table indicates that user_id has done a transaction of amount in
It is guaranteed that the user has visited the bank in the transaction_date.(i.e
```

A bank wants to draw a chart of the number of transactions bank visitors did in one visit to the bank and the corresponding number of visitors who have done this number of transaction in one visit.

Write an SQL query to find how many users visited the bank and didn't do any transactions, how many visited the bank and did one transaction and so on.

The result table will contain two columns:

- `transactions_count` which is the number of transactions done in one visit.
- `visits_count` which is the corresponding number of users who did transactions*count in one visit to the bank*.
  `*transactions*count `should take all values from` 0 `to` max(transactions_count)` done by one or more users.

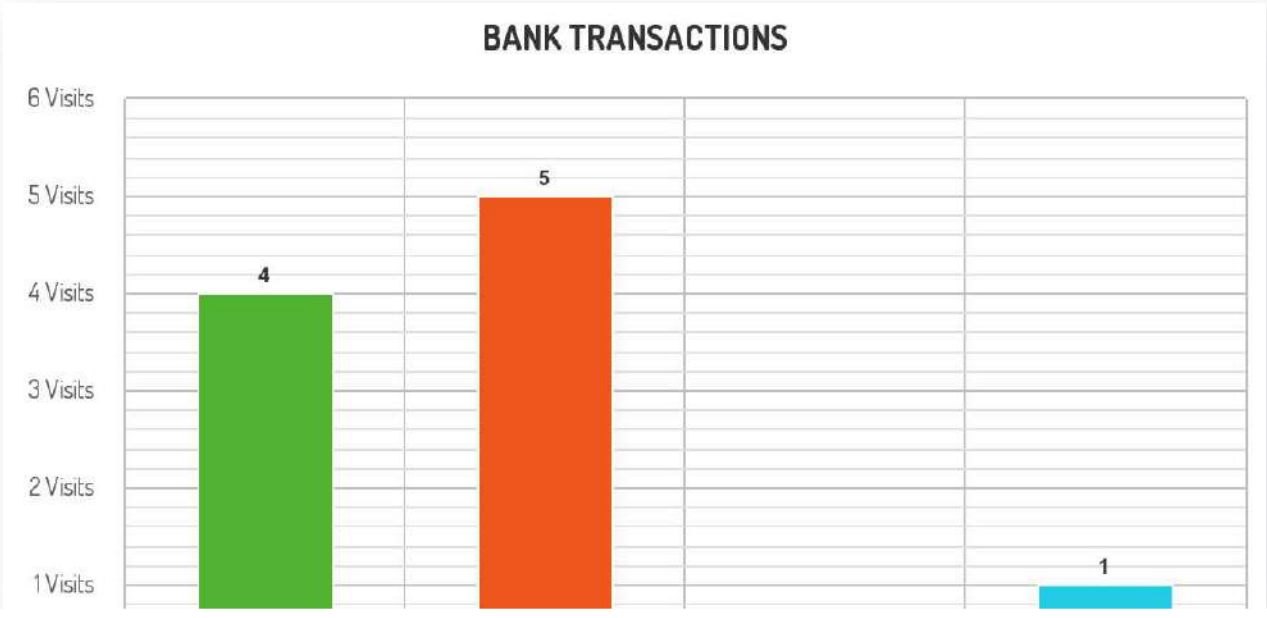
Order the result table by `transactions_count`.

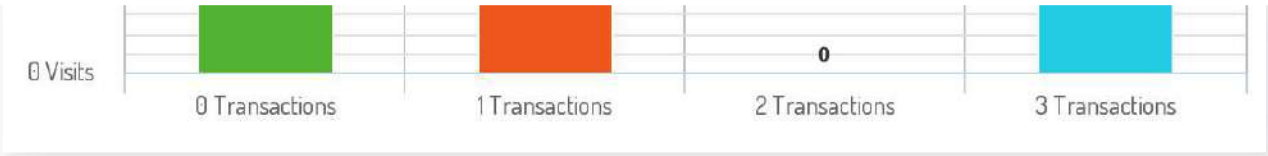
The query result format is in the following example:

```
TEXT
Visits table:
+---------+------------+
| user_id | visit_date |
+---------+------------+
| 1       | 2020-01-01 |
| 2       | 2020-01-02 |
| 12      | 2020-01-01 |
| 19      | 2020-01-03 |
| 1       | 2020-01-02 |
| 2       | 2020-01-03 |
| 1       | 2020-01-04 |
| 7       | 2020-01-11 |
| 9       | 2020-01-25 |
| 8       | 2020-01-28 |
+---------+------------+
Transactions table:
+---------+------------------+--------+
| user_id | transaction_date | amount |
+---------+------------------+--------+
```

```
| 1       | 2020-01-02       | 120    |
| 2       | 2020-01-03       | 22     |
| 7       | 2020-01-11       | 232    |
| 1       | 2020-01-04       | 7      |
| 9       | 2020-01-25       | 33     |
| 9       | 2020-01-25       | 66     |
| 8       | 2020-01-28       | 1      |
| 9       | 2020-01-25       | 99     |
+---------+------------------+--------+
Result table:
+--------------------+--------------+
| transactions_count | visits_count |
+--------------------+--------------+
| 0                  | 4            |
| 1                  | 5            |
| 2                  | 0            |
| 3                  | 1            |
+--------------------+--------------+
* For transactions_count = 0, The visits (1, "2020-01-01"), (2, "2020-01-02"), (1
* For transactions_count = 1, The visits (2, "2020-01-03"), (7, "2020-01-11"), (8
* For transactions_count = 2, No customers visited the bank and did two transacti
* For transactions_count = 3, The visit (9, "2020-01-25") did three transactions
* For transactions_count >= 4, No customers visited the bank and did more than th
```

The chart drawn for this example is as follows:





Solution

SQL

```
WITH RECURSIVE t1 AS(
                    SELECT visit_date,
                           COALESCE(num_visits,0) as num_visits,
                           COALESCE(num_trans,0) as num_trans
                    FROM ((
                          SELECT visit_date, user_id, COUNT(*) as num_visits
                          FROM visits
                          GROUP BY 1, 2) AS a
                         LEFT JOIN
                          (
                           SELECT transaction_date,
                                  user_id,
                                  count(*) as num_trans
                             FROM transactions
                          GROUP BY 1, 2) AS b
                         ON a.visit_date = b.transaction_date and a.user_id = b.u
                      ),

               t2 AS (
                        SELECT MAX(num_trans) as trans
                          FROM t1
                        UNION ALL
                        SELECT trans-1
                          FROM t2
                        WHERE trans >= 1)

SELECT trans as transactions_count,
       COALESCE(visits_count,0) as visits_count
  FROM t2 LEFT JOIN (
                    SELECT num_trans as transactions_count, COALESCE(COUNT(*),0)
                    FROM t1
                    GROUP BY 1
```

```
                    ORDER BY 1) AS a
ON a.transactions_count = t2.trans
ORDER BY 1
```

1341. Movie Rating | Medium | 🔒 LeetCode

Table: `Movies`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| movie_id      | int     |
| title         | varchar |
+---------------+---------+
movie_id is the primary key for this table.
title is the name of the movie.
```

Table: `Users`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| user_id       | int     |
| name          | varchar |
+---------------+---------+
user_id is the primary key for this table.
```

Table: `Movie_Rating`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
```

```
| movie_id      | int     |
| user_id       | int     |
| rating        | int     |
| created_at    | date    |
+---------------+---------+
(movie_id, user_id) is the primary key for this table.
This table contains the rating of a movie by a user in their review.
created_at is the user's review date.
```

Write the following SQL query:

- Find the name of the user who has rated the greatest number of the movies.
  In case of a tie, return lexicographically smaller user name.
- Find the movie name with the highest average rating in February 2020.
  In case of a tie, return lexicographically smaller movie name..

Query is returned in 2 rows, the query result format is in the following example:

TEXT

```
Movies table:
+-------------+--------------+
| movie_id    |  title       |
+-------------+--------------+
| 1           | Avengers     |
| 2           | Frozen 2     |
| 3           | Joker        |
+-------------+--------------+

Users table:
+-------------+--------------+
| user_id     |  name        |
+-------------+--------------+
| 1           | Daniel       |
| 2           | Monica       |
| 3           | Maria        |
| 4           | James        |
+-------------+--------------+
```

Movie_Rating table:

movie_id	user_id	rating	created_at
1	1	3	2020-01-12
1	2	4	2020-02-11
1	3	2	2020-02-12
1	4	1	2020-01-01
2	1	5	2020-02-17
2	2	2	2020-02-01
2	3	2	2020-03-01
3	1	3	2020-02-22
3	2	4	2020-02-25

Result table:

results
Daniel
Frozen 2

Daniel and Maria have rated 3 movies ("Avengers", "Frozen 2" and "Joker") but Dan
Frozen 2 and Joker have a rating average of 3.5 in February but Frozen 2 is small

Solution

SQL

```sql
#Solution 1:
(SELECT name AS results
FROM Movie_Rating JOIN Users
ON Movie_Rating.user_id = Users.user_id
GROUP BY Movie_Rating.user_id
ORDER BY count(1) DESC, name
LIMIT 1)
UNION ALL
```

```
(SELECT title AS results
FROM Movie_Rating JOIN Movies
ON Movie_Rating.movie_id = Movies.movie_id
WHERE left(created_at, 7) = "2020-02"
GROUP BY Movie_Rating.movie_id
ORDER BY avg(rating) DESC, title
LIMIT 1
)

#Solution 2:
SELECT name AS results
FROM(
(SELECT a.name
FROM(
SELECT name, count(*),
rank() OVER(ORDER BY count(*) DESC) AS rk
FROM movie_rating m
JOIN users u
ON m.user_id = u.user_id
GROUP BY name, m.user_id
ORDER BY rk, name) a
LIMIT 1)
UNION
(SELECT title
FROM(
SELECT title, round(avg(rating),1) AS rnd
FROM movie_rating m
JOIN movies u
on m.movie_id = u.movie_id
WHERE month(created_at) = 2
GROUP BY title
ORDER BY rnd DESC, title) b
LIMIT 1)) AS d
```

1350. Students With Invalid Departments | Easy | 🔒 LeetCode

Table: `Departments`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
+---------------+---------+
id is the primary key of this table.
The table has information about the id of each department of a university.
```

Table: `Students`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
| department_id | int     |
+---------------+---------+
id is the primary key of this table.
The table has information about the id of each student at a university and the id
```

Write an SQL query to find the id and the name of all students who are enrolled in departments that no longer exists.

Return the result table in any order.

The query result format is in the following example:

```
Departments table:
+------+--------------------------+
| id   | name                     |
+------+--------------------------+
| 1    | Electrical Engineering   |
| 7    | Computer Engineering     |
```

```
| 13   | Bussiness Administration |
+------+--------------------------+

Students table:
+------+----------+---------------+
| id   | name     | department_id |
+------+----------+---------------+
| 23   | Alice    | 1             |
| 1    | Bob      | 7             |
| 5    | Jennifer | 13            |
| 2    | John     | 14            |
| 4    | Jasmine  | 77            |
| 3    | Steve    | 74            |
| 6    | Luis     | 1             |
| 8    | Jonathan | 7             |
| 7    | Daiana   | 33            |
| 11   | Madelynn | 1             |
+------+----------+---------------+

Result table:
+------+----------+
| id   | name     |
+------+----------+
| 2    | John     |
| 7    | Daiana   |
| 4    | Jasmine  |
| 3    | Steve    |
+------+----------+

John, Daiana, Steve and Jasmine are enrolled in departments 14, 33, 74 and 77 res
```

Solution

SQL

```sql
#Solution 1:
SELECT s.id, s.name
FROM students s LEFT JOIN
```

```
departments d
ON s.department_id = d.id
WHERE d.name IS NULL;

#Solution 2:
SELECT id, name
FROM Students
WHERE department_id NOT IN
    (SELECT id FROM Departments)
```

1355. Activity Participants | Medium | 🔒 LeetCode

Table: `Friends`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
| activity      | varchar |
+---------------+---------+
id is the id of the friend and primary key for this table.
name is the name of the friend.
activity is the name of the activity which the friend takes part in.
```

Table: `Activities`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
+---------------+---------+
id is the primary key for this table.
name is the name of the activity.
```

Write an SQL query to find the names of all the activities with neither maximum, nor minimum number of participants.

Return the result table in any order. Each activity in table Activities is performed by any person in the table Friends.

The query result format is in the following example:

TEXT

```
Friends table:
+------+--------------+---------------+
| id   | name         | activity      |
+------+--------------+---------------+
| 1    | Jonathan D.  | Eating        |
| 2    | Jade W.      | Singing       |
| 3    | Victor J.    | Singing       |
| 4    | Elvis Q.     | Eating        |
| 5    | Daniel A.    | Eating        |
| 6    | Bob B.       | Horse Riding  |
+------+--------------+---------------+

Activities table:
+------+--------------+
| id   | name         |
+------+--------------+
| 1    | Eating       |
| 2    | Singing      |
| 3    | Horse Riding |
+------+--------------+

Result table:
+--------------+
| results      |
+--------------+
| Singing      |
+--------------+

Eating activity is performed by 3 friends, maximum number of participants, (Jonat
```

Horse Riding activity is performed by 1 friend, minimum number of participants, (
Singing is performed by 2 friends (Victor J. and Jade W.)

Solution

```sql
#Solution 1:
WITH CTE AS
(SELECT COUNT(*) AS cnt, activity FROM Friends GROUP BY activity)

SELECT activity FROM CTE
WHERE cnt NOT IN
    (SELECT MAX(cnt) FROM CTE
    UNION ALL
    SELECT MIN(cnt) FROM CTE)

#Solution 2:
WITH t1 AS(
SELECT MAX(a.total) AS total
FROM(
    SELECT activity, COUNT(*) AS total
    FROM friends
    GROUP BY activity) a
    UNION ALL
    SELECT MIN(b.total) AS low
    FROM(
    SELECT activity, COUNT(*) AS total
    FROM friends
    GROUP BY activity) b),
t2 AS
(
    SELECT activity, COUNT(*) AS total
    FROM friends
    GROUP BY activity
)

SELECT activity
```

```
FROM t1 RIGHT JOIN t2
ON t1.total = t2.total
WHERE t1.total is null
```

1364. Number of Trusted Contacts of a Customer | Medium | 🔒 LeetCode

Table: `Customers`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| customer_name | varchar |
| email         | varchar |
+---------------+---------+
customer_id is the primary key for this table.
Each row of this table contains the name and the email of a customer of an online
```

Table: `Contacts`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| user_id       | id      |
| contact_name  | varchar |
| contact_email | varchar |
+---------------+---------+
(user_id, contact_email) is the primary key for this table.
Each row of this table contains the name and email of one contact of customer wit
This table contains information about people each customer trust. The contact may
```

Table: `Invoices`

```
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| invoice_id   | int     |
| price        | int     |
| user_id      | int     |
+--------------+---------+
invoice_id is the primary key for this table.
Each row of this table indicates that user_id has an invoice with invoice_id and
```

Write an SQL query to find the following for each invoice_id:

- customer_name: The name of the customer the invoice is related to.
- price: The price of the invoice.
- contacts_cnt: The number of contacts related to the customer.
- trusted*contacts*cnt: The number of contacts related to the customer and at the same time they are customers to the shop. (i.e His/Her email exists in the Customers table.) Order the result table by invoice_id.

The query result format is in the following example:

```
Customers table:
+-------------+---------------+--------------------+
| customer_id | customer_name | email              |
+-------------+---------------+--------------------+
| 1           | Alice         | alice@leetcode.com |
| 2           | Bob           | bob@leetcode.com   |
| 13          | John          | john@leetcode.com  |
| 6           | Alex          | alex@leetcode.com  |
+-------------+---------------+--------------------+
Contacts table:
+-------------+--------------+--------------------+
| user_id     | contact_name | contact_email      |
+-------------+--------------+--------------------+
| 1           | Bob          | bob@leetcode.com   |
```

```
| 1           | John         | john@leetcode.com  |
| 1           | Jal          | jal@leetcode.com   |
| 2           | Omar         | omar@leetcode.com  |
| 2           | Meir         | meir@leetcode.com  |
| 6           | Alice        | alice@leetcode.com |
+-------------+--------------+--------------------+
Invoices table:
+------------+-------+---------+
| invoice_id | price | user_id |
+------------+-------+---------+
| 77         | 100   | 1       |
| 88         | 200   | 1       |
| 99         | 300   | 2       |
| 66         | 400   | 2       |
| 55         | 500   | 13      |
| 44         | 60    | 6       |
+------------+-------+---------+
Result table:
+------------+---------------+-------+-------------+----------------------+
| invoice_id | customer_name | price | contacts_cnt | trusted_contacts_cnt |
+------------+---------------+-------+-------------+----------------------+
| 44         | Alex          | 60    | 1           | 1                    |
| 55         | John          | 500   | 0           | 0                    |
| 66         | Bob           | 400   | 2           | 0                    |
| 77         | Alice         | 100   | 3           | 2                    |
| 88         | Alice         | 200   | 3           | 2                    |
| 99         | Bob           | 300   | 2           | 0                    |
+------------+---------------+-------+-------------+----------------------+
Alice has three contacts, two of them are trusted contacts (Bob and John).
Bob has two contacts, none of them is a trusted contact.
Alex has one contact and it is a trusted contact (Alice).
John doesn't have any contacts.
```

Solution

```sql
SELECT invoice_id, customer_name, price,
 COUNT(Contacts.user_id) AS contacts_cnt,
```

```
 SUM(CASE WHEN Contacts.contact_name IN
    (SELECT customer_name FROM Customers)
    THEN 1 ELSE 0 END) AS trusted_contacts_cnt
FROM Invoices INNER JOIN Customers ON Invoices.user_id = Customers.customer_id
LEFT JOIN Contacts ON Customers.customer_id = Contacts.user_id
GROUP BY Invoices.invoice_id, customer_name
ORDER BY Invoices.invoice_id
```

1369. Get the Second Most Recent Activity | Hard | 🔒 LeetCode

Table: `UserActivity`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| username      | varchar |
| activity      | varchar |
| startDate     | Date    |
| endDate       | Date    |
+---------------+---------+
This table does not contain primary key.
This table contain information about the activity performed of each user in a per
A person with username performed a activity from startDate to endDate.
```

Write an SQL query to show the second most recent activity of each user.

If the user only has one activity, return that one.

A user can't perform more than one activity at the same time. Return the result table in any order.

The query result format is in the following example:

TEXT

```
UserActivity table:
+------------+--------------+-------------+-------------+
| username   | activity     | startDate   | endDate     |
+------------+--------------+-------------+-------------+
| Alice      | Travel       | 2020-02-12  | 2020-02-20  |
| Alice      | Dancing      | 2020-02-21  | 2020-02-23  |
| Alice      | Travel       | 2020-02-24  | 2020-02-28  |
| Bob        | Travel       | 2020-02-11  | 2020-02-18  |
+------------+--------------+-------------+-------------+

Result table:
+------------+--------------+-------------+-------------+
| username   | activity     | startDate   | endDate     |
+------------+--------------+-------------+-------------+
| Alice      | Dancing      | 2020-02-21  | 2020-02-23  |
| Bob        | Travel       | 2020-02-11  | 2020-02-18  |
+------------+--------------+-------------+-------------+

