zac4   ★ 68   Last Edit: July 19, 2019 7:50 PM   1.5K VIEWS

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Let's start with a simple preprocess:

```sql
SELECT
    spend_date,
    user_id,
    SUM(CASE platform WHEN 'mobile' THEN amount ELSE 0 END) mobile_amount,
    SUM(CASE platform WHEN 'desktop' THEN amount ELSE 0 END) desktop_amount
FROM Spending
GROUP BY spend_date, user_id
```

For each user in each day, we fetch its `mobile_amount` and `desktop_amount` respectively and output them into a single row. In this form, we can see a user belongs to which platform very clearly:

spend_date	user_id	mobile_amount	desktop_amount	-> (platform)
2019-07-01	1	100	100	-> (both)
2019-07-01	2	100	0	-> (mobile)
2019-07-01	3	0	100	-> (desktop)
2019-07-02	2	100	0	-> (mobile)
2019-07-02	3	0	100	-> (desktop)

Based on the above table, we use the following SQL to bind users to their platforms and calculate the amounts spent:

```sql
SELECT
    spend_date,
    user_id,
    IF(mobile_amount > 0, IF(desktop_amount > 0, 'both', 'mobile'), 'desktop') platform,
    (mobile_amount + desktop_amount) amount
FROM (
    ...
) o
```

Result table:

spend_date	user_id	platform	amount
2019-07-01	1	both	200
2019-07-01	2	mobile	100
2019-07-01	3	desktop	100
2019-07-02	2	mobile	100
2019-07-02	3	desktop	100

We don't wanna miss any record which has ZERO `total_amount` and `total_users` . So we need to get all combinations of `spend_date` and `platform` :

```sql
SELECT DISTINCT(spend_date), 'desktop' platform FROM Spending
UNION
SELECT DISTINCT(spend_date), 'mobile' platform FROM Spending
UNION
SELECT DISTINCT(spend_date), 'both' platform FROM Spending
```

The output:

spend_date	platform
2019-07-01	desktop
2019-07-01	mobile
2019-07-01	both
2019-07-02	desktop
2019-07-02	mobile
2019-07-02	both

After joinning this table to the previous one, we have our **final answer**:

```sql
SELECT
    p.spend_date,
    p.platform,
    IFNULL(SUM(amount), 0) total_amount,
    COUNT(user_id) total_users
FROM
(
    SELECT DISTINCT(spend_date), 'desktop' platform FROM Spending
    UNION
    SELECT DISTINCT(spend_date), 'mobile' platform FROM Spending
    UNION
    SELECT DISