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3204. Bitwise User Permissions Analysis

Premium

Medium | Topics

SQL Schema > | Pandas Schema >

Table: `user_permissions`

```
+-------------+------+
| Column Name | Type |
+-------------+------+
| user_id     | int  |
| permissions | int  |
+-------------+------+
user_id is the primary key.
Each row of this table contains the user ID and their
permissions encoded as an integer.
```

Consider that each bit in the `permissions` integer represents a different access level or feature that a user has.

Write a solution to calculate the following:

- common_perms: The access level granted to **all users**. This is computed using a **bitwise AND** operation on the `permissions` column.

- any_perms: The access level granted to **any user**. This is computed using a **bitwise OR** operation on the `permissions` column.

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

The result format is shown in the following example.

Example:

Input:

user_permissions table:

```
+---------+-------------+
| user_id | permissions |
+---------+-------------+
| 1       | 5           |
| 2       | 12          |
| 3       | 7           |
| 4       | 3           |
+---------+-------------+
```

Output:

```
+-------------+-----------+
| common_perms | any_perms |
+-------------+-----------+
| 0            | 15        |
+-------------+-----------+
```

Explanation:

- **common_perms:** Represents the bitwise AND result of all permissions:
  - For user 1 (5): 5 (binary 0101)
  - For user 2 (12): 12 (binary 1100)
  - For user 3 (7): 7 (binary 0111)
  - For user 4 (3): 3 (binary 0011)
  - Bitwise AND: 5 & 12 & 7 & 3 = 0 (binary 0000)

- **any_perms:** Represents the bitwise OR result of all permissions:
  - Bitwise OR: 5 | 12 | 7 | 3 = 15 (binary 1111)

Seen this question in a real interview before? 1/5
Yes   No

Accepted **1,865** /2K | Acceptance Rate **93.7** %

Topics

Discussion (3)

8 | 3 | 0 Online

Code

Pandas v • Auto

```python
1  import pandas as pd
2
3  def analyze_permissions(user_permissions: pd.DataFrame) -> pd.DataFrame:
4
5
6      common_perms = user_permissions.iloc[0]['permissions']
7      any_perms = 0
8
9      for index, row in user_permissions.iterrows():
10         common_perms = common_perms & row['permissions']
11         any_perms = any_perms | row['permissions']
12
13     return pd.DataFrame({
14         "common_perms": [common_perms],
15         "any_perms": [any_perms]
16     })
```

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Testcase | >_ Test Result

Accepted   Runtime: 295 ms

☑ Case 1

Input

```
user_permissions =
| user_id | permissions |
| ------- | ----------- |
| 1       | 5           |
| 2       | 12          |
| 3       | 7           |
| 4       | 3           |
```