The most recent activity of Alice is Travel from 2020-02-24 to 2020-02-28, before
Bob only has one record, we just take that one.
```

Solution

SQL

```sql
(SELECT *
FROM UserActivity
GROUP BY username
HAVING count(1) = 1)
UNION
(SELECT a.*
FROM UserActivity AS a LEFT JOIN UserActivity AS b
on a.username = b.username AND a.endDate<b.endDate
GROUP BY a.username, a.endDate
HAVING count(b.endDate) = 1)
```

1378. Replace Employee ID With The Unique Identifier | Easy | 🔒 LeetCode

Table: `Employees`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
+---------------+---------+
id is the primary key for this table.
Each row of this table contains the id and the name of an employee in a company.
```

Table: `EmployeeUNI`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| unique_id     | int     |
+---------------+---------+
(id, unique_id) is the primary key for this table.
Each row of this table contains the id and the corresponding unique id of an empl
```

Write an SQL query to show the unique ID of each user, If a user doesn't have a unique ID replace just show null.

Return the result table in any order.

The query result format is in the following example:

```
TEXT
Employees table:
+----+----------+
```

```
| id | name     |
+----+----------+
| 1  | Alice    |
| 7  | Bob      |
| 11 | Meir     |
| 90 | Winston  |
| 3  | Jonathan |
+----+----------+

EmployeeUNI table:
+----+-----------+
| id | unique_id |
+----+-----------+
| 3  | 1         |
| 11 | 2         |
| 90 | 3         |
+----+-----------+

EmployeeUNI table:
+-----------+----------+
| unique_id | name     |
+-----------+----------+
| null      | Alice    |
| null      | Bob      |
| 2         | Meir     |
| 3         | Winston  |
| 1         | Jonathan |
+-----------+----------+

Alice and Bob don't have a unique ID, We will show null instead.
The unique ID of Meir is 2.
The unique ID of Winston is 3.
The unique ID of Jonathan is 1.
```

Solution

```sql
SELECT unique_id, name
FROM Employees
LEFT JOIN EmployeeUNI
ON Employees.id = EmployeeUNI.id
```

1384. Total Sales Amount by Year | Hard | 🔒 LeetCode

Table: `Product`

+---------------+---------+ | Column Name | Type | +---------------+---------+ | product*id* | *int* | | *product*name | varchar | +---------------+---------+ product*id is the primary key for this table*. *product*name is the name of the product.

Table: `Sales`

```text
+----------------------+---------+
| Column Name          | Type    |
+----------------------+---------+
| product_id           | int     |
| period_start         | varchar |
| period_end           | date    |
| average_daily_sales  | int     |
+----------------------+---------+
product_id is the primary key for this table.
period_start and period_end indicates the start and end date for sales period, bo
The average_daily_sales column holds the average daily sales amount of the items
```

Write an SQL query to report the Total sales amount of each item for each year, with corresponding product name, product*id, product*name and report_year.

Dates of the sales years are between 2018 to 2020. Return the result table **ordered** by product*id and report*year.

The query result format is in the following example:

TEXT

```
Product table:
+------------+--------------+
| product_id | product_name |
+------------+--------------+
| 1          | LC Phone     |
| 2          | LC T-Shirt   |
| 3          | LC Keychain  |
+------------+--------------+

Sales table:
+------------+--------------+-------------+---------------------+
| product_id | period_start | period_end  | average_daily_sales |
+------------+--------------+-------------+---------------------+
| 1          | 2019-01-25   | 2019-02-28  | 100                 |
| 2          | 2018-12-01   | 2020-01-01  | 10                  |
| 3          | 2019-12-01   | 2020-01-31  | 1                   |
+------------+--------------+-------------+---------------------+

Result table:
+------------+--------------+-------------+--------------+
| product_id | product_name | report_year | total_amount |
+------------+--------------+-------------+--------------+
| 1          | LC Phone     |    2019     | 3500         |
| 2          | LC T-Shirt   |    2018     | 310          |
| 2          | LC T-Shirt   |    2019     | 3650         |
| 2          | LC T-Shirt   |    2020     | 10           |
| 3          | LC Keychain  |    2019     | 31           |
| 3          | LC Keychain  |    2020     | 31           |
+------------+--------------+-------------+--------------+
LC Phone was sold for the period of 2019-01-25 to 2019-02-28, and there are 35 da
LC T-shirt was sold for the period of 2018-12-01 to 2020-01-01, and there are 31,
LC Keychain was sold for the period of 2019-12-01 to 2020-01-31, and there are 31
```

Solution

```sql
SELECT
    b.product_id,
    a.product_name,
    a.yr AS report_year,
    CASE
        WHEN YEAR(b.period_start)=YEAR(b.period_end) AND a.yr=YEAR(b.period_start
        WHEN a.yr=YEAR(b.period_start) THEN DATEDIFF(DATE_FORMAT(b.period_start,'
        WHEN a.yr=YEAR(b.period_end) THEN DAYOFYEAR(b.period_end)
        WHEN a.yr>YEAR(b.period_start) AND a.yr<YEAR(b.period_end) THEN 365
        ELSE 0
    END * average_daily_sales AS total_amount
FROM
    (SELECT product_id,product_name,'2018' AS yr FROM Product
    UNION
    SELECT product_id,product_name,'2019' AS yr FROM Product
    UNION
    SELECT product_id,product_name,'2020' AS yr FROM Product) a
    JOIN
    Sales b
    ON a.product_id=b.product_id
HAVING total_amount > 0
ORDER BY b.product_id,a.yr
```

1393. Capital Gain/Loss | Medium | 🔒 LeetCode

Table: `Stocks`

```text
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| stock_name    | varchar |
| operation     | enum    |
| operation_day | int     |
| price         | int     |
+---------------+---------+
```

```
(stock_name, day) is the primary key for this table.
The operation column is an ENUM of type ('Sell', 'Buy')
Each row of this table indicates that the stock which has stock_name had an opera
It is guaranteed that each 'Sell' operation for a stock has a corresponding 'Buy'
```

Write an SQL query to report the Capital gain/loss for each stock.

The capital gain/loss of a stock is total gain or loss after buying and selling the stock one or many times.

Return the result table in any order.

The query result format is in the following example:

TEXT

```
Stocks table:
+---------------+-----------+---------------+--------+
| stock_name    | operation | operation_day | price  |
+---------------+-----------+---------------+--------+
| Leetcode      | Buy       | 1             | 1000   |
| Corona Masks  | Buy       | 2             | 10     |
| Leetcode      | Sell      | 5             | 9000   |
| Handbags      | Buy       | 17            | 30000  |
| Corona Masks  | Sell      | 3             | 1010   |
| Corona Masks  | Buy       | 4             | 1000   |
| Corona Masks  | Sell      | 5             | 500    |
| Corona Masks  | Buy       | 6             | 1000   |
| Handbags      | Sell      | 29            | 7000   |
| Corona Masks  | Sell      | 10            | 10000  |
+---------------+-----------+---------------+--------+

Result table:
+---------------+-------------------+
| stock_name    | capital_gain_loss |
+---------------+-------------------+
| Corona Masks  | 9500              |
| Leetcode      | 8000              |
| Handbags      | -23000            |
```

```
+--------------+------------------+
Leetcode stock was bought at day 1 for 1000$ and was sold at day 5 for 9000$. Cap
Handbags stock was bought at day 17 for 30000$ and was sold at day 29 for 7000$.
Corona Masks stock was bought at day 1 for 10$ and was sold at day 3 for 1010$. I
```

Solution

```sql
#Solution 1:
SELECT stock_name,
       SUM(CASE WHEN operation = 'Buy' THEN -price ELSE price END) AS capital_gai
FROM Stocks
GROUP BY stock_name;

#Solution 2:
SELECT stock_name, (one-two) AS capital_gain_loss
FROM(
(SELECT stock_name, sum(price) AS one
FROM stocks
WHERE operation = 'Sell'
GROUP BY stock_name) b
LEFT JOIN
(SELECT stock_name AS name, sum(price) AS two
FROM stocks
WHERE operation = 'Buy'
GROUP BY stock_name) c
ON b.stock_name = c.name)
ORDER BY capital_gain_loss DESC;
```

1398. Customers Who Bought Products A and B but Not C | Medium | 🔒 LeetCode

Table: `Customers`

```
+---------------------+---------+
| Column Name         | Type    |
+---------------------+---------+
| customer_id         | int     |
| customer_name       | varchar |
+---------------------+---------+
customer_id is the primary key for this table.
customer_name is the name of the customer.
```

Table: `Orders`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| customer_id   | int     |
| product_name  | varchar |
+---------------+---------+
order_id is the primary key for this table.
customer_id is the id of the customer who bought the product "product_name".
```

Write an SQL query to report the customer*id and customer*name of customers who bought products “A”, “B” but did not buy the product “C” since we want to recommend them buy this product.

Return the result table ordered by customer_id.

The query result format is in the following example.

```
Customers table:
+-------------+---------------+
| customer_id | customer_name |
+-------------+---------------+
| 1           | Daniel        |
| 2           | Diana         |
```

```
| 3           | Elizabeth     |
| 4           | Jhon          |
+-------------+---------------+

Orders table:
+------------+--------------+---------------+
| order_id   | customer_id  | product_name  |
+------------+--------------+---------------+
| 10         |     1        |     A         |
| 20         |     1        |     B         |
| 30         |     1        |     D         |
| 40         |     1        |     C         |
| 50         |     2        |     A         |
| 60         |     3        |     A         |
| 70         |     3        |     B         |
| 80         |     3        |     D         |
| 90         |     4        |     C         |
+------------+--------------+---------------+

Result table:
+-------------+---------------+
| customer_id | customer_name |
+-------------+---------------+
| 3           | Elizabeth     |
+-------------+---------------+
Only the customer_id with id 3 bought the product A and B but not the product C.
```

Solution

```sql
#Solution 1:
WITH t1 AS
(
SELECT customer_id
FROM orders
WHERE product_name = 'B' AND
customer_id IN (SELECT customer_id
```

```
FROM orders
WHERE product_name = 'A'))

SELECT t1.customer_id, c.customer_name
FROM t1 JOIN customers c
ON t1.customer_id = c.customer_id
WHERE t1.customer_id != all(SELECT customer_id
FROM orders
WHERE product_name = 'C')

#Solution 2:
SELECT *
FROM Customers
WHERE customer_id IN
    (SELECT DISTINCT customer_id
     FROM Orders
     WHERE product_name = 'A'
    ) AND
    customer_id IN
    (SELECT DISTINCT customer_id
     FROM Orders
     WHERE product_name = 'B'
    ) AND
    customer_id NOT IN
    (SELECT DISTINCT customer_id
     FROM Orders
     WHERE product_name = 'C'
    )
ORDER BY customer_id

#Solution 3:
SELECT Customers.*
FROM (
    SELECT customer_id,
     sum(CASE WHEN product_name = 'A' THEN 1 ELSE 0 END) AS product_a,
     sum(CASE WHEN product_name = 'B' THEN 1 ELSE 0 END) AS product_b
    FROM Orders
    GROUP BY customer_id) AS t JOIN Customers
ON t.customer_id = Customers.customer_id
WHERE t.product_a>0 AND product_b >0 AND Customers.customer_id NOT IN (
```

```
    SELECT DISTINCT customer_id
    FROM Orders
    WHERE product_name = 'C')
ORDER BY Customers.customer_id
```

1407. Top Travellers | Easy | 🔒 LeetCode

Table: `Users`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| name          | varchar |
+---------------+---------+
id is the primary key for this table.
name is the name of the user.
```

Table: `Rides`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| user_id       | int     |
| distance      | int     |
+---------------+---------+
id is the primary key for this table.
city_id is the id of the city who bought the product "product_name".
```

Write an SQL query to report the distance travelled by each user.

Return the result table ordered by `travelled_distance` in descending order, if two or more users travelled the same distance, order them by their `name` in ascending

order.

The query result format is in the following example.

```
TEXT
Users table:
+------+-----------+
| id   | name      |
+------+-----------+
| 1    | Alice     |
| 2    | Bob       |
| 3    | Alex      |
| 4    | Donald    |
| 7    | Lee       |
| 13   | Jonathan  |
| 19   | Elvis     |
+------+-----------+

Rides table:
+------+----------+----------+
| id   | user_id  | distance |
+------+----------+----------+
| 1    | 1        | 120      |
| 2    | 2        | 317      |
| 3    | 3        | 222      |
| 4    | 7        | 100      |
| 5    | 13       | 312      |
| 6    | 19       | 50       |
| 7    | 7        | 120      |
| 8    | 19       | 400      |
| 9    | 7        | 230      |
+------+----------+----------+

Result table:
+----------+--------------------+
| name     | travelled_distance |
+----------+--------------------+
| Elvis    | 450                |
| Lee      | 450                |
| Bob      | 317                |
```

```
| Jonathan | 312                |
| Alex     | 222                |
| Alice    | 120                |
| Donald   | 0                  |
+----------+--------------------+
Elvis and Lee travelled 450 miles, Elvis is the top traveller as his name is alph
Bob, Jonathan, Alex and Alice have only one ride and we just order them by the to
Donald didn't have any rides, the distance travelled by him is 0.
```

Solution

```sql
#Solution 1:
SELECT U.name AS name, COALESCE(SUM(R.distance),0) AS travelled_distance
FROM Users U LEFT JOIN Rides R
ON R.user_id = U.id
GROUP BY name
ORDER BY travelled_distance DESC, name

#Solution 2:
SELECT name, IFNULL(SUM(distance), 0) AS travelled_distance
FROM Users LEFT JOIN Rides
ON Users.id = Rides.user_id
GROUP BY Users.id
ORDER BY travelled_distance DESC, name

#Solution 3:
SELECT name, SUM(IF(ISNULL(distance), 0, distance)) AS travelled_distance
FROM Users LEFT JOIN Rides
ON Users.id = Rides.user_id
GROUP BY Users.id
ORDER BY travelled_distance DESC, name
```

1412. Find the Quiet Students in All Exams | Hard | 🔒 LeetCode

Table: `Student`

```
+---------------------+---------+
| Column Name         | Type    |
+---------------------+---------+
| student_id          | int     |
| student_name        | varchar |
+---------------------+---------+
student_id is the primary key for this table.
student_name is the name of the student.
```

Table: `Exam`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| exam_id       | int     |
| student_id    | int     |
| score         | int     |
+---------------+---------+
(exam_id, student_id) is the primary key for this table.
Student with student_id got score points in exam with id exam_id.
```

A “quite” student is the one who took at least one exam and didn’t score neither the high score nor the low score.

Write an SQL query to report the students (student*id*, *student*name) being “quiet” in **ALL** exams.

Don’t return the student who has never taken any exam. Return the result table ordered by student_id.

The query result format is in the following example.

TEXT

Student table:

student_id	student_name
1	Daniel
2	Jade
3	Stella
4	Jonathan
5	Will

Exam table:

exam_id	student_id	score
10	1	70
10	2	80
10	3	90
20	1	80
30	1	70
30	3	80
30	4	90
40	1	60
40	2	70
40	4	80

Result table:

student_id	student_name
2	Jade

For exam 1: Student 1 and 3 hold the lowest and high score respectively.

For exam 2: Student 1 hold both highest and lowest score.

For exam 3 and 4: Studnet 1 and 4 hold the lowest and high score respectively.

Student 2 and 5 have never got the highest or lowest in any of the exam.

Since student 5 is not taking any exam, he is excluded from the result.
So, we only return the information of Student 2.

Solution

```sql
#Solution 1:
WITH t1 AS(
SELECT student_id
FROM
(SELECT *,
MIN(score) OVER(PARTITION BY exam_id) AS least,
MAX(score) OVER(PARTITION BY exam_id) AS most
FROM exam) a
WHERE least = score OR most = score)

SELECT DISTINCT student_id, student_name
FROM exam JOIN student
USING (student_id)
WHERE student_id != all(SELECT student_id FROM t1)
order by 1

#Solution 2:
SELECT DISTINCT Student.*
FROM Student INNER JOIN Exam
ON Student.student_id = Exam.student_id
WHERE student.student_id NOT IN
    (SELECT e1.student_id
    FROM Exam AS e1 INNER JOIN
        (SELECT exam_id, MIN(score) AS min_score, MAX(score) AS max_score
        FROM Exam
        GROUP BY exam_id) AS e2
    ON e1.exam_id = e2.exam_id
    WHERE e1.score = e2.min_score OR e1.score = e2.max_score)
ORDER BY student_id
```

1421. NPV Queries | Medium | 🔒 LeetCode

Table: `NPV`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| year          | int     |
| npv           | int     |
+---------------+---------+
(id, year) is the primary key of this table.
The table has information about the id and the year of each inventory and the cor
```

Table: `Queries`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| year          | int     |
+---------------+---------+
(id, year) is the primary key of this table.
The table has information about the id and the year of each inventory query.
```

Write an SQL query to find the npv of all each query of queries table.

Return the result table in any order.

The query result format is in the following example:

```
TEXT
NPV table:
+------+--------+--------+
| id   | year   | npv    |
```

```
+------+--------+--------+
| 1    | 2018   | 100    |
| 7    | 2020   | 30     |
| 13   | 2019   | 40     |
| 1    | 2019   | 113    |
| 2    | 2008   | 121    |
| 3    | 2009   | 12     |
| 11   | 2020   | 99     |
| 7    | 2019   | 0      |
+------+--------+--------+
```

Queries table:

```
+------+--------+
| id   | year   |
+------+--------+
| 1    | 2019   |
| 2    | 2008   |
| 3    | 2009   |
| 7    | 2018   |
| 7    | 2019   |
| 7    | 2020   |
| 13   | 2019   |
+------+--------+
```

Result table:

```
+------+--------+--------+
| id   | year   | npv    |
+------+--------+--------+
| 1    | 2019   | 113    |
| 2    | 2008   | 121    |
| 3    | 2009   | 12     |
| 7    | 2018   | 0      |
| 7    | 2019   | 0      |
| 7    | 2020   | 30     |
| 13   | 2019   | 40     |
+------+--------+--------+
```

The npv value of (7, 2018) is not present in the NPV table, we consider it 0.
The npv values of all other queries can be found in the NPV table.

Solution

```sql
#Solution 1:
SELECT q.id, q.year, COALESCE(n.npv,0) AS npv
FROM queries q
LEFT JOIN npv n
ON q.id = n.id AND q.year=n.year

#Solution 2:
SELECT Queries.*, IF(ISNULL(npv), 0, npv) AS npv
FROM Queries LEFT JOIN NPV
ON Queries.id = NPV.id AND Queries.year = NPV.year
```

1435. Create a Session Bar Chart | Easy | 🔒 LeetCode

Table: `Sessions`

```text
+---------------------+---------+
| Column Name         | Type    |
+---------------------+---------+
| session_id          | int     |
| duration            | int     |
+---------------------+---------+
session_id is the primary key for this table.
duration is the time in seconds that a user has visited the application.
```

You want to know how long a user visits your application. You decided to create bins of “[0-5>”, “[5-10>”, “[10-15>” and “15 minutes or more” and count the number of sessions on it.

Write an SQL query to report the (bin, total) in **any** order.

TEXT

```
The query result format is in the following example.

Sessions table:
+-------------+---------------+
| session_id  | duration      |
+-------------+---------------+
| 1           | 30            |
| 2           | 299           |
| 3           | 340           |
| 4           | 580           |
| 5           | 1000          |
+-------------+---------------+

Result table:
+--------------+--------------+
| bin          | total        |
+--------------+--------------+
| [0-5>        | 3            |
| [5-10>       | 1            |
| [10-15>      | 0            |
| 15 or more   | 1            |
+--------------+--------------+

For session_id 1, 2 and 3 have a duration greater or equal than 0 minutes and les
For session_id 4 has a duration greater or equal than 5 minutes and less than 10
There are no session with a duration greater or equial than 10 minutes and less t
For session_id 5 has a duration greater or equal than 15 minutes.
```

Solution

SQL

```sql
#Solution 1:
(SELECT '[0-5>' AS bin,
 SUM(CASE WHEN duration/60 < 5 THEN 1 ELSE 0 END) AS total FROM Sessions)
 UNION
(SELECT '[5-10>' AS bin,
```

```
 SUM(CASE WHEN ((duration/60 >= 5) AND (duration/60 < 10)) THEN 1 ELSE 0 END) AS
 UNION
(SELECT '[10-15>' AS bin,
 SUM(CASE WHEN ((duration/60 >= 10) AND (duration/60 < 15)) THEN 1 ELSE 0 END) AS
 UNION
(SELECT '15 or more' AS bin,
 SUM(CASE WHEN duration/60 >= 15 THEN 1 ELSE 0 END) AS total FROM Sessions)
```

```
#Solution 2:
SELECT '[0-5>' AS bin, count(1) AS total
FROM Sessions
WHERE duration>=0 AND duration < 300
UNION
SELECT '[5-10>' AS bin, count(1) AS total
FROM Sessions
WHERE duration>=300 AND duration < 600
UNION
SELECT '[10-15>' AS bin, count(1) AS total
FROM Sessions
WHERE duration>=600 AND duration < 900
UNION
SELECT '15 or more' AS bin, count(1) AS total
FROM Sessions
WHERE duration >= 900
```

1440. Evaluate Boolean Expression | Medium | 🔒 LeetCode

Table `Variables`:

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| name          | varchar |
| value         | int     |
+---------------+---------+
```

```
name is the primary key for this table.
This table contains the stored variables and their values.
```

Table `Expressions`:

```TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| left_operand  | varchar |
| operator      | enum    |
| right_operand | varchar |
+---------------+---------+
(left_operand, operator, right_operand) is the primary key for this table.
This table contains a boolean expression that should be evaluated.
operator is an enum that takes one of the values ('<', '>', '=')
The values of left_operand and right_operand are guaranteed to be in the Variable
```

Write an SQL query to evaluate the boolean expressions in `Expressions` table.

Return the result table in any order.

The query result format is in the following example.

```TEXT
Variables table:
+------+-------+
| name | value |
+------+-------+
| x    | 66    |
| y    | 77    |
+------+-------+

Expressions table:
+--------------+----------+---------------+
| left_operand | operator | right_operand |
+--------------+----------+---------------+
```

```
| x            | >        | y             |
| x            | <        | y             |
| x            | =        | y             |
| y            | >        | x             |
| y            | <        | x             |
| x            | =        | x             |
+--------------+----------+---------------+
```

Result table:

```
+--------------+----------+---------------+-------+
| left_operand | operator | right_operand | value |
+--------------+----------+---------------+-------+
| x            | >        | y             | false |
| x            | <        | y             | true  |
| x            | =        | y             | false |
| y            | >        | x             | true  |
| y            | <        | x             | false |
| x            | =        | x             | true  |
+--------------+----------+---------------+-------+
```

As shown, you need find the value of each boolean exprssion in the table using th

Solution

SQL

```sql
#Solution 1:
WITH t1 AS(
SELECT e.left_operand, e.operator, e.right_operand, v.value AS left_val, v_1.valu
FROM expressions e
JOIN variables v
ON v.name = e.left_operand
JOIN variables v_1
ON v_1.name = e.right_operand)

SELECT t1.left_operand, t1.operator, t1.right_operand,
CASE WHEN t1.operator = '<' THEN (SELECT t1.left_val< t1.right_val)
WHEN t1.operator = '>' THEN (SELECT t1.left_val > t1.right_val)
WHEN t1.operator = '=' THEN (SELECT t1.left_val = t1.right_val)
```

```
ELSE FALSE
END AS VALUE
FROM t1

#Solution 2:
# nested INNER JOIN can trim the volume of the intermediate table, which gives us
SELECT t.left_operand, t.operator, t.right_operand,
    (CASE WHEN v1_value>v2.value AND operator = '>' THEN "true"
          WHEN v1_value<v2.value AND operator = '<' THEN "true"
          WHEN v1_value=v2.value AND operator = '=' THEN "true"
          ELSE "false"
          END) AS value
FROM
   (SELECT e.*, v1.value AS v1_value
    FROM Expressions AS e INNER JOIN Variables AS v1
    ON e.left_operand = v1.name) AS t INNER JOIN Variables AS v2
    ON t.right_operand = v2.name

#Solution 3:
SELECT t.left_operand, t.operator, t.right_operand,
    (CASE WHEN operator = '>' THEN IF(v1_value>v2.value, "true", "false")
          WHEN operator = '<' THEN IF(v1_value<v2.value, "true", "false")
          WHEN operator = '=' THEN IF(v1_value=v2.value, "true", "false")
          END) AS value
FROM
   (SELECT e.*, v1.value AS v1_value
    FROM Expressions AS e INNER JOIN Variables AS v1
    ON e.left_operand = v1.name) AS t INNER JOIN Variables AS v2
    ON t.right_operand = v2.name
```

1445. Apples & Oranges | Medium | 🔒 LeetCode

Table: `Sales`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
```

```
+---------------+---------+
| sale_date     | date    |
| fruit         | enum    |
| sold_num      | int     |
+---------------+---------+
(sale_date,fruit) is the primary key for this table.
This table contains the sales of "apples" and "oranges" sold each day.
```

Write an SQL query to report the difference between number of **apples** and **oranges** sold each day.

Return the result table ordered by sale_date in format ('YYYY-MM-DD').

The query result format is in the following example:

TEXT

```
Sales table:
+------------+------------+-------------+
| sale_date  | fruit      | sold_num    |
+------------+------------+-------------+
| 2020-05-01 | apples     | 10          |
| 2020-05-01 | oranges    | 8           |
| 2020-05-02 | apples     | 15          |
| 2020-05-02 | oranges    | 15          |
| 2020-05-03 | apples     | 20          |
| 2020-05-03 | oranges    | 0           |
| 2020-05-04 | apples     | 15          |
| 2020-05-04 | oranges    | 16          |
+------------+------------+-------------+

Result table:
+------------+--------------+
| sale_date  | diff         |
+------------+--------------+
| 2020-05-01 | 2            |
| 2020-05-02 | 0            |
| 2020-05-03 | 20           |
| 2020-05-04 | -1           |
+------------+--------------+
```

```
Day 2020-05-01, 10 apples and 8 oranges were sold (Difference  10 - 8 = 2).
Day 2020-05-02, 15 apples and 15 oranges were sold (Difference 15 - 15 = 0).
Day 2020-05-03, 20 apples and 0 oranges were sold (Difference 20 - 0 = 20).
Day 2020-05-04, 15 apples and 16 oranges were sold (Difference 15 - 16 = -1).
```

Solution

```sql
#Solution 1:
SELECT sale_date, sum(CASE WHEN fruit='apples' THEN sold_num ELSE -sold_num END) 
FROM Sales
GROUP BY sale_date

#Solution 2:
SELECT sale_date, sold_num-sold AS diff
FROM
((SELECT *
FROM sales
WHERE fruit = 'apples') a
JOIN
(SELECT sale_date AS sale, fruit, sold_num AS sold
FROM sales
WHERE fruit = 'oranges') b
ON a.sale_date = b.sale)
```

1454. Active Users | Medium | 🔒 LeetCode

Table `Accounts`:

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
```

```
| name          | varchar |
+---------------+---------+
the id is the primary key for this table.
This table contains the account id and the user name of each account.
```

Table `Logins`:

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| login_date    | date    |
+---------------+---------+
There is no primary key for this table, it may contain duplicates.
This table contains the account id of the user who logged in and the login date.
```

Write an SQL query to find the id and the name of active users.

Active users are those who logged in to their accounts for 5 or more consecutive days.

Return the result table **ordered** by the id.

The query result format is in the following example:

```
TEXT
Accounts table:
+----+----------+
| id | name     |
+----+----------+
| 1  | Winston  |
| 7  | Jonathan |
+----+----------+

Logins table:
+----+------------+
```

```
| id | login_date |
+----+------------+
| 7  | 2020-05-30 |
| 1  | 2020-05-30 |
| 7  | 2020-05-31 |
| 7  | 2020-06-01 |
| 7  | 2020-06-02 |
| 7  | 2020-06-02 |
| 7  | 2020-06-03 |
| 1  | 2020-06-07 |
| 7  | 2020-06-10 |
+----+------------+

Result table:
+----+----------+
| id | name     |
+----+----------+
| 7  | Jonathan |
+----+----------+
User Winston with id = 1 logged in 2 times only in 2 different days, so, Winston
User Jonathan with id = 7 logged in 7 times in 6 different days, five of them wer
```

Follow up question: Can you write a general solution if the active users are those who logged in to their accounts for n or more consecutive days?

Solution

```sql
#Solution 1:
WITH t1 AS (
SELECT id,login_date,
lead(login_date,4) OVER(PARTITION BY id ORDER BY login_date) date_5
FROM (SELECT DISTINCT * FROM Logins) b
)

SELECT DISTINCT a.id, a.name FROM t1
INNER JOIN accounts a
```

```
ON t1.id = a.id
WHERE DATEDIFF(t1.date_5,login_date) = 4
ORDER BY id

#Soltion 2:
SELECT *
FROM Accounts
WHERE id IN
    (SELECT DISTINCT t1.id
    FROM Logins AS t1 INNER JOIN Logins AS t2
    ON t1.id = t2.id AND datediff(t1.login_date, t2.login_date) BETWEEN 1 AND 4
    GROUP BY t1.id, t1.login_date
    HAVING count(DISTINCT(t2.login_date)) = 4)
ORDER BY id
```

1459. Rectangles Area | Medium | 🔒 LeetCode

Table: `Points`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| id            | int     |
| x_value       | int     |
| y_value       | int     |
+---------------+---------+
id is the primary key for this table.
Each point is represented as a 2D Dimensional (x_value, y_value).
```

Write an SQL query to report of all possible rectangles which can be formed by any two points of the table.

Each row in the result contains three columns (p1, p2, area) where:

- **p1** and **p2** are the id of two opposite corners of a rectangle and p1 < p2.

- Area of this rectangle is represented by the column **area**. Report the query in descending order by area in case of tie in ascending order by p1 and p2.

TEXT

```
Points table:
+----------+-------------+-------------+
| id       | x_value     | y_value     |
+----------+-------------+-------------+
| 1        | 2           | 8           |
| 2        | 4           | 7           |
| 3        | 2           | 10          |
+----------+-------------+-------------+

Result table:
+----------+-------------+-------------+
| p1       | p2          | area        |
+----------+-------------+-------------+
| 2        | 3           | 6           |
| 1        | 2           | 2           |
+----------+-------------+-------------+

p1 should be less than p2 and area greater than 0.
p1 = 1 and p2 = 2, has an area equal to |2-4| * |8-7| = 2.
p1 = 2 and p2 = 3, has an area equal to |4-2| * |7-10| = 2.
p1 = 1 and p2 = 3 It's not possible because has an area equal to 0.
```

Solution

SQL

```sql
SELECT t1.id AS p1, t2.id AS p2, ABS(t1.x_value-t2.x_value)*ABS(t1.y_value-t2.y_v
FROM Points AS t1 INNER JOIN Points AS t2
ON t1.id < t2.id
AND t1.x_value != t2.x_value AND t1.y_value != t2.y_value
ORDER BY area DESC, p1, p2
```

1468. Calculate Salaries | Medium | 🔒 LeetCode

Table `Salaries`:

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| company_id    | int     |
| employee_id   | int     |
| employee_name | varchar |
| salary        | int     |
+---------------+---------+
(company_id, employee_id) is the primary key for this table.
This table contains the company id, the id, the name and the salary for an employ
```

Write an SQL query to find the salaries of the employees after applying taxes.

The tax rate is calculated for each company based on the following criteria:

- 0% If the max salary of any employee in the company is less than 1000$.
- 24% If the max salary of any employee in the company is in the range [1000, 10000] inclusive.
- 49% If the max salary of any employee in the company is greater than 10000$.
  Return the result table **in any order**. Round the salary to the nearest integer.

The query result format is in the following example:

```
TEXT
Salaries table:
+------------+-------------+---------------+--------+
| company_id | employee_id | employee_name | salary |
+------------+-------------+---------------+--------+
| 1          | 1           | Tony          | 2000   |
| 1          | 2           | Pronub        | 21300  |
| 1          | 3           | Tyrrox        | 10800  |
| 2          | 1           | Pam           | 300    |
```

```
| 2          | 7           | Bassem        | 450    |
| 2          | 9           | Hermione      | 700    |
| 3          | 7           | Bocaben       | 100    |
| 3          | 2           | Ognjen        | 2200   |
| 3          | 13          | Nyancat       | 3300   |
| 3          | 15          | Morninngcat   | 1866   |
+------------+-------------+---------------+--------+
```

Result table:

```
+------------+-------------+---------------+--------+
| company_id | employee_id | employee_name | salary |
+------------+-------------+---------------+--------+
| 1          | 1           | Tony          | 1020   |
| 1          | 2           | Pronub        | 10863  |
| 1          | 3           | Tyrrox        | 5508   |
| 2          | 1           | Pam           | 300    |
| 2          | 7           | Bassem        | 450    |
| 2          | 9           | Hermione      | 700    |
| 3          | 7           | Bocaben       | 76     |
| 3          | 2           | Ognjen        | 1672   |
| 3          | 13          | Nyancat       | 2508   |
| 3          | 15          | Morninngcat   | 5911   |
+------------+-------------+---------------+--------+
```

For company 1, Max salary is 21300. Employees in company 1 have taxes = 49%

For company 2, Max salary is 700. Employees in company 2 have taxes = 0%

For company 3, Max salary is 7777. Employees in company 3 have taxes = 24%

The salary after taxes = salary - (taxes percentage / 100) * salary

For example, Salary for Morninngcat (3, 15) after taxes = 7777 - 7777 * (24 / 100

Solution

SQL

```sql
#Solution 1:
WITH t1 AS (
SELECT company_id, employee_id, employee_name, salary AS sa, MAX(salary) OVER(PAR
FROM salaries)
```

```
SELECT company_id, employee_id, employee_name,
CASE WHEN t1.maximum<1000 THEN t1.sa
WHEN t1.maximum BETWEEN 1000 AND 10000 THEN ROUND(t1.sa*.76,0)
ELSE ROUND(t1.sa*.51,0)
END AS salary
FROM t1

#Soltion 2:
SELECT Salaries.company_id, Salaries.employee_id, Salaries.employee_name,
    ROUND(CASE WHEN salary_max<1000 THEN Salaries.salary
               WHEN salary_max>=1000 AND salary_max<=10000 THEN Salaries.salary *
               ELSE Salaries.salary * 0.51 END, 0) AS salary
FROM Salaries INNER JOIN (
    SELECT company_id, MAX(salary) AS salary_max
    FROM Salaries
    GROUP BY company_id) AS t
ON Salaries.company_id = t.company_id
```

1479. Sales by Day of the Week | Hard | 🔒 LeetCode

Table: `Orders`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| customer_id   | int     |
| order_date    | date    |
| item_id       | varchar |
| quantity      | int     |
+---------------+---------+
(ordered_id, item_id) is the primary key for this table.
This table contains information of the orders placed.
order_date is the date when item_id was ordered by the customer with id customer_
```

Table: `Items`

```
+---------------------+---------+
| Column Name         | Type    |
+---------------------+---------+
| item_id             | varchar |
| item_name           | varchar |
| item_category       | varchar |
+---------------------+---------+
item_id is the primary key for this table.
item_name is the name of the item.
item_category is the category of the item.
```

You are the business owner and would like to obtain a sales report for category items and day of the week.

Write an SQL query to report how many units in each category have been ordered on each **day of the week**.

Return the result table **ordered** by category.

The query result format is in the following example:

```
Orders table:
+------------+--------------+-------------+--------------+-------------+
| order_id   | customer_id  | order_date  | item_id      | quantity    |
+------------+--------------+-------------+--------------+-------------+
| 1          | 1            | 2020-06-01  | 1            | 10          |
| 2          | 1            | 2020-06-08  | 2            | 10          |
| 3          | 2            | 2020-06-02  | 1            | 5           |
| 4          | 3            | 2020-06-03  | 3            | 5           |
| 5          | 4            | 2020-06-04  | 4            | 1           |
| 6          | 4            | 2020-06-05  | 5            | 5           |
| 7          | 5            | 2020-06-05  | 1            | 10          |
| 8          | 5            | 2020-06-14  | 4            | 5           |
| 9          | 5            | 2020-06-21  | 3            | 5           |
+------------+--------------+-------------+--------------+-------------+
```

Items table:

item_id	item_name	item_category
1	LC Alg. Book	Book
2	LC DB. Book	Book
3	LC SmarthPhone	Phone
4	LC Phone 2020	Phone
5	LC SmartGlass	Glasses
6	LC T-Shirt XL	T-Shirt

Result table:

Category	Monday	Tuesday	Wednesday	Thursday	Friday	Saturd
Book	20	5	0	0	10	0
Glasses	0	0	0	0	5	0
Phone	0	0	5	1	0	0
T-Shirt	0	0	0	0	0	0

On Monday (2020-06-01, 2020-06-08) were sold a total of 20 units (10 + 10) in the
On Tuesday (2020-06-02) were sold a total of 5 units in the category Book (ids:
On Wednesday (2020-06-03) were sold a total of 5 units in the category Phone (ids
On Thursday (2020-06-04) were sold a total of 1 unit in the category Phone (ids:
On Friday (2020-06-05) were sold 10 units in the category Book (ids: 1, 2) and 5
On Saturday there are no items sold.
On Sunday (2020-06-14, 2020-06-21) were sold a total of 10 units (5 +5) in the ca
There are no sales of T-Shirt.

Solution

SQL

```sql
WITH t1 AS(
SELECT DISTINCT item_category,
CASE WHEN dayname(order_date)='Monday' THEN SUM(quantity) OVER(PARTITION BY item_
```

```
CASE WHEN dayname(order_date)='Tuesday' THEN SUM(quantity) OVER(PARTITION BY item
CASE WHEN dayname(order_date)='Wednesday' THEN SUM(quantity) OVER(PARTITION BY it
CASE WHEN dayname(order_date)='Thursday' THEN SUM(quantity) OVER(PARTITION BY ite
CASE WHEN dayname(order_date)='Friday' THEN SUM(quantity) OVER(PARTITION BY item_
CASE WHEN dayname(order_date)='Saturday' THEN SUM(quantity) OVER(PARTITION BY ite
CASE WHEN dayname(order_date)='Sunday' THEN SUM(quantity) OVER(PARTITION BY item_
FROM orders o
RIGHT JOIN items i
USING (item_id))

SELECT item_category AS category, SUM(Monday) AS Monday, SUM(Tuesday) AS Tuesday,
SUM(Friday) Friday, SUM(Saturday) Saturday, SUM(Sunday) Sunday
FROM t1
GROUP BY item_category
```

1484. Group Sold Products By The Date | Easy | 🔒 LeetCode

Table `Activities`:

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| sell_date   | date    |
| product     | varchar |
+-------------+---------+
There is no primary key for this table, it may contains duplicates.
Each row of this table contains the product name and the date it was sold in a ma
```

Write an SQL query to find for each date, the number of distinct products sold and their names.

The sold-products names for each date should be sorted lexicographically.

Return the result table ordered by `sell_date`.

The query result format is in the following example.

```text
Activities table:
+------------+-------------+
| sell_date  | product     |
+------------+-------------+
| 2020-05-30 | Headphone   |
| 2020-06-01 | Pencil      |
| 2020-06-02 | Mask        |
| 2020-05-30 | Basketball  |
| 2020-06-01 | Bible       |
| 2020-06-02 | Mask        |
| 2020-05-30 | T-Shirt     |
+------------+-------------+

Result table:
+------------+----------+------------------------------+
| sell_date  | num_sold | products                     |
+------------+----------+------------------------------+
| 2020-05-30 | 3        | Basketball,Headphone,T-shirt |
| 2020-06-01 | 2        | Bible,Pencil                 |
| 2020-06-02 | 1        | Mask                         |
+------------+----------+------------------------------+
For 2020-05-30, Sold items were (Headphone, Basketball, T-shirt), we sort them le
For 2020-06-01, Sold items were (Pencil, Bible), we sort them lexicographically a
For 2020-06-02, Sold item is (Masks), we just return it.
```

Solution

```sql
SELECT sell_date, COUNT(DISTINCT product) AS num_sold, group_concat(DISTINCT prod
FROM activities
GROUP BY 1
ORDER BY 1
```

1495. Friendly Movies Streamed Last Month | Easy | 🔒

LeetCode

Table: `TVProgram`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| program_date  | date    |
| content_id    | int     |
| channel       | varchar |
+---------------+---------+
(program_date, content_id) is the primary key for this table.
This table contains information of the programs on the TV.
content_id is the id of the program in some channel on the TV.
```

Table: `Content`

```
TEXT
+------------------+---------+
| Column Name      | Type    |
+------------------+---------+
| content_id       | varchar |
| title            | varchar |
| Kids_content     | enum    |
| content_type     | varchar |
+------------------+---------+
content_id is the primary key for this table.
Kids_content is an enum that takes one of the values ('Y', 'N') where:
'Y' means is content for kids otherwise 'N' is not content for kids.
content_type is the category of the content as movies, series, etc.
```

Write an SQL query to report the distinct titles of the kid-friendly movies streamed in June 2020.

Return the result table in any order.

The query result format is in the following example.

```
TEXT
TVProgram table:
+--------------------+--------------+-------------+
| program_date       | content_id   | channel     |
+--------------------+--------------+-------------+
| 2020-06-10 08:00   | 1            | LC-Channel  |
| 2020-05-11 12:00   | 2            | LC-Channel  |
| 2020-05-12 12:00   | 3            | LC-Channel  |
| 2020-05-13 14:00   | 4            | Disney Ch   |
| 2020-06-18 14:00   | 4            | Disney Ch   |
| 2020-07-15 16:00   | 5            | Disney Ch   |
+--------------------+--------------+-------------+

Content table:
+------------+----------------+---------------+---------------+
| content_id | title          | Kids_content  | content_type  |
+------------+----------------+---------------+---------------+
| 1          | Leetcode Movie | N             | Movies        |
| 2          | Alg. for Kids  | Y             | Series        |
| 3          | Database Sols  | N             | Series        |
| 4          | Aladdin        | Y             | Movies        |
| 5          | Cinderella     | Y             | Movies        |
+------------+----------------+---------------+---------------+

Result table:
+--------------+
| title        |
+--------------+
| Aladdin      |
+--------------+
"Leetcode Movie" is not a content for kids.
"Alg. for Kids" is not a movie.
"Database Sols" is not a movie
"Alladin" is a movie, content for kids and was streamed in June 2020.
"Cinderella" was not streamed in June 2020.
```

Solution

```sql
SELCT DISTINCT title
FROM
(SELCT content_id, title
FROM content
WHERE kids_content = 'Y' AND content_type = 'Movies') a
JOIN
tvprogram USING (content_id)
WHERE month(program_date) = 6
```

1501. Countries You Can Safely Invest In | Medium | 🔒 LeetCode

Table `Person`:

```text
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| id             | int     |
| name           | varchar |
| phone_number   | varchar |
+----------------+---------+
id is the primary key for this table.
Each row of this table contains the name of a person and their phone number.
Phone number will be in the form 'xxx-yyyyyyy' where xxx is the country code (3 c
```

Table `Country`:

```text
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| name           | varchar |
| country_code   | varchar |
```

```
+---------------+---------+
country_code is the primary key for this table.
Each row of this table contains the country name and its code. country_code will
```

Table `Calls`:

TEXT

```
+-------------+------+
| Column Name | Type |
+-------------+------+
| caller_id   | int  |
| callee_id   | int  |
| duration    | int  |
+-------------+------+
There is no primary key for this table, it may contain duplicates.
Each row of this table contains the caller id, callee id and the duration of the
A telecommunications company wants to invest in new countries. The country intend
```

Write an SQL query to find the countries where this company can invest.

Return the result table in any order.

The query result format is in the following example.

TEXT

```
Person table:
+----+----------+--------------+
| id | name     | phone_number |
+----+----------+--------------+
| 3  | Jonathan | 051-1234567  |
| 12 | Elvis    | 051-7654321  |
| 1  | Moncef   | 212-1234567  |
| 2  | Maroua   | 212-6523651  |
| 7  | Meir     | 972-1234567  |
| 9  | Rachel   | 972-0011100  |
+----+----------+-------------+
```

Country table:

name	country_code
Peru	051
Israel	972
Morocco	212
Germany	049
Ethiopia	251

Calls table:

caller_id	callee_id	duration
1	9	33
2	9	4
1	2	59
3	12	102
3	12	330
12	3	5
7	9	13
7	1	3
9	7	1
1	7	7

Result table:

country
Peru

The average call duration for Peru is (102 + 102 + 330 + 330 + 5 + 5) / 6 = 145.6

The average call duration for Israel is (33 + 4 + 13 + 13 + 3 + 1 + 1 + 7) / 8 =

The average call duration for Morocco is (33 + 4 + 59 + 59 + 3 + 7) / 6 = 27.5000

Global call duration average = (2 * (33 + 3 + 59 + 102 + 330 + 5 + 13 + 3 + 1 + 7

Since Peru is the only country where average call duration is greater than the gl

Solution

```sql
WITH t1 AS(
SELECT caller_id AS id, duration AS total
FROM
(SELECT caller_id, duration
FROM calls
UNION ALL
SELECT callee_id, duration
FROM calls) a
)
SELECT name AS country
FROM
(SELECT distinct avg(total) OVER(PARTITION BY code) AS avg_call, avg(total) OVER(
FROM
((SELECT *, coalesce(total,0) AS duration, SUBSTRING(phone_number FROM 1 for 3) A
FROM person RIGHT JOIN t1
USING (id)) b
join country c
ON c.country_code = b.code)) d
WHERE avg_call > global_avg
```

1511. Customer Order Frequency | Easy | 🔒 LeetCode

Table: `Customers`

```text
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
| country       | varchar |
+---------------+---------+
customer_id is the primary key for this table.
This table contains information of the customers in the company.
```

Table: `Product`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| description   | varchar |
| price         | int     |
+---------------+---------+
product_id is the primary key for this table.
This table contains information of the products in the company.
price is the product cost.
```

Table: `Orders`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| customer_id   | int     |
| product_id    | int     |
| order_date    | date    |
| quantity      | int     |
+---------------+---------+
order_id is the primary key for this table.
This table contains information on customer orders.
customer_id is the id of the customer who bought "quantity" products with id "pro
Order_date is the date in format ('YYYY-MM-DD') when the order was shipped.
```

Write an SQL query to report the customer*id and customer*name of customers who have spent at least $100 in each month of June and July 2020.

Return the result table in any order.

The query result format is in the following example.

```
Customers
+--------------+-----------+-------------+
| customer_id  | name      | country     |
+--------------+-----------+-------------+
| 1            | Winston   | USA         |
| 2            | Jonathan  | Peru        |
| 3            | Moustafa  | Egypt       |
+--------------+-----------+-------------+

Product
+--------------+-------------+-------------+
| product_id   | description | price       |
+--------------+-------------+-------------+
| 10           | LC Phone    | 300         |
| 20           | LC T-Shirt  | 10          |
| 30           | LC Book     | 45          |
| 40           | LC Keychain | 2           |
+--------------+-------------+-------------+

Orders
+--------------+-------------+-------------+-------------+-----------+
| order_id     | customer_id | product_id  | order_date  | quantity  |
+--------------+-------------+-------------+-------------+-----------+
| 1            | 1           | 10          | 2020-06-10  | 1         |
| 2            | 1           | 20          | 2020-07-01  | 1         |
| 3            | 1           | 30          | 2020-07-08  | 2         |
| 4            | 2           | 10          | 2020-06-15  | 2         |
| 5            | 2           | 40          | 2020-07-01  | 10        |
| 6            | 3           | 20          | 2020-06-24  | 2         |
| 7            | 3           | 30          | 2020-06-25  | 2         |
| 9            | 3           | 30          | 2020-05-08  | 3         |
+--------------+-------------+-------------+-------------+-----------+

Result table:
+--------------+------------+
| customer_id  | name       |
+--------------+------------+
```

```
| 1           | Winston    |
+-------------+------------+
Winston spent $300 (300 * 1) in June and $100 ( 10 * 1 + 45 * 2) in July 2020.
Jonathan spent $600 (300 * 2) in June and $20 ( 2 * 10) in July 2020.
Moustafa spent $110 (10 * 2 + 45 * 2) in June and $0 in July 2020.
```

Solution

SQL

```sql
#Solution 1:
SELECT o.customer_id, name
JOIN Product p
ON o.product_id = p.product_id
JOIN Customers c
ON o.customer_id = c.customer_id
GROUP BY 1, 2
HAVING SUM(CASE WHEN date_format(order_date, '%Y-%m')='2020-06'
THEN price*quantity END) >= 100
AND
SUM(CASE WHEN date_format(order_date, '%Y-%m')='2020-07'
THEN price*quantity END) >= 100;

#Solution 2:
SELECT customer_id, name
FROM
(
    SELECT o.customer_id, c.name,
        sum(CASE WHEN left(o.order_date,7) = '2020-06' THEN p.price * o.quantity
        sum(CASE WHEN left(o.order_date,7) = '2020-07' THEN p.price * o.quantity
    FROM Orders o
    LEFT JOIN Customers c ON o.customer_id = c.customer_id
    lEFT JOIN Product p ON o.product_id = p.product_id
    GROUP BY o.customer_id
    HAVING JuneSpend >= 100 AND JulySpend >= 100
) AS temp

#Solution 3:
SELECT o.customer_id, c.name
```

```
FROM Customers c, Product p, Orders o
WHERE c.customer_id = o.customer_id AND p.product_id = o.product_id
GROUP BY o.customer_id
HAVING
(
    SUM(CASE WHEN o.order_date LIKE '2020-06%' THEN o.quantity*p.price ELSE 0 END
    and
    SUM(CASE WHEN o.order_date LIKE '2020-07%' THEN o.quantity*p.price ELSE 0 END
);
```

1517. Find Users With Valid E-Mails | Easy | 🔒 LeetCode

Table: `Users`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| user_id       | int     |
| name          | varchar |
| mail          | varchar |
+---------------+---------+
user_id is the primary key for this table.
This table contains information of the users signed up in a website. Some e-mails
```

Write an SQL query to find the users who have **valid emails**.

A valid e-mail has a prefix name and a domain where:

- **The prefix name** is a string that may contain letters (upper or lower case), digits, underscore `'_'`, period `'.'` and/or dash `'-'`. The prefix name **must** start with a letter.
- The domain is `'@leetcode.com'`.
  Return the result table in any order.

The query result format is in the following example.

```
Users
+---------+-----------+-------------------------+
| user_id | name      | mail                    |
+---------+-----------+-------------------------+
| 1       | Winston   | winston@leetcode.com    |
| 2       | Jonathan  | jonathanisgreat         |
| 3       | Annabelle | bella-@leetcode.com     |
| 4       | Sally     | sally.come@leetcode.com |
| 5       | Marwan    | quarz#2020@leetcode.com |
| 6       | David     | david69@gmail.com       |
| 7       | Shapiro   | .shapo@leetcode.com     |
+---------+-----------+-------------------------+

Result table:
+---------+-----------+-------------------------+
| user_id | name      | mail                    |
+---------+-----------+-------------------------+
| 1       | Winston   | winston@leetcode.com    |
| 3       | Annabelle | bella-@leetcode.com     |
| 4       | Sally     | sally.come@leetcode.com |
+---------+-----------+-------------------------+
The mail of user 2 doesn't have a domain.
The mail of user 5 has # sign which is not allowed.
The mail of user 6 doesn't have leetcode domain.
The mail of user 7 starts with a period.
```

Solution

```sql
#Solution 1:
SELECT user_id, name, mail
FROM Users
WHERE mail regexp "^[a-zA-Z]+[a-zA-Z0-9_\\./\\-]{0,}@leetcode\\.com$"
ORDER BY user_id
```

```
#Solution 2:
SELECT * FROM Users
WHERE regexp_like(mail, '^[A-Za-z]+[A-Za-z0-9\_\.\-]*@leetcode.com')
```

1527. Patients With a Condition | Easy | 🔒 LeetCode

Table: `Patients`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| patient_id   | int     |
| patient_name | varchar |
| conditions   | varchar |
+--------------+---------+
patient_id is the primary key for this table.
'conditions' contains 0 or more code separated by spaces.
This table contains information of the patients in the hospital.
```

Write an SQL query to report the patient*id, patient*name all conditions of patients who have Type I Diabetes. Type I Diabetes always starts with `DIAB1` prefix

Return the result table in any order.

The query result format is in the following example.

```
TEXT
Patients
+------------+--------------+--------------+
| patient_id | patient_name | conditions   |
+------------+--------------+--------------+
| 1          | Daniel       | YFEV COUGH   |
| 2          | Alice        |              |
| 3          | Bob          | DIAB100 MYOP |
| 4          | George       | ACNE DIAB100 |
| 5          | Alain        | DIAB201      |
```

```
+------------+--------------+--------------+

Result table:
+------------+--------------+--------------+
| patient_id | patient_name | conditions   |
+------------+--------------+--------------+
| 3          | Bob          | DIAB100 MYOP |
| 4          | George       | ACNE DIAB100 |
+------------+--------------+--------------+
Bob and George both have a condition that starts with DIAB1.
```

Solution

SQL

```sql
SELECT patient_id, patient_name, conditions
FROM Patients
WHERE conditions LIKE '%DIAB1%'
```

1532. The Most Recent Three Orders | Medium | 🔒 LeetCode

Table: `Customers`

TEXT

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
+---------------+---------+
customer_id is the primary key for this table.
This table contains information about customers.
```

Table: `Orders`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| order_date    | date    |
| customer_id   | int     |
| cost          | int     |
+---------------+---------+
order_id is the primary key for this table.
This table contains information about the orders made customer_id.
Each customer has one order per day.
```

Write an SQL query to find the most recent 3 orders of each user. If a user ordered less than 3 orders return all of their orders.

Return the result table sorted by `customer_name` in ascending order and in case of a tie by the `customer_id` in ascending order. If there still a tie, order them by the `order_date` in descending order.

The query result format is in the following example:

```
Customers
+-------------+-----------+
| customer_id | name      |
+-------------+-----------+
| 1           | Winston   |
| 2           | Jonathan  |
| 3           | Annabelle |
| 4           | Marwan    |
| 5           | Khaled    |
+-------------+-----------+

Orders
+----------+------------+-------------+------+
| order_id | order_date | customer_id | cost |
+----------+------------+-------------+------+
| 1        | 2020-07-31 | 1           | 30   |
```

```
| 2          | 2020-07-30 | 2           | 40   |
| 3          | 2020-07-31 | 3           | 70   |
| 4          | 2020-07-29 | 4           | 100  |
| 5          | 2020-06-10 | 1           | 1010 |
| 6          | 2020-08-01 | 2           | 102  |
| 7          | 2020-08-01 | 3           | 111  |
| 8          | 2020-08-03 | 1           | 99   |
| 9          | 2020-08-07 | 2           | 32   |
| 10         | 2020-07-15 | 1           | 2    |
+----------+------------+-------------+------+

Result table:
+---------------+-------------+----------+------------+
| customer_name | customer_id | order_id | order_date |
+---------------+-------------+----------+------------+
| Annabelle     | 3           | 7        | 2020-08-01 |
| Annabelle     | 3           | 3        | 2020-07-31 |
| Jonathan      | 2           | 9        | 2020-08-07 |
| Jonathan      | 2           | 6        | 2020-08-01 |
| Jonathan      | 2           | 2        | 2020-07-30 |
| Marwan        | 4           | 4        | 2020-07-29 |
| Winston       | 1           | 8        | 2020-08-03 |
| Winston       | 1           | 1        | 2020-07-31 |
| Winston       | 1           | 10       | 2020-07-15 |
+---------------+-------------+----------+------------+
Winston has 4 orders, we discard the order of "2020-06-10" because it is the olde
Annabelle has only 2 orders, we return them.
Jonathan has exactly 3 orders.
Marwan ordered only one time.
We sort the result table by customer_name in ascending order, by customer_id in a
Follow-up:
Can you write a general solution for the most recent `n` orders?
```

Solution

```sql
WITH tmp AS (
SELECT a.name, a.customer_id, b.order_id, b.order_date,
ROW_NUMBER() OVER(PARTITION BY a.name, a.customer_id ORDER BY b.order_date DESC) 
FROM Customers AS a
JOIN Orders AS b
ON a.customer_id = b.customer_id
)

SELECT name AS customer_name, customer_id, order_id, order_date
FROM tmp
WHERE rnk <= 3
ORDER BY customer_name, customer_id, order_date DESC;
```

1543. Fix Product Name Format | Easy | 🔒 LeetCode

Table: `Sales`

```text
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| sale_id      | int     |
| product_name | varchar |
| sale_date    | date    |
+--------------+---------+
sale_id is the primary key for this table.
Each row of this table contains the product name and the date it was sold.
```

Since table Sales was filled manually in the year 2000, `product_name` may contain leading and/or trailing white spaces, also they are case-insensitive.

Write an SQL query to report

- `product_name` in lowercase without leading or trailing white spaces.
- `sale_date` in the format `('YYYY-MM')`

- `total` the number of times the product was sold in this month.
  Return the result table ordered by `product_name` in **ascending order**, in case of a tie order it by `sale_date` in ascending order.

The query result format is in the following example.

TEXT

```
Sales
+------------+------------------+--------------+
| sale_id    | product_name     | sale_date    |
+------------+------------------+--------------+
| 1          |      LCPHONE     | 2000-01-16   |
| 2          |    LCPhone       | 2000-01-17   |
| 3          |     LcPhOnE      | 2000-02-18   |
| 4          |      LCKeyCHAiN  | 2000-02-19   |
| 5          |   LCKeyChain     | 2000-02-28   |
| 6          | Matryoshka       | 2000-03-31   |
+------------+------------------+--------------+

Result table:
+--------------+--------------+----------+
| product_name | sale_date    | total    |
+--------------+--------------+----------+
| lcphone      | 2000-01      | 2        |
| lckeychain   | 2000-02      | 2        |
| lcphone      | 2000-02      | 1        |
| matryoshka   | 2000-03      | 1        |
+--------------+--------------+----------+

In January, 2 LcPhones were sold, please note that the product names are not case
In Februery, 2 LCKeychains and 1 LCPhone were sold.
In March, 1 matryoshka was sold.
```

Solution

```sql
SELECT TRIM(LOWER(product_name)) AS product_name,
       DATE_FORMAT(sale_date, '%Y-%m') AS sale_date,
       COUNT(*) AS total
FROM Sales
GROUP BY 1, DATE_FORMAT(sale_date, '%Y-%m')
ORDER BY 1, 2;
```

1549. The Most Recent Orders for Each Product | Medium | 🔒 LeetCode

Table: `Customers`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
+---------------+---------+
customer_id is the primary key 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 primary key for this table.
This table contains information about the orders made by customer_id.
There will be no product ordered by the same user more than once in one day.
```

Table: `Products`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| product_id   | int     |
| product_name | varchar |
| price        | int     |
+--------------+---------+
product_id is the primary key for this table.
This table contains information about the Products.
```

Write an SQL query to find the most recent order(s) of each product.

Return the result table sorted by `product_name` in **ascending** order and in case of a tie by the `product_id` in **ascending** order. If there still a tie, order them by the `order_id` in **ascending** order.

The query result format is in the following example:

```
TEXT
Customers
+-------------+-----------+
| customer_id | name      |
+-------------+-----------+
| 1           | Winston   |
| 2           | Jonathan  |
| 3           | Annabelle |
| 4           | Marwan    |
| 5           | Khaled    |
+-------------+-----------+

Orders
+----------+------------+-------------+------------+
| 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           | 1          |
| 8        | 2020-08-03 | 1           | 2          |
| 9        | 2020-08-07 | 2           | 3          |
| 10       | 2020-07-15 | 1           | 2          |
+----------+------------+-------------+------------+
```

Products

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

Result table:

```
+--------------+------------+----------+------------+
| product_name | product_id | order_id | order_date |
+--------------+------------+----------+------------+
| keyboard     | 1          | 6        | 2020-08-01 |
| keyboard     | 1          | 7        | 2020-08-01 |
| mouse        | 2          | 8        | 2020-08-03 |
| screen       | 3          | 3        | 2020-08-29 |
+--------------+------------+----------+------------+
```

keyboard's most recent order is in 2020-08-01, it was ordered two times this day.
mouse's most recent order is in 2020-08-03, it was ordered only once this day.
screen's most recent order is in 2020-08-29, it was ordered only once this day.
The hard disk was never ordered and we don't include it in the result table.

Solution

```sql
SELECT p.product_name, o.product_id, o.order_id, o.order_date
FROM(
    SELECT product_id, order_id, order_date,
    RANK() OVER(PARTITION BY product_id ORDER BY order_date DESC) AS seq
    FROM orders
) o
LEFT JOIN products p
    ON o.product_id = p.product_id
WHERE o.seq = 1
ORDER BY 1,2,3
```

1555. Bank Account Summary | Medium | 🔒 LeetCode

Table: `Users`

```text
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| user_id      | int     |
| user_name    | varchar |
| credit       | int     |
+--------------+---------+
user_id is the primary key for this table.
Each row of this table contains the current credit information for each user.
```

Table: `Transaction`

```text
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| trans_id      | int     |
| paid_by       | int     |
| paid_to       | int     |
```

```
| amount        | int     |
| transacted_on | date    |
+---------------+---------+
trans_id is the primary key for this table.
Each row of this table contains the information about the transaction in the bank
User with id (paid_by) transfer money to user with id (paid_to).
```

Leetcode Bank (LCB) helps its coders in making virtual payments. Our bank records all transactions in the table Transaction, we want to find out the current balance of all users and check wheter they have breached their credit limit (If their current credit is less than 0).

Write an SQL query to report.

- `user_id`
- `user_name`
- `credit` , current balance after performing transactions.
- `credit_limit_breached` , check credit_limit ("Yes" or "No") Return the result table in **any** order.

The query result format is in the following example.

TEXT

```
Users table:
+------------+--------------+-------------+
| user_id    | user_name    | credit      |
+------------+--------------+-------------+
| 1          | Moustafa     | 100         |
| 2          | Jonathan     | 200         |
| 3          | Winston      | 10000       |
| 4          | Luis         | 800         |
+------------+--------------+-------------+

Transaction table:
+------------+------------+------------+----------+---------------+
| trans_id   | paid_by    | paid_to    | amount   | transacted_on |
+------------+------------+------------+----------+---------------+
```

```
| 1          | 1          | 3          | 400      | 2020-08-01    |
| 2          | 3          | 2          | 500      | 2020-08-02    |
| 3          | 2          | 1          | 200      | 2020-08-03    |
+------------+------------+------------+----------+---------------+
```

Result table:

```
+------------+------------+------------+----------------------+
| user_id    | user_name  | credit     | credit_limit_breached |
+------------+------------+------------+----------------------+
| 1          | Moustafa   | -100       | Yes                  |
| 2          | Jonathan   | 500        | No                   |
| 3          | Winston    | 9990       | No                   |
| 4          | Luis       | 800        | No                   |
+------------+------------+------------+----------------------+
```

Moustafa paid $400 on "2020-08-01" and received $200 on "2020-08-03", credit (100

Jonathan received $500 on "2020-08-02" and paid $200 on "2020-08-08", credit (200

Winston received $400 on "2020-08-01" and paid $500 on "2020-08-03", credit (1000

Luis didn't received any transfer, credit = $800

Solution

```sql
SELECT Users.user_id AS user_id
    , Users.user_name AS user_name
    , credit+IFNULL(SUM(trans),0) AS credit
    , CASE WHEN credit+IFNULL(SUM(trans),0)>0 THEN 'No' ELSE 'Yes' END AS credit_
FROM(
    SELECT paid_by AS user_id, -amount AS trans
    FROM Transaction
    UNION ALL
    SELECT paid_to AS user_id, amount AS trans
    FROM Transaction
) t RIGHT JOIN users ON t.user_id=users.user_id
GROUP BY user_id
```

1565. Unique Orders and Customers Per Month | Easy | 🔒 LeetCode

Table: `Orders`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| order_date    | date    |
| customer_id   | int     |
| invoice       | int     |
+---------------+---------+
order_id is the primary key for this table.
This table contains information about the orders made by customer_id.
```

Write an SQL query to find the number of **unique orders** and the number of **unique users** with invoices > **$20** for each **different month**.

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

The query result format is in the following example:

```
TEXT
Orders
+----------+------------+-------------+------------+
| order_id | order_date | customer_id | invoice    |
+----------+------------+-------------+------------+
| 1        | 2020-09-15 | 1           | 30         |
| 2        | 2020-09-17 | 2           | 90         |
| 3        | 2020-10-06 | 3           | 20         |
| 4        | 2020-10-20 | 3           | 21         |
| 5        | 2020-11-10 | 1           | 10         |
| 6        | 2020-11-21 | 2           | 15         |
| 7        | 2020-12-01 | 4           | 55         |
| 8        | 2020-12-03 | 4           | 77         |
| 9        | 2021-01-07 | 3           | 31         |
```

```
| 10       | 2021-01-15 | 2           | 20         |
+----------+------------+-------------+------------+

Result table:
+---------+-------------+----------------+
| month   | order_count | customer_count |
+---------+-------------+----------------+
| 2020-09 | 2           | 2              |
| 2020-10 | 1           | 1              |
| 2020-12 | 2           | 1              |
| 2021-01 | 1           | 1              |
+---------+-------------+----------------+
In September 2020 we have two orders from 2 different customers with invoices > $
In October 2020 we have two orders from 1 customer, and only one of the two order
In November 2020 we have two orders from 2 different customers but invoices < $20
In December 2020 we have two orders from 1 customer both with invoices > $20.
In January 2021 we have two orders from 2 different customers, but only one of th
```

Solution

```sql
#Solution 1:
SELECT DATE_FORMAT(order_date, '%Y-%m') AS month, COUNT(DISTINCT order_id) AS ord
    FROM Orders
    WHERE invoice > 20
    GROUP BY YEAR(order_date), MONTH(order_date);

#Solution 2:
SELECT LEFT(order_date, 7) AS month, COUNT(DISTINCT order_id) AS order_count,
    COUNT(DISTINCT customer_id) AS customer_count
FROM orders
WHERE invoice > 20
GROUP BY month
```

1571. Warehouse Manager | Easy | LeetCode

Table: `Warehouse`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| name         | varchar |
| product_id   | int     |
| units        | int     |
+--------------+---------+
(name, product_id) is the primary key for this table.
Each row of this table contains the information of the products in each warehouse
```

Table: `Products`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| product_id    | int     |
| product_name  | varchar |
| Width         | int     |
| Length        | int     |
| Height        | int     |
+---------------+---------+
product_id is the primary key for this table.
Each row of this table contains the information about the product dimensions (Wid
```

Write an SQL query to report, How much cubic feet of **volume** does the inventory occupy in each warehouse.

- warehouse_name
- volume
  Return the result table in **any** order.

The query result format is in the following example.

TEXT

Warehouse table:

name	product_id	units
LCHouse1	1	1
LCHouse1	2	10
LCHouse1	3	5
LCHouse2	1	2
LCHouse2	2	2
LCHouse3	4	1

Products table:

product_id	product_name	Width	Length	Height
1	LC-TV	5	50	40
2	LC-KeyChain	5	5	5
3	LC-Phone	2	10	10
4	LC-T-Shirt	4	10	20

Result table:

warehouse_name	volume
LCHouse1	12250
LCHouse2	20250
LCHouse3	800

Volume of product_id = 1 (LC-TV), 5x50x40 = 10000
Volume of product_id = 2 (LC-KeyChain), 5x5x5 = 125
Volume of product_id = 3 (LC-Phone), 2x10x10 = 200
Volume of product_id = 4 (LC-T-Shirt), 4x10x20 = 800
LCHouse1: 1 unit of LC-TV + 10 units of LC-KeyChain + 5 units of LC-Phone.
Total volume: 1*10000 + 10*125 + 5*200 = 12250 cubic feet
LCHouse2: 2 units of LC-TV + 2 units of LC-KeyChain.
Total volume: 2*10000 + 2*125 = 20250 cubic feet

```
LCHouse3: 1 unit of LC-T-Shirt.
          Total volume: 1*800 = 800 cubic feet.
```

Solution

```sql
SELECT a.name AS warehouse_name,
SUM(a.units * b.Width * b.Length * b.Height) AS volume
FROM Warehouse AS a
LEFT JOIN Products AS b
ON a.product_id = b.product_id
GROUP BY a.name;
```

1581. Customer Who Visited but Did Not Make Any Transactions | Easy | 🔒 LeetCode

Table: `Visits`

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| visit_id    | int     |
| customer_id | int     |
+-------------+---------+
visit_id is the primary key for this table.
This table contains information about the customers who visited the mall.
```

Table: `Transactions`

```
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| transaction_id | int     |
```

```
| visit_id       | int     |
| amount         | int     |
+----------------+---------+
transaction_id is the primary key for this table.
This table contains information about the customers who visited the mall.
```

Write an SQL query to find the IDs of the users who visited without making any transactions and the number of times they made these types of visits.

Return the result table sorted in **any orders**.

The query result format is in the following example:

TEXT

```
Visits
+----------+-------------+
| visit_id | customer_id |
+----------+-------------+
| 1        | 23          |
| 2        | 9           |
| 4        | 30          |
| 5        | 54          |
| 6        | 96          |
| 7        | 54          |
| 8        | 54          |
+----------+-------------+

Transactions
+----------------+----------+--------+
| transaction_id | visit_id | amount |
+----------------+----------+--------+
| 2              | 5        | 310    |
| 3              | 5        | 300    |
| 9              | 5        | 200    |
| 12             | 1        | 910    |
| 13             | 2        | 970    |
+----------------+----------+--------+

Result table:
```

```
+-------------+---------------+
| customer_id | count_no_trans |
+-------------+---------------+
| 54          | 2             |
| 30          | 1             |
| 96          | 1             |
+-------------+---------------+
Customer with id = 23 visited the mall once and made one transaction during the v
Customer with id = 9 visited the mall once and made one transaction during the vi
Customer with id = 30 visited the mall once and did not make any transactions.
Customer with id = 54 visited the mall three times. During 2 visits they did not
Customer with id = 96 visited the mall once and did not make any transactions.
As we can see, users with IDs 30 and 96 visited the mall one time without making
```

Solution

```sql
#Solution 1:
SELECT a.customer_id, COUNT(a.visit_id) AS count_no_trans FROM Visits AS a
LEFT JOIN Transactions AS b
ON a.visit_id = b.visit_id
WHERE b.transaction_id IS NULL
GROUP BY a.customer_id;

#Solution 2:
SELECT customer_id, count(visit_id) AS count_no_trans
FROM Visits
WHERE visit_id NOT IN
    (SELECT visit_id
    FROM Transactions
    GROUP BY visit_id)
GROUP BY customer_id
```

1587. Bank Account Summary II | Easy | 🔒 LeetCode

Table: `Users`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| account      | int     |
| name         | varchar |
+--------------+---------+
account is the primary key for this table.
Each row of this table contains the account number of each user in the bank.
```

Table: `Transactions`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| trans_id      | int     |
| account       | int     |
| amount        | int     |
| transacted_on | date    |
+---------------+---------+
trans_id is the primary key for this table.
Each row of this table contains all changes made to all accounts.
amount is positive if the user received money and negative if they transferred mo
All accounts start with a balance 0.
```

Write an SQL query to report the name and balance of users with a balance higher than 10000. The balance of an account is equal to the sum of the amounts of all transactions involving that account.

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

The query result format is in the following example.

TEXT

```
Users table:
+------------+--------------+
| account    | name         |
+------------+--------------+
| 900001     | Alice        |
| 900002     | Bob          |
| 900003     | Charlie      |
+------------+--------------+

Transactions table:
+------------+------------+------------+---------------+
| trans_id   | account    | amount     | transacted_on |
+------------+------------+------------+---------------+
| 1          | 900001     | 7000       |  2020-08-01   |
| 2          | 900001     | 7000       |  2020-09-01   |
| 3          | 900001     | -3000      |  2020-09-02   |
| 4          | 900002     | 1000       |  2020-09-12   |
| 5          | 900003     | 6000       |  2020-08-07   |
| 6          | 900003     | 6000       |  2020-09-07   |
| 7          | 900003     | -4000      |  2020-09-11   |
+------------+------------+------------+---------------+

Result table:
+------------+------------+
| name       | balance    |
+------------+------------+
| Alice      | 11000      |
+------------+------------+
Alice's balance is (7000 + 7000 - 3000) = 11000.
Bob's balance is 1000.
Charlie's balance is (6000 + 6000 - 4000) = 8000.
```

Solution

SQL

```sql
#Solution 1:
SELECT u.name AS NAME,SUM(t.amount) AS BALANCE
```

```
FROM Transactions t LEFT JOIN Users u
ON u.account = t.account
GROUP BY u.account
HAVING SUM(t.amount)>10000;


#Solution 2:
WITH tmp AS(
SELECT t.account, u.name, SUM(amount) AS balance
FROM Transactions t
LEFT JOIN Users u ON t.account = u.account
GROUP BY account )

SELECT name, balance
FROM tmp
WHERE balance > 10000
```

1596. The Most Frequently Ordered Products for Each Customer | Medium | 🔒 LeetCode

Table: `Customers`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| name          | varchar |
+---------------+---------+
customer_id is the primary key 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 primary key 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 primary key for this table.
This table contains information about the products.
```

Write an SQL query 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 query result format is in the following example:

```
Customers
+-------------+-------+
| customer_id | name  |
```

```
+-------------+-------+
| 1           | Alice |
| 2           | Bob   |
| 3           | Tom   |
| 4           | Jerry |
| 5           | John  |
+-------------+-------+
```

Orders

```
+----------+------------+-------------+------------+
| 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

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

Result table:

```
+-------------+------------+--------------+
| customer_id | product_id | product_name |
+-------------+------------+--------------+
| 1           | 2          | mouse        |
| 2           | 1          | keyboard     |
| 2           | 2          | mouse        |
```

```
| 2           | 3           | screen       |
| 3           | 3           | screen       |
| 4           | 1           | keyboard     |
+-------------+-------------+--------------+
```

Alice (customer 1) ordered the mouse three times and the keyboard one time, so th
Bob (customer 2) ordered the keyboard, the mouse, and the screen one time, so tho
Tom (customer 3) only ordered the screen (two times), so that is the most frquent
Jerry (customer 4) only ordered the keyboard (one time), so that is the most frqu
John (customer 5) did not order anything, so we do not include them in the result

---

Solution

SQL

```sql
#Solution 1:
SELECT customer_id, Products.product_id, Products.product_name FROM
(SELECT customer_id, product_id, order_count, RANK() OVER(PARTITION BY customer_i
(SELECT customer_id, product_id, COUNT(DISTINCT order_id) AS order_count FROM Ord
GROUP BY customer_id, product_id) order_counts) order_counts_ranked
JOIN Products ON order_counts_ranked.product_id = Products.product_id
WHERE r = 1;

#solution- 2:

SELECT customer_id, T.product_id, product_name
FROM(
    SELECT customer_id, product_id,
    RANK() OVER( PARTITION BY customer_id ORDER BY COUNT(*) DESC ) AS RK
    FROM Orders o
    GROUP BY customer_id, product_id
) T
LEFT JOIN Products p on p.product_id = t.product_id
WHERE RK=1


#Solution-3:
```

```sql
WITH

tmp AS (
  SELECT a.customer_id, b.product_id, c.product_name,
  COUNT(b.order_id) OVER(PARTITION BY a.customer_id, b.product_id) AS freq
  FROM Customers AS a
  JOIN Orders AS b
  ON a.customer_id = b.customer_id
  JOIN Products AS c
  ON b.product_id = c.product_id
),

tmp1 AS (
  SELECT customer_id, product_id, product_name, freq,
  DENSE_RANK() OVER(PARTITION BY customer_id ORDER BY freq DESC) AS rnk
  FROM tmp
)

SELECT DISTINCT customer_id, product_id, product_name FROM tmp1
WHERE rnk = 1;
```

1607. Sellers With No Sales | Easy | 🔒 LeetCode

Table: `Customer`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| customer_name | varchar |
+---------------+---------+
customer_id is the primary key for this table.
Each row of this table contains the information of each customer in the WebStore.
```

Table: `Orders`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| order_id      | int     |
| sale_date     | date    |
| order_cost    | int     |
| customer_id   | int     |
| seller_id     | int     |
+---------------+---------+
order_id is the primary key for this table.
Each row of this table contains all orders made in the webstore.
sale_date is the date when the transaction was made between the customer (custome
```

Table: `Seller`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| seller_id     | int     |
| seller_name   | varchar |
+---------------+---------+
seller_id is the primary key for this table.
Each row of this table contains the information of each seller.
```

Write an SQL query to report the names of all sellers who did not make any sales in 2020.

Return the result table ordered by `seller_name` in ascending order.

The query result format is in the following example.

```
Customer table:
+-------------+---------------+
| customer_id  | customer_name |
```

```
+--------------+---------------+
| 101          | Alice         |
| 102          | Bob           |
| 103          | Charlie       |
+--------------+---------------+
```

Orders table:

```
+-------------+------------+--------------+-------------+-------------+
| order_id    | sale_date  | order_cost   | customer_id | seller_id   |
+-------------+------------+--------------+-------------+-------------+
| 1           | 2020-03-01 | 1500         | 101         | 1           |
| 2           | 2020-05-25 | 2400         | 102         | 2           |
| 3           | 2019-05-25 | 800          | 101         | 3           |
| 4           | 2020-09-13 | 1000         | 103         | 2           |
| 5           | 2019-02-11 | 700          | 101         | 2           |
+-------------+------------+--------------+-------------+-------------+
```

Seller table:

```
+-------------+-------------+
| seller_id   | seller_name |
+-------------+-------------+
| 1           | Daniel      |
| 2           | Elizabeth   |
| 3           | Frank       |
+-------------+-------------+
```

Result table:

```
+-------------+
| seller_name |
+-------------+
| Frank       |
+-------------+
```

Daniel made 1 sale in March 2020.

Elizabeth made 2 sales in 2020 and 1 sale in 2019.

Frank made 1 sale in 2019 but no sales in 2020.

Solution

```sql
SELECT seller_name FROM Seller
WHERE seller_id NOT IN (
SELECT DISTINCT seller_id FROM Orders
WHERE YEAR(sale_date)='2020'
)
ORDER BY seller_name;
```

1613. Find the Missing IDs | Medium | 🔒 LeetCode

Table: `Customers`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| customer_id   | int     |
| customer_name | varchar |
+---------------+---------+
customer_id is the primary key for this table.
Each row of this table contains the name and the id customer.
```

Write an SQL query to find the missing customer IDs. The missing IDs are ones that are not in the `Customers` table but are in the range between `1` and the **maximum** `customer_id` present in the table.

Notice that the maximum `customer_id` will not exceed 100.

Return the result table ordered by **ids** in ***ascending order***.

The query result format is in the following example.

```
Customer table:
+-------------+---------------+
| customer_id | customer_name |
+-------------+---------------+
```

```
| 1           | Alice         |
| 4           | Bob           |
| 5           | Charlie       |
+-------------+---------------+

Result table:
+-----+
| ids |
+-----+
| 2   |
| 3   |
+-----+
The maximum customer_id present in the table is 5, so in the range [1,5], IDs 2 a
```

Solution

```sql
WITH RECURSIVE CTE AS(
    SELECT 1 AS 'id', MAX(c.customer_id) AS 'Max_Id'
    FROM Customers c
    UNION ALL
    SELECT id+1, Max_Id
    FROM CTE
    WHERE id < Max_id
)

SELECT id AS 'ids'
FROM CTE c
WHERE c.id NOT IN (SELECT customer_id FROM Customers)
ORDER BY 1 ASC
```

1623. All Valid Triplets That Can Represent a Country | Easy | 🔒 LeetCode

Table: `SchoolA`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| student_id    | int     |
| student_name  | varchar |
+---------------+---------+
student_id is the primary key for this table.
Each row of this table contains the name and the id of a student in school A.
All student_name are distinct.
```

Table: `SchoolB`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| student_id    | int     |
| student_name  | varchar |
+---------------+---------+
student_id is the primary key for this table.
Each row of this table contains the name and the id of a student in school B.
All student_name are distinct.
```

Table: `SchoolC`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| student_id    | int     |
| student_name  | varchar |
+---------------+---------+
student_id is the primary key for this table.
Each row of this table contains the name and the id of a student in school C.
All student_name are distinct.
```

There is a country with three schools, where each student is enrolled in **exactly one** school. The country is joining a competition and wants to select one student from each school to represent the country such that:

- `member_A` is selected from `SchoolA`,
- `member_B` is selected from `SchoolB`,
- `member_C` is selected from `SchoolC`, and The selected students' names and IDs are pairwise distinct (i.e. no two students share the same name, and no two students share the same ID). Write an SQL query to find all the possible triplets representing the country under the given constraints.

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

The query result format is in the following example.

```
TEXT
SchoolA table:
+------------+--------------+
| student_id | student_name |
+------------+--------------+
| 1          | Alice        |
| 2          | Bob          |
+------------+--------------+

SchoolB table:
+------------+--------------+
| student_id | student_name |
+------------+--------------+
| 3          | Tom          |
+------------+--------------+

SchoolC table:
+------------+--------------+
| student_id | student_name |
+------------+--------------+
| 3          | Tom          |
| 2          | Jerry        |
| 10         | Alice        |
+------------+--------------+
```

```
Result table:
+----------+----------+----------+
| member_A | member_B | member_C |
+----------+----------+----------+
| Alice    | Tom      | Jerry    |
| Bob      | Tom      | Alice    |
+----------+----------+----------+
Let us see all the possible triplets.
- (Alice, Tom, Tom) --> Rejected because member_B and member_C have the same name
- (Alice, Tom, Jerry) --> Valid triplet.
- (Alice, Tom, Alice) --> Rejected because member_A and member_C have the same na
- (Bob, Tom, Tom) --> Rejected because member_B and member_C have the same name a
- (Bob, Tom, Jerry) --> Rejected because member_A and member_C have the same ID.
- (Bob, Tom, Alice) --> Valid triplet.
```

Solution

```sql
SELECT a.student_name AS 'member_A',
b.student_name AS 'member_B',
c.student_name AS 'member_C'
FROM SchoolA AS a
JOIN SchoolB AS b
ON a.student_id <> b.student_id
AND a.student_name <> b.student_name
JOIN SchoolC AS c
ON a.student_id <> c.student_id
AND b.student_id <> c.student_id
AND a.student_name <> c.student_name
AND b.student_name <> c.student_name;
```

1633. Percentage of Users Attended a Contest | Easy | 🔒 LeetCode

Table: `Users`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| user_id     | int     |
| user_name   | varchar |
+-------------+---------+
user_id is the primary key for this table.
Each row of this table contains the name and the id of a user.
```

Table: `Register`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| contest_id  | int     |
| user_id     | int     |
+-------------+---------+
(contest_id, user_id) is the primary key for this table.
Each row of this table contains the id of a user and the contest they registered
```

Write an SQL query to find the percentage of the users registered in each contest rounded to two decimals.

Return the result table ordered by percentage in descending order. In case of a tie, order it by contest_id in ascending order.

The query result format is in the following example.

```
TEXT
Users table:
+---------+-----------+
| user_id | user_name |
+---------+-----------+
```

```
| 6       | Alice     |
| 2       | Bob       |
| 7       | Alex      |
+---------+-----------+

Register table:
+------------+---------+
| contest_id | user_id |
+------------+---------+
| 215        | 6       |
| 209        | 2       |
| 208        | 2       |
| 210        | 6       |
| 208        | 6       |
| 209        | 7       |
| 209        | 6       |
| 215        | 7       |
| 208        | 7       |
| 210        | 2       |
| 207        | 2       |
| 210        | 7       |
+------------+---------+

Result table:
+------------+------------+
| contest_id | percentage |
+------------+------------+
| 208        | 100.0      |
| 209        | 100.0      |
| 210        | 100.0      |
| 215        | 66.67      |
| 207        | 33.33      |
+------------+------------+
All the users registered in contests 208, 209, and 210. The percentage is 100% an
Alice and Alex registered in contest 215 and the percentage is ((2/3) * 100) = 66
Bob registered in contest 207 and the percentage is ((1/3) * 100) = 33.33%
```

Solution

```sql
SELECT contest_id, ROUND(COUNT(user_id)*100.00/(SELECT COUNT(*) FROM users),2) as
FROM register
GROUP BY contest_id
ORDER BY percentage desc, contest_id
```

1635. Hopper Company Queries I | Hard | 🔒 LeetCode

Table: `Drivers`

```text
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| driver_id   | int     |
| join_date   | date    |
+-------------+---------+
driver_id is the primary key for this table.
Each row of this table contains the driver's ID and the date they joined the Hopp
```

Table: `Rides`

```text
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| ride_id      | int     |
| user_id      | int     |
| requested_at | date    |
+--------------+---------+
ride_id is the primary key for this table.
Each row of this table contains the ID of a ride, the user's ID that requested it
There may be some ride requests in this table that were not accepted.
```

Table: `AcceptedRides`

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| ride_id       | int     |
| driver_id     | int     |
| ride_distance | int     |
| ride_duration | int     |
+---------------+---------+
ride_id is the primary key for this table.
Each row of this table contains some information about an accepted ride.
It is guaranteed that each accepted ride exists in the Rides table.
```

Write an SQL query to report the following statistics for each month of **2020**:

The number of drivers currently with the Hopper company by the end of the month (**active_drivers**). The number of accepted rides in that month (**accepted_rides**). Return the result table ordered by **month** in ascending order, where **month** is the month's number (January is **1**, February is **2**, etc.).

The query result format is in the following example.

```
Drivers table:
+-----------+------------+
| driver_id | join_date  |
+-----------+------------+
| 10        | 2019-12-10 |
| 8         | 2020-1-13  |
| 5         | 2020-2-16  |
| 7         | 2020-3-8   |
| 4         | 2020-5-17  |
| 1         | 2020-10-24 |
| 6         | 2021-1-5   |
+-----------+------------+

Rides table:
```

```
+---------+---------+--------------+
| ride_id | user_id | requested_at |
+---------+---------+--------------+
| 6       | 75      | 2019-12-9    |
| 1       | 54      | 2020-2-9     |
| 10      | 63      | 2020-3-4     |
| 19      | 39      | 2020-4-6     |
| 3       | 41      | 2020-6-3     |
| 13      | 52      | 2020-6-22    |
| 7       | 69      | 2020-7-16    |
| 17      | 70      | 2020-8-25    |
| 20      | 81      | 2020-11-2    |
| 5       | 57      | 2020-11-9    |
| 2       | 42      | 2020-12-9    |
| 11      | 68      | 2021-1-11    |
| 15      | 32      | 2021-1-17    |
| 12      | 11      | 2021-1-19    |
| 14      | 18      | 2021-1-27    |
+---------+---------+--------------+
```

AcceptedRides table:

```
+---------+-----------+---------------+---------------+
| ride_id | driver_id | ride_distance | ride_duration |
+---------+-----------+---------------+---------------+
| 10      | 10        | 63            | 38            |
| 13      | 10        | 73            | 96            |
| 7       | 8         | 100           | 28            |
| 17      | 7         | 119           | 68            |
| 20      | 1         | 121           | 92            |
| 5       | 7         | 42            | 101           |
| 2       | 4         | 6             | 38            |
| 11      | 8         | 37            | 43            |
| 15      | 8         | 108           | 82            |
| 12      | 8         | 38            | 34            |
| 14      | 1         | 90            | 74            |
+---------+-----------+---------------+---------------+
```

Result table:

```
+-------+----------------+----------------+
| month | active_drivers | accepted_rides |
```

```
+-------+----------------+----------------+
| 1     | 2              | 0              |
| 2     | 3              | 0              |
| 3     | 4              | 1              |
| 4     | 4              | 0              |
| 5     | 5              | 0              |
| 6     | 5              | 1              |
| 7     | 5              | 1              |
| 8     | 5              | 1              |
| 9     | 5              | 0              |
| 10    | 6              | 0              |
| 11    | 6              | 2              |
| 12    | 6              | 1              |
+-------+----------------+----------------+
```

```
By the end of January --> two active drivers (10, 8) and no accepted rides.
By the end of February --> three active drivers (10, 8, 5) and no accepted rides.
By the end of March --> four active drivers (10, 8, 5, 7) and one accepted ride (
By the end of April --> four active drivers (10, 8, 5, 7) and no accepted rides.
By the end of May --> five active drivers (10, 8, 5, 7, 4) and no accepted rides.
By the end of June --> five active drivers (10, 8, 5, 7, 4) and one accepted ride
By the end of July --> five active drivers (10, 8, 5, 7, 4) and one accepted ride
By the end of August --> five active drivers (10, 8, 5, 7, 4) and one accepted ri
By the end of Septemeber --> five active drivers (10, 8, 5, 7, 4) and no accepted
By the end of October --> six active drivers (10, 8, 5, 7, 4, 1) and no accepted
By the end of November --> six active drivers (10, 8, 5, 7, 4, 1) and two accepte
By the end of December --> six active drivers (10, 8, 5, 7, 4, 1) and one accepte
```

Solution

SQL

```sql
SELECT t.month,
    COUNT(DISTINCT driver_id) active_drivers,
    COUNT(DISTINCT rides.ride_id) accepted_rides
FROM
    ((SELECT 1 AS month)
    UNION (SELECT 2 AS month)
```

```
    UNION (SELECT 3 AS month)
    UNION (SELECT 4 AS month)
    UNION (SELECT 5 AS month)
    UNION (SELECT 6 AS month)
    UNION (SELECT 7 AS month)
    UNION (SELECT 8 AS month)
    UNION (SELECT 9 AS month)
    UNION (SELECT 10 AS month)
    UNION (SELECT 11 AS month)
    UNION (SELECT 12 AS month)) t
LEFT JOIN
    (SELECT driver_id,
    (CASE WHEN year(join_date) = 2019 THEN '1' ELSE month(join_date) END) `month`
    FROM Drivers
    WHERE year(join_date) <= 2020) d
ON d.month <= t.month
LEFT JOIN
    (SELECT month(requested_at) AS `month`, a.ride_id
    FROM AcceptedRides a
    JOIN Rides r
    ON r.ride_id = a.ride_id
    WHERE year(requested_at) = 2020) rides
ON t.month = rides.month
GROUP BY t.month
ORDER BY t.month
```

1645. Hopper Company Queries II | Hard | 🔒 LeetCode

Table: `Drivers`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| driver_id   | int     |
| join_date   | date    |
+-------------+---------+
```

```
driver_id is the primary key for this table.
Each row of this table contains the driver's ID and the date they joined the Hopp
```

Table: `Rides`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
+--------------+---------+
| ride_id      | int     |
| user_id      | int     |
| requested_at | date    |
+--------------+---------+
ride_id is the primary key for this table.
Each row of this table contains the ID of a ride, the user's ID that requested it
There may be some ride requests in this table that were not accepted.
```

Table: `AcceptedRides`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| ride_id       | int     |
| driver_id     | int     |
| ride_distance | int     |
| ride_duration | int     |
+---------------+---------+
ride_id is the primary key for this table.
Each row of this table contains some information about an accepted ride.
It is guaranteed that each accepted ride exists in the Rides table.
```

Write an SQL query to report the percentage of working drivers (`working_percentage`) for each month of **2020** where:

$$percentage_{month} = \frac{\#\ drivers\ that\ accepted\ at\ least\ one\ ride\ during\ the\ month}{\#\ available\ drivers\ during\ the\ month} \times 100.0$$

Note that if the number of available drivers during a month is zero, we consider the `working_percentage` to be `0`.

Return the result table ordered by `month` in **ascending** order, where **month** is the month's number (January is **1**, February is **2**, etc.). Round **working_percentage** to the nearest **2 decimal places**.

The query result format is in the following example.

TEXT

```
Drivers table:
+-----------+------------+
| driver_id | join_date  |
+-----------+------------+
| 10        | 2019-12-10 |
| 8         | 2020-1-13  |
| 5         | 2020-2-16  |
| 7         | 2020-3-8   |
| 4         | 2020-5-17  |
| 1         | 2020-10-24 |
| 6         | 2021-1-5   |
+-----------+------------+

Rides table:
+---------+---------+--------------+
| ride_id | user_id | requested_at |
+---------+---------+--------------+
| 6       | 75      | 2019-12-9    |
| 1       | 54      | 2020-2-9     |
| 10      | 63      | 2020-3-4     |
| 19      | 39      | 2020-4-6     |
| 3       | 41      | 2020-6-3     |
| 13      | 52      | 2020-6-22    |
| 7       | 69      | 2020-7-16    |
| 17      | 70      | 2020-8-25    |
| 20      | 81      | 2020-11-2    |
| 5       | 57      | 2020-11-9    |
| 2       | 42      | 2020-12-9    |
| 11      | 68      | 2021-1-11    |
```

15	32	2021-1-17
12	11	2021-1-19
14	18	2021-1-27

AcceptedRides table:

ride_id	driver_id	ride_distance	ride_duration
10	10	63	38
13	10	73	96
7	8	100	28
17	7	119	68
20	1	121	92
5	7	42	101
2	4	6	38
11	8	37	43
15	8	108	82
12	8	38	34
14	1	90	74

Result table:

month	working_percentage
1	0.00
2	0.00
3	25.00
4	0.00
5	0.00
6	20.00
7	20.00
8	20.00
9	0.00
10	0.00
11	33.33
12	16.67

```
By the end of January --> two active drivers (10, 8) and no accepted rides. The p
By the end of February --> three active drivers (10, 8, 5) and no accepted rides.
By the end of March --> four active drivers (10, 8, 5, 7) and one accepted ride b
By the end of April --> four active drivers (10, 8, 5, 7) and no accepted rides.
By the end of May --> five active drivers (10, 8, 5, 7, 4) and no accepted rides.
By the end of June --> five active drivers (10, 8, 5, 7, 4) and one accepted ride
By the end of July --> five active drivers (10, 8, 5, 7, 4) and one accepted ride
By the end of August --> five active drivers (10, 8, 5, 7, 4) and one accepted ri
By the end of Septemeber --> five active drivers (10, 8, 5, 7, 4) and no accepted
By the end of October --> six active drivers (10, 8, 5, 7, 4, 1) and no accepted
By the end of November --> six active drivers (10, 8, 5, 7, 4, 1) and two accepte
By the end of December --> six active drivers (10, 8, 5, 7, 4, 1) and one accepte
```

Solution

```sql
SELECT months_drivers.month, ROUND(COALESCE(100 * COALESCE(total_active_drivers,
FROM
(
    SELECT month, COUNT(driver_id) AS total_drivers
    FROM Drivers AS a
    RIGHT JOIN
    (
        SELECT "2020-1-31" AS day, 1 AS month
        UNION SELECT "2020-2-29", 2
        UNION SELECT "2020-3-31", 3
        UNION SELECT "2020-4-30", 4
        UNION SELECT "2020-5-31", 5
        UNION SELECT "2020-6-30", 6
        UNION SELECT "2020-7-31", 7
        UNION SELECT "2020-8-31", 8
        UNION SELECT "2020-9-30", 9
        UNION SELECT "2020-10-31", 10
        UNION SELECT "2020-11-30", 11
        UNION SELECT "2020-12-31", 12
    ) AS months
    ON join_date <= day
```

```
    GROUP BY month
) months_drivers
LEFT JOIN
(
    SELECT month, COUNT(DISTINCT b.driver_id) AS total_active_drivers
    FROM
    (
        SELECT ride_id, CAST(substr(requested_at, 6, 2) AS unsigned) AS month
        FROM Rides
        WHERE substr(requested_at, 1, 4) = "2020"
    ) month_rides
    JOIN AcceptedRides AS b
    ON month_rides.ride_id = b.ride_id
    GROUP BY month
) months_active_drivers
ON months_drivers.month = months_active_drivers.month;
```

1651. Hopper Company Queries III | Hard | 🔒 LeetCode

Table: `Drivers`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| driver_id   | int     |
| join_date   | date    |
+-------------+---------+
driver_id is the primary key for this table.
Each row of this table contains the driver's ID and the date they joined the Hopp
```

Table: `Rides`

```
TEXT
+--------------+---------+
| Column Name  | Type    |
```

```
+--------------+---------+
| ride_id      | int     |
| user_id      | int     |
| requested_at | date    |
+--------------+---------+
ride_id is the primary key for this table.
Each row of this table contains the ID of a ride, the user's ID that requested it
There may be some ride requests in this table that were not accepted.
```

Table: `AcceptedRides`

TEXT

```
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| ride_id       | int     |
| driver_id     | int     |
| ride_distance | int     |
| ride_duration | int     |
+---------------+---------+
ride_id is the primary key for this table.
Each row of this table contains some information about an accepted ride.
It is guaranteed that each accepted ride exists in the Rides table.
```

Write an SQL query to compute the `average_ride_distance` and `average_ride_duration` of every 3-month window starting from **January - March 2020 to October - December 2020**. Round `average_ride_distance` and `average_ride_duration` to the nearest two decimal places.

The `average_ride_distance` is calculated by summing up the total `ride_distance` values from the three months and dividing it by `3`. The `average_ride_duration` is calculated in a similar way.

Return the result table ordered by `month` in ascending order, where `month` is the starting month's number (January is `1`, February is `2`, etc.).

The query result format is in the following example.

TEXT

Drivers table:

driver_id	join_date
10	2019-12-10
8	2020-1-13
5	2020-2-16
7	2020-3-8
4	2020-5-17
1	2020-10-24
6	2021-1-5

Rides table:

ride_id	user_id	requested_at
6	75	2019-12-9
1	54	2020-2-9
10	63	2020-3-4
19	39	2020-4-6
3	41	2020-6-3
13	52	2020-6-22
7	69	2020-7-16
17	70	2020-8-25
20	81	2020-11-2
5	57	2020-11-9
2	42	2020-12-9
11	68	2021-1-11
15	32	2021-1-17
12	11	2021-1-19
14	18	2021-1-27

AcceptedRides table:

ride_id	driver_id	ride_distance	ride_duration
10	10	63	38

13	10	73	96
7	8	100	28
17	7	119	68
20	1	121	92
5	7	42	101
2	4	6	38
11	8	37	43
15	8	108	82
12	8	38	34
14	1	90	74

Result table:

month	average_ride_distance	average_ride_duration
1	21.00	12.67
2	21.00	12.67
3	21.00	12.67
4	24.33	32.00
5	57.67	41.33
6	97.33	64.00
7	73.00	32.00
8	39.67	22.67
9	54.33	64.33
10	56.33	77.00

By the end of January --> average_ride_distance = (0+0+63)/3=21, average_ride_dur
By the end of February --> average_ride_distance = (0+63+0)/3=21, average_ride_du
By the end of March --> average_ride_distance = (63+0+0)/3=21, average_ride_durat
By the end of April --> average_ride_distance = (0+0+73)/3=24.33, average_ride_du
By the end of May --> average_ride_distance = (0+73+100)/3=57.67, average_ride_du
By the end of June --> average_ride_distance = (73+100+119)/3=97.33, average_ride
By the end of July --> average_ride_distance = (100+119+0)/3=73.00, average_ride_
By the end of August --> average_ride_distance = (119+0+0)/3=39.67, average_ride_
By the end of Septemeber --> average_ride_distance = (0+0+163)/3=54.33, average_r
By the end of October --> average_ride_distance = (0+163+6)/3=56.33, average_ride

Solution

```sql
SELECT month,
    COALESCE(ROUND(SUM(ride_distance)/3,2),0) AS average_ride_distance,
    COALESCE(ROUND(SUM(ride_duration)/3,2),0) AS average_ride_duration
FROM
(
    SELECT months.month, ride_id
    FROM Rides
    RIGHT JOIN
    (
        SELECT "2020-1-1" AS start, "2020-3-31" AS last, 1 AS month
        UNION SELECT "2020-2-1", "2020-4-30", 2
        UNION SELECT "2020-3-1", "2020-5-31", 3
        UNION SELECT "2020-4-1", "2020-6-30", 4
        UNION SELECT "2020-5-1", "2020-7-31", 5
        UNION SELECT "2020-6-1", "2020-8-31", 6
        UNION SELECT "2020-7-1", "2020-9-30", 7
        UNION SELECT "2020-8-1", "2020-10-31", 8
        UNION SELECT "2020-9-1", "2020-11-30", 9
        UNION SELECT "2020-10-1", "2020-12-31", 10
    ) AS months
    ON months.start <= requested_at AND months.last >= requested_at
) total
LEFT JOIN AcceptedRides AS a
ON total.ride_id=a.ride_id
GROUP BY month
ORDER BY month;
```

1661. Average Time of Process per Machine | Easy | 🔒 LeetCode

Table: `Activity`

```
TEXT
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| machine_id     | int     |
| process_id     | int     |
| activity_type  | enum    |
| timestamp      | float   |
+----------------+---------+
The table shows the user activities for a factory website.
(machine_id, process_id, activity_type) is the primary key of this table.
machine_id is the ID of a machine.
process_id is the ID of a process running on the machine with ID machine_id.
activity_type is an ENUM of type ('start', 'end').
timestamp is a float representing the current time in seconds.
'start' means the machine starts the process at the given timestamp and 'end' mea
The 'start' timestamp will always be before the 'end' timestamp for every (machin
```

There is a factory website that has several machines each running the **same number of processes**. Write an SQL query to find the **average time** each machine takes to complete a process.

The time to complete a process is the `'end' timestamp` minus the `'start' timestamp`. The average time is calculated by the total time to complete every process on the machine divided by the number of processes that were run.

The resulting table should have the `machine_id` along with the **average time** as `processing_time`, which should be **rounded to 3 decimal places**.

The query result format is in the following example:

```
TEXT
Activity table:
+------------+------------+---------------+-----------+
| machine_id | process_id | activity_type | timestamp |
+------------+------------+---------------+-----------+
| 0          | 0          | start         | 0.712     |
| 0          | 0          | end           | 1.520     |
```

```
| 0          | 1          | start         | 3.140     |
| 0          | 1          | end           | 4.120     |
| 1          | 0          | start         | 0.550     |
| 1          | 0          | end           | 1.550     |
| 1          | 1          | start         | 0.430     |
| 1          | 1          | end           | 1.420     |
| 2          | 0          | start         | 4.100     |
| 2          | 0          | end           | 4.512     |
| 2          | 1          | start         | 2.500     |
| 2          | 1          | end           | 5.000     |
+------------+------------+---------------+-----------+
```

Result table:

```
+------------+-----------------+
| machine_id | processing_time |
+------------+-----------------+
| 0          | 0.894           |
| 1          | 0.995           |
| 2          | 1.456           |
+------------+-----------------+
```

There are 3 machines running 2 processes each.
Machine 0's average time is ((1.520 - 0.712) + (4.120 - 3.140)) / 2 = 0.894
Machine 1's average time is ((1.550 - 0.550) + (1.420 - 0.430)) / 2 = 0.995
Machine 2's average time is ((4.512 - 4.100) + (5.000 - 2.500)) / 2 = 1.456

Solution

SQL

```sql
SELECT machine_id,
    ROUND(SUM(IF(activity_type='start', -timestamp, timestamp)) / COUNT(DISTINCT
FROM Activity
GROUP BY machine_id
ORDER BY machine_id
```

1667. Fix Names in a Table | Easy | 🔒 LeetCode

Table: `Users`

```
TEXT
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| user_id        | int     |
| name           | varchar |
+----------------+---------+
user_id is the primary key for this table.
This table contains the ID and the name of the user. The name consists of only lo
```

Write an SQL query to fix the names so that only the first character is uppercase and the rest are lowercase.

Return the result table ordered by `user_id`.

The query result format is in the following example:

```
TEXT
Users table:
+---------+-------+
| user_id | name  |
+---------+-------+
| 1       | aLice |
| 2       | bOB   |
+---------+-------+

Result table:
+---------+-------+
| user_id | name  |
+---------+-------+
| 1       | Alice |
| 2       | Bob   |
+---------+-------+
```

Solution

```sql
select user_id,
    CONCAT(UPPER(LEFT(name,1)),LOWER(SUBSTRING(name,2))) AS name
FROM Users
ORDER BY user_id
```

1677. Product's Worth Over Invoices | Easy | 🔒 LeetCode

Table: `Product`

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| product_id  | int     |
| name        | varchar |
+-------------+---------+
product_id is the primary key for this table.
This table contains the ID and the name of the product. The name consists of only
```

Table: `Invoice`

```
+-------------+------+
| Column Name | Type |
+-------------+------+
| invoice_id  | int  |
| product_id  | int  |
| rest        | int  |
| paid        | int  |
| canceled    | int  |
| refunded    | int  |
+-------------+------+
invoice_id is the primary key for this table and the id of this invoice.
```

```
product_id is the id of the product for this invoice.
rest is the amount left to pay for this invoice.
paid is the amount paid for this invoice.
canceled is the amount canceled for this invoice.
refunded is the amount refunded for this invoice.
```

Write an SQL query that will, for all products, return each product name with total amount due, paid, canceled, and refunded across all invoices.

Return the result table ordered by `product_name`.

The query result format is in the following example:

TEXT

```
Product table:
+------------+-------+
| product_id | name  |
+------------+-------+
| 0          | ham   |
| 1          | bacon |
+------------+-------+
Invoice table:
+------------+------------+------+------+----------+----------+
| invoice_id | product_id | rest | paid | canceled | refunded |
+------------+------------+------+------+----------+----------+
| 23         | 0          | 2    | 0    | 5        | 0        |
| 12         | 0          | 0    | 4    | 0        | 3        |
| 1          | 1          | 1    | 1    | 0        | 1        |
| 2          | 1          | 1    | 0    | 1        | 1        |
| 3          | 1          | 0    | 1    | 1        | 1        |
| 4          | 1          | 1    | 1    | 1        | 0        |
+------------+------------+------+------+----------+----------+
Result table:
+-------+------+------+----------+----------+
| name  | rest | paid | canceled | refunded |
+-------+------+------+----------+----------+
| bacon | 3    | 3    | 3        | 3        |
| ham   | 2    | 4    | 5        | 3        |
+-------+------+------+----------+----------+
```

```
- The amount of money left to pay for bacon is 1 + 1 + 0 + 1 = 3
- The amount of money paid for bacon is 1 + 0 + 1 + 1 = 3
- The amount of money canceled for bacon is 0 + 1 + 1 + 1 = 3
- The amount of money refunded for bacon is 1 + 1 + 1 + 0 = 3
- The amount of money left to pay for ham is 2 + 0 = 2
- The amount of money paid for ham is 0 + 4 = 4
- The amount of money canceled for ham is 5 + 0 = 5
- The amount of money refunded for ham is 0 + 3 = 3
```

Solution

SQL

```sql
SELECT p.name AS name,
    SUM(i.rest) AS rest,
    SUM(i.paid) AS paid,
    SUM(i.canceled) AS canceled,
    SUM(i.refunded) AS refunded
FROM Invoice i
LEFT JOIN Product p ON p.product_id = i.product_id
GROUP BY name
ORDER BY name;
```

1683. Invalid Tweets | Easy | 🔒 LeetCode

Table: `Tweets`

TEXT

```
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| tweet_id       | int     |
| content        | varchar |
+----------------+---------+
tweet_id is the primary key for this table.
This table contains all the tweets in a social media app.
```

Write an SQL query to find the IDs of the invalid tweets. The tweet is invalid if the number of characters used in the content of the tweet is `strictly greater` than `15`.

Return the result table `in any order`.

The query result format is in the following example:

```
TEXT
Tweets table:
+----------+----------------------------------+
| tweet_id | content                          |
+----------+----------------------------------+
| 1        | Vote for Biden                   |
| 2        | Let us make America great again! |
+----------+----------------------------------+

Result table:
+----------+
| tweet_id |
+----------+
| 2        |
+----------+
Tweet 1 has length = 14. It is a valid tweet.
Tweet 2 has length = 32. It is an invalid tweet.
```

Solution

```sql
SQL
SELECT tweet_id
FROM Tweets
WHERE LENGTH(content) > 15;
```

1693. Daily Leads and Partners | Easy | 🔒 LeetCode

Table: `DailySales`

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| date_id     | date    |
| make_name   | varchar |
| lead_id     | int     |
| partner_id  | int     |
+-------------+---------+
This table does not have a primary key.
This table contains the date and the name of the product sold and the IDs of the
The name consists of only lowercase English letters.
```

Write an SQL query that will, for each `date_id` and `make_name`, return the number of distinct `lead_id`'s and distinct `partner_id`'s.

Return the result table in any order.

The query result format is in the following example:

```
DailySales table:
+-----------+-----------+---------+------------+
| date_id   | make_name | lead_id | partner_id |
+-----------+-----------+---------+------------+
| 2020-12-8 | toyota    | 0       | 1          |
| 2020-12-8 | toyota    | 1       | 0          |
| 2020-12-8 | toyota    | 1       | 2          |
| 2020-12-7 | toyota    | 0       | 2          |
| 2020-12-7 | toyota    | 0       | 1          |
| 2020-12-8 | honda     | 1       | 2          |
| 2020-12-8 | honda     | 2       | 1          |
| 2020-12-7 | honda     | 0       | 1          |
| 2020-12-7 | honda     | 1       | 2          |
| 2020-12-7 | honda     | 2       | 1          |
+-----------+-----------+---------+------------+
Result table:
+-----------+-----------+--------------+-----------------+
```

```
| date_id    | make_name | unique_leads | unique_partners |
+------------+-----------+--------------+-----------------+
| 2020-12-8 | toyota    | 2            | 3               |
| 2020-12-7 | toyota    | 1            | 2               |
| 2020-12-8 | honda     | 2            | 2               |
| 2020-12-7 | honda     | 3            | 2               |
+------------+-----------+--------------+-----------------+
For 2020-12-8, toyota gets leads = [0, 1] and partners = [0, 1, 2] while honda ge
For 2020-12-7, toyota gets leads = [0] and partners = [1, 2] while honda gets lea
```

Solution

SQL

```sql
SELECT date_id, make_name,
    COUNT(DISTINCT lead_id) AS unique_leads,
    COUNT(DISTINCT partner_id) AS unique_partners
FROM DailySales
GROUP BY date_id, make_name
```

1699. Number of Calls Between Two Persons | Medium | 🔒 LeetCode

Table: `Calls`

TEXT

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| from_id     | int     |
| to_id       | int     |
| duration    | int     |
+-------------+---------+
This table does not have a primary key, it may contain duplicates.
This table contains the duration of a phone call between from_id and to_id.
from_id != to_id
```

Write an SQL query to report the number of calls and the total call duration between each pair of distinct persons `(person1, person2)` where `person1 < person2`.

Return the result table in any order.

The query result format is in the following example:

```
TEXT
Calls table:
+---------+-------+----------+
| from_id | to_id | duration |
+---------+-------+----------+
| 1       | 2     | 59       |
| 2       | 1     | 11       |
| 1       | 3     | 20       |
| 3       | 4     | 100      |
| 3       | 4     | 200      |
| 3       | 4     | 200      |
| 4       | 3     | 499      |
+---------+-------+----------+

Result table:
+---------+---------+------------+----------------+
| person1 | person2 | call_count | total_duration |
+---------+---------+------------+----------------+
| 1       | 2       | 2          | 70             |
| 1       | 3       | 1          | 20             |
| 3       | 4       | 4          | 999            |
+---------+---------+------------+----------------+
Users 1 and 2 had 2 calls and the total duration is 70 (59 + 11).
Users 1 and 3 had 1 call and the total duration is 20.
Users 3 and 4 had 4 calls and the total duration is 999 (100 + 200 + 200 + 499).
```

Solution

```sql
#Solution 1:
SELECT from_id AS person1,to_id AS person2,
    COUNT(duration) AS call_count, SUM(duration) AS total_duration
FROM (SELECT *
      FROM Calls

      UNION ALL

      SELECT to_id, from_id, duration
      FROM Calls) t1
WHERE from_id < to_id
GROUP BY person1, person2

#Solution 2:
SELECT
    IF(from_id<to_id,from_id,to_id) person1,
    IF(from_id>to_id,from_id,to_id) person2,
    COUNT(*) call_count,
    SUM(duration) total_duration
FROM
    Calls
GROUP BY
    IF(from_id<to_id,from_id,to_id),
    IF(from_id>to_id,from_id,to_id);
```

1709. Biggest Window Between Visits | Medium | 🔒 LeetCode

Table: `UserVisits`

```text
+-------------+------+
| Column Name | Type |
+-------------+------+
| user_id     | int  |
| visit_date  | date |
+-------------+------+
```

```
This table does not have a primary key.
This table contains logs of the dates that users vistied a certain retailer.
```

Assume today's date is `'2021-1-1'`.

Write an SQL query that will, for each `user_id`, find out the largest `window` of days between each visit and the one right after it (or today if you are considering the last visit).

Return the result table ordered by `user_id`.

The query result format is in the following example:

TEXT

```
UserVisits table:
+---------+------------+
| user_id | visit_date |
+---------+------------+
| 1       | 2020-11-28 |
| 1       | 2020-10-20 |
| 1       | 2020-12-3  |
| 2       | 2020-10-5  |
| 2       | 2020-12-9  |
| 3       | 2020-11-11 |
+---------+------------+
Result table:
+---------+---------------+
| user_id | biggest_window|
+---------+---------------+
| 1       | 39            |
| 2       | 65            |
| 3       | 51            |
+---------+---------------+
For the first user, the windows in question are between dates:
    - 2020-10-20 and 2020-11-28 with a total of 39 days.
    - 2020-11-28 and 2020-12-3 with a total of 5 days.
    - 2020-12-3 and 2021-1-1 with a total of 29 days.
Making the biggest window the one with 39 days.
For the second user, the windows in question are between dates:
```

```
    - 2020-10-5 and 2020-12-9 with a total of 65 days.
    - 2020-12-9 and 2021-1-1 with a total of 23 days.
Making the biggest window the one with 65 days.
For the third user, the only window in question is between dates 2020-11-11 and 2
```

Solution

```sql
SELECT user_id, max(diff) AS biggest_window
FROM
(
    SELECT user_id,
       datediff(coalesce(lead(visit_date) OVER (PARTITION BY user_id ORDER BY vis
    FROM userVisits
) t
GROUP BY user_id
ORDER BY user_id
```

1715. Count Apples and Oranges | Medium | 🔒 LeetCode

Table: `Boxes`

```
+--------------+------+
| Column Name  | Type |
+--------------+------+
| box_id       | int  |
| chest_id     | int  |
| apple_count  | int  |
| orange_count | int  |
+--------------+------+
box_id is the primary key for this table.
chest_id is a foreign key of the chests table.
This table contains information about the boxes and the number of oranges and app
```

Table: `Chests`

```
+--------------+------+
| Column Name  | Type |
+--------------+------+
| chest_id     | int  |
| apple_count  | int  |
| orange_count | int  |
+--------------+------+
chest_id is the primary key for this table.
This table contains information about the chests we have, and the corresponding n
```

Write an SQL query to count the number of apples and oranges in all the boxes. If a box contains a chest, you should also include the number of apples and oranges it has.

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

The query result format is in the following example:

```
Boxes table:
+--------+----------+-------------+--------------+
| box_id | chest_id | apple_count | orange_count |
+--------+----------+-------------+--------------+
| 2      | null     | 6           | 15           |
| 18     | 14       | 4           | 15           |
| 19     | 3        | 8           | 4            |
| 12     | 2        | 19          | 20           |
| 20     | 6        | 12          | 9            |
| 8      | 6        | 9           | 9            |
| 3      | 14       | 16          | 7            |
+--------+----------+-------------+--------------+

Chests table:
+----------+-------------+--------------+
| chest_id | apple_count | orange_count |
```

```
+----------+-------------+--------------+
| 6        | 5           | 6            |
| 14       | 20          | 10           |
| 2        | 8           | 8            |
| 3        | 19          | 4            |
| 16       | 19          | 19           |
+----------+-------------+--------------+

Result table:
+-------------+--------------+
| apple_count | orange_count |
+-------------+--------------+
| 151         | 123          |
+-------------+--------------+
box 2 has 6 apples and 15 oranges.
box 18 has 4 + 20 (from the chest) = 24 apples and 15 + 10 (from the chest) = 25
box 19 has 8 + 19 (from the chest) = 27 apples and 4 + 4 (from the chest) = 8 ora
box 12 has 19 + 8 (from the chest) = 27 apples and 20 + 8 (from the chest) = 28 o
box 20 has 12 + 5 (from the chest) = 17 apples and 9 + 6 (from the chest) = 15 or
box 8 has 9 + 5 (from the chest) = 14 apples and 9 + 6 (from the chest) = 15 oran
box 3 has 16 + 20 (from the chest) = 36 apples and 7 + 10 (from the chest) = 17 o
Total number of apples = 6 + 24 + 27 + 27 + 17 + 14 + 36 = 151
Total number of oranges = 15 + 25 + 8 + 28 + 15 + 15 + 17 = 123
```

Solution

```sql
SELECT sum(IFNULL(box.apple_count, 0) + IFNULL(chest.apple_count, 0)) AS apple_co
    sum(IFNULL(box.orange_count, 0) + IFNULL(chest.orange_count, 0)) AS orange_co
    FROM Boxes AS box
    LEFT JOIN Chests AS chest
    ON box.chest_id = chest.chest_id;
```

1729. Find Followers Count | Easy | 🔒 LeetCode

Table: `Followers`

```
TEXT
+-------------+------+
| Column Name | Type |
+-------------+------+
| user_id     | int  |
| follower_id | int  |
+-------------+------+
(user_id, follower_id) is the primary key for this table.
This table contains the IDs of a user and a follower in a social media app where
```

Write an SQL query that will, for each user, return the number of followers.

Return the result table ordered by user_id.

The query result format is in the following example:

```
TEXT
Followers table:
+---------+-------------+
| user_id | follower_id |
+---------+-------------+
| 0       | 1           |
| 1       | 0           |
| 2       | 0           |
| 2       | 1           |
+---------+-------------+
Result table:
+---------+----------------+
| user_id | followers_count|
+---------+----------------+
| 0       | 1              |
| 1       | 1              |
| 2       | 2              |
+---------+----------------+
The followers of 0 are {1}
```

```
The followers of 1 are {0}
The followers of 2 are {0,1}
```

Solution

```sql
SELECT user_id, COUNT(DISTINCT follower_id) followers_count
FROM followers
GROUP BY user_id
ORDER BY user_id
```

1731. The Number of Employees Which Report to Each Employee | Easy | 🔒 LeetCode

Table: `Employees`

```
+-------------+----------+
| Column Name | Type     |
+-------------+----------+
| employee_id | int      |
| name        | varchar  |
| reports_to  | int      |
| age         | int      |
+-------------+----------+
employee_id is the primary key for this table.
This table contains information about the employees and the id of the manager the
```

For this problem, we will consider a **manager** an employee who has at least 1 other employee reporting to them.

Write an SQL query to report the ids and the names of all **managers**, the number of employees who report **directly** to them, and the average age of the reports rounded to the nearest integer.

Return the result table ordered by `employee_id`.

The query result format is in the following example:

```
Employees table:
+-------------+---------+------------+-----+
| employee_id | name    | reports_to | age |
+-------------+---------+------------+-----+
| 9           | Hercy   | null       | 43  |
| 6           | Alice   | 9          | 41  |
| 4           | Bob     | 9          | 36  |
| 2           | Winston | null       | 37  |
+-------------+---------+------------+-----+

Result table:
+-------------+-------+---------------+-------------+
| employee_id | name  | reports_count | average_age |
+-------------+-------+---------------+-------------+
| 9           | Hercy | 2             | 39          |
+-------------+-------+---------------+-------------+
Hercy has 2 people report directly to him, Alice and Bob. Their average age is (4
```

Solution

```sql
SELECT e1.reports_to AS employee_id,
       e2.name,
       COUNT(e1.reports_to) AS reports_count,
       ROUND(AVG(e1.age),0) AS average_age
FROM employees e1
JOIN employees e2
ON e1.reports_to=e2.employee_id
GROUP BY e1.reports_to
ORDER BY e1.reports_to
```

1741. Find Total Time Spent by Each Employee | Easy | 🔒 LeetCode

Table: `Employees`

```
TEXT
+-------------+------+
| Column Name | Type |
+-------------+------+
| emp_id      | int  |
| event_day   | date |
| in_time     | int  |
| out_time    | int  |
+-------------+------+
(emp_id, event_day, in_time) is the primary key of this table.
The table shows the employees' entries and exits in an office.
event_day is the day at which this event happened and in_time is the minute at wh
It's guaranteed that no two events on the same day intersect in time.
```

Write an SQL query to calculate the total time **in minutes** spent by each employee on each day at the office. Note that within one day, an employee can enter and leave more than once.

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

The query result format is in the following example:

```
TEXT
Employees table:
+--------+------------+---------+----------+
| emp_id | event_day  | in_time | out_time |
+--------+------------+---------+----------+
| 1      | 2020-11-28 | 4       | 32       |
| 1      | 2020-11-28 | 55      | 200      |
| 1      | 2020-12-03 | 1       | 42       |
| 2      | 2020-11-28 | 3       | 33       |
| 2      | 2020-12-09 | 47      | 74       |
+--------+------------+---------+----------+
```

```
Result table:
+------------+--------+------------+
| day        | emp_id | total_time |
+------------+--------+------------+
| 2020-11-28 | 1      | 173        |
| 2020-11-28 | 2      | 30         |
| 2020-12-03 | 1      | 41         |
| 2020-12-09 | 2      | 27         |
+------------+--------+------------+
Employee 1 has three events two on day 2020-11-28 with a total of (32 - 4) + (200
Employee 2 has two events one on day 2020-11-28 with a total of (33-3) = 30 and o
```

Solution

SQL

```sql
SELECT event_day AS day, emp_id, SUM(out_time - in_time) AS total_time
FROM Employees
GROUP BY day, emp_id
```

1747. Leetflex Banned Accounts | Medium | 🔒 LeetCode

Table: `LogInfo`

TEXT

```
+-------------+----------+
| Column Name | Type     |
+-------------+----------+
| account_id  | int      |
| ip_address  | int      |
| login       | datetime |
| logout      | datetime |
+-------------+----------+
There is no primary key for this table, and it may contain duplicates.
The table contains information about the login and logout dates of Leetflex accou
It is guaranteed that the logout time is after the login time.
```

Write an SQL query to find the `account_id` of the accounts that should be banned from Leetflex. An account should be banned if it was logged in at some moment from two different IP addresses.

Return the result table in any order.

The query result format is in the following example:

```
TEXT
LogInfo table:
+------------+------------+---------------------+---------------------+
| account_id | ip_address | login               | logout              |
+------------+------------+---------------------+---------------------+
| 1          | 1          | 2021-02-01 09:00:00 | 2021-02-01 09:30:00 |
| 1          | 2          | 2021-02-01 08:00:00 | 2021-02-01 11:30:00 |
| 2          | 6          | 2021-02-01 20:30:00 | 2021-02-01 22:00:00 |
| 2          | 7          | 2021-02-02 20:30:00 | 2021-02-02 22:00:00 |
| 3          | 9          | 2021-02-01 16:00:00 | 2021-02-01 16:59:59 |
| 3          | 13         | 2021-02-01 17:00:00 | 2021-02-01 17:59:59 |
| 4          | 10         | 2021-02-01 16:00:00 | 2021-02-01 17:00:00 |
| 4          | 11         | 2021-02-01 17:00:00 | 2021-02-01 17:59:59 |
+------------+------------+---------------------+---------------------+

Result table:
+------------+
| account_id |
+------------+
| 1          |
| 4          |
+------------+
Account ID 1 --> The account was active from "2021-02-01 09:00:00" to "2021-02-01
Account ID 2 --> The account was active from two different addresses (6, 7) but i
Account ID 3 --> The account was active from two different addresses (9, 13) on t
Account ID 4 --> The account was active from "2021-02-01 17:00:00" to "2021-02-01
```

Solution

```sql
SELECT DISTINCT l1.account_id
FROM LogInfo l1
JOIN LogInfo l2
ON l1.account_id = l2.account_id AND l1.ip_address != l2.ip_address
WHERE NOT (l1.login > l2.logout OR l1.logout < l2.login)
```

1757. Recyclable and Low Fat Products | Easy | 🔒 LeetCode

Table: `Products`

```
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| product_id  | int     |
| low_fats    | enum    |
| recyclable  | enum    |
+-------------+---------+
product_id is the primary key for this table.
low_fats is an ENUM of type ('Y', 'N') where 'Y' means this product is low fat an
recyclable is an ENUM of types ('Y', 'N') where 'Y' means this product is recycla
```

Write an SQL query to find the ids of products that are both low fat and recyclable.

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

The query result format is in the following example:

```
Products table:
+-------------+----------+------------+
| product_id  | low_fats | recyclable |
+-------------+----------+------------+
| 0           | Y        | N          |
| 1           | Y        | Y          |
```

```
| 2           | N        | Y          |
| 3           | Y        | Y          |
| 4           | N        | N          |
+-------------+----------+------------+
Result table:
+-------------+
| product_id  |
+-------------+
| 1           |
| 3           |
+-------------+
Only products 1 and 3 are both low fat and recyclable.
```

Solution

SQL

```sql
SELECT product_id
FROM Products
WHERE low_fats = "Y" AND recyclable = "Y"
```

1767. Find the Subtasks That Did Not Execute | Hard | 🔒 LeetCode

Table: `Tasks`

TEXT

```
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| task_id        | int     |
| subtasks_count | int     |
+----------------+---------+
task_id is the primary key for this table.
Each row in this table indicates that task_id was divided into subtasks_count sub
It is guaranteed that 2 <= subtasks_count <= 20.
```

Table: `Executed`

```
TEXT
+---------------+---------+
| Column Name   | Type    |
+---------------+---------+
| task_id       | int     |
| subtask_id    | int     |
+---------------+---------+
(task_id, subtask_id) is the primary key for this table.
Each row in this table indicates that for the task task_id, the subtask with ID s
It is guaranteed that subtask_id <= subtasks_count for each task_id.
```

Write an SQL query to report the IDs of the missing subtasks for each `task_id`.

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

The query result format is in the following example:

```
TEXT
Tasks table:
+---------+----------------+
| task_id | subtasks_count |
+---------+----------------+
| 1       | 3              |
| 2       | 2              |
| 3       | 4              |
+---------+----------------+

Executed table:
+---------+------------+
| task_id | subtask_id |
+---------+------------+
| 1       | 2          |
| 3       | 1          |
| 3       | 2          |
| 3       | 3          |
```

```
| 3       | 4          |
+---------+------------+

Result table:
+---------+------------+
| task_id | subtask_id |
+---------+------------+
| 1       | 1          |
| 1       | 3          |
| 2       | 1          |
| 2       | 2          |
+---------+------------+
Task 1 was divided into 3 subtasks (1, 2, 3). Only subtask 2 was executed success
Task 2 was divided into 2 subtasks (1, 2). No subtask was executed successfully,
Task 3 was divided into 4 subtasks (1, 2, 3, 4). All of the subtasks were execute
```

Solution

```sql
WITH RECURSIVE CTE AS
  (SELECT 1 AS subtask_id
   UNION ALL SELECT subtask_id + 1
   FROM CTE
   WHERE subtask_id <
       (SELECT MAX(subtasks_count)
        FROM Tasks) )
SELECT Tasks.task_id,
       CTE.subtask_id
FROM CTE
INNER JOIN Tasks ON CTE.subtask_id <= Tasks.subtasks_count
LEFT JOIN Executed ON Tasks.task_id = Executed.task_id
                      AND CTE.subtask_id = Executed.subtask_id
WHERE Executed.subtask_id IS NULL
ORDER BY NULL
```

1777. Product's Price for Each Store | Easy | 🔒 LeetCode

Table: `Products`

```
TEXT
+-------------+---------+
| Column Name | Type    |
+-------------+---------+
| product_id  | int     |
| store       | enum    |
| price       | int     |
+-------------+---------+
(product_id,store) is the primary key for this table.
store is an ENUM of type ('store1', 'store2', 'store3') where each represents the
price is the price of the product at this store.
```

Write an SQL query to find the price of each product in each store.

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

The query result format is in the following example:

```
TEXT
Products table:
+-------------+--------+-------+
| product_id  | store  | price |
+-------------+--------+-------+
| 0           | store1 | 95    |
| 0           | store3 | 105   |
| 0           | store2 | 100   |
| 1           | store1 | 70    |
| 1           | store3 | 80    |
+-------------+--------+-------+
Result table:
+-------------+--------+--------+--------+
| product_id  | store1 | store2 | store3 |
+-------------+--------+--------+--------+
| 0           | 95     | 100    | 105    |
```

```
| 1           | 70     | null   | 80     |
+-------------+--------+--------+--------+
Product 0 price's are 95 for store1, 100 for store2 and, 105 for store3.
Product 1 price's are 70 for store1, 80 for store3 and, it's not sold in store2.
```

Solution

```sql
SELECT product_id,
       SUM(CASE WHEN store='store1' THEN price END) AS store1,
       SUM(CASE WHEN store='store2' THEN price END) AS store2,
       SUM(CASE WHEN store='store3' THEN price END) AS store3
FROM Products
GROUP BY product_id
```

1783. Grand Slam Titles | Medium | 🔒 LeetCode

Table: `Players`

```
+----------------+---------+
| Column Name    | Type    |
+----------------+---------+
| player_id      | int     |
| player_name    | varchar |
+----------------+---------+
player_id is the primary key for this table.
Each row in this table contains the name and the ID of a tennis player.
```

Table: `Championships`

```
+---------------+---------+
| Column Name   | Type    |
```

```
+---------------+---------+
| year          | int     |
| Wimbledon     | int     |
| Fr_open       | int     |
| US_open       | int     |
| Au_open       | int     |
+---------------+---------+
year is the primary key for this table.
Each row of this table containts the IDs of the players who won one each tennis t
```

Write an SQL query to report the number of grand slam tournaments won by each player. Do not include the players who did not win any tournament.

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

The query result format is in the following example:

TEXT

```
Players table:
+-----------+-------------+
| player_id | player_name |
+-----------+-------------+
| 1         | Nadal       |
| 2         | Federer     |
| 3         | Novak       |
+-----------+-------------+

Championships table:
+------+-----------+---------+---------+---------+
| year | Wimbledon | Fr_open | US_open | Au_open |
+------+-----------+---------+---------+---------+
| 2018 | 1         | 1       | 1       | 1       |
| 2019 | 1         | 1       | 2       | 2       |
| 2020 | 2         | 1       | 2       | 2       |
+------+-----------+---------+---------+---------+

Result table:
+-----------+-------------+-------------------+
```

```
| player_id | player_name | grand_slams_count |
+-----------+-------------+-------------------+
| 2         | Federer     | 5                 |
| 1         | Nadal       | 7                 |
+-----------+-------------+-------------------+

Player 1 (Nadal) won 7 titles: Wimbledon (2018, 2019), Fr_open (2018, 2019, 2020)
Player 2 (Federer) won 5 titles: Wimbledon (2020), US_open (2019, 2020), and Au_o
Player 3 (Novak) did not win anything, we did not include them in the result tabl
```

Solution

SQL

```sql
#Solution 1:
SELECT player_id, player_name,
    SUM((IF(Wimbledon = player_id,1,0) +
        IF(Fr_open = player_id,1,0) +
        IF(US_open = player_id,1,0) +
        IF(Au_open = player_id,1,0))) as grand_slams_count
FROM Players INNER JOIN Championships
ON Wimbledon = player_id OR Fr_open = player_id OR US_open = player_id OR Au_open
GROUP BY player_id;

#Solution 2:
WITH cte
     AS (SELECT wimbledon AS id
         FROM   championships
         UNION ALL
         SELECT fr_open AS id
         FROM   championships
         UNION ALL
         SELECT us_open AS id
         FROM   championships
         UNION ALL
         SELECT au_open AS id
         FROM   championships)
SELECT player_id,
```

```
        player_name,
        Count(*) AS grand_slams_count
FROM    players
        INNER JOIN cte
                ON players.player_id = cte.id
GROUP   BY 1, 2
ORDER   BY NULL;
```

1789. Primary Department for Each Employee | Easy | 🔒 LeetCode

Table: `Employee`

```
TEXT
+--------------+---------+
| Column Name  |  Type   |
+--------------+---------+
| employee_id  | int     |
| deprtment_id | int     |
| primary_flag | varchar |
+--------------+---------+
(employee_id, department_id) is the primary key for this table.
employee_id is the id of the employee.
department_id is the id of the department to which the employee belongs.
primary_flag is an ENUM of type ('Y', 'N'). If the flag is 'Y', the department is
```

Employees can belong to multiple departments. When the employee joins other departments, they need to decide which department is their primary department. Note that when an employee belongs to only one department, their primary column is `'N'`.

Write an SQL query to report all the employees with their primary department. For employees who belong to one department, report their only department.

Return the result table in any order.

The query result format is in the following example.

```
TEXT
Employee table:
+-------------+---------------+--------------+
| employee_id | department_id | primary_flag |
+-------------+---------------+--------------+
| 1           | 1             | N            |
| 2           | 1             | Y            |
| 2           | 2             | N            |
| 3           | 3             | N            |
| 4           | 2             | N            |
| 4           | 3             | Y            |
| 4           | 4             | N            |
+-------------+---------------+--------------+

Result table:
+-------------+---------------+
| employee_id | department_id |
+-------------+---------------+
| 1           | 1             |
| 2           | 1             |
| 3           | 3             |
| 4           | 3             |
+-------------+---------------+
- The Primary department for employee 1 is 1.
- The Primary department for employee 2 is 1.
- The Primary department for employee 3 is 3.
- The Primary department for employee 4 is 3.
```

Solution

```
SQL
#Solution 1:
SELECT employee_id,department_id
FROM employee
WHERE primary_flag = 'Y' OR employee_id IN
    (SELECT employee_id
```

```
    FROM employee
    GROUP BY employee_id
    HAVING COUNT(department_id) = 1)

#Solution 2:
(SELECT employee_id,
     department_id
FROM Employee
WHERE primary_flag = 'Y')
UNION
(SELECT employee_id,
     department_id
FROM Employee
GROUP BY employee_id
HAVING COUNT(employee_id) = 1
ORDER BY NULL);
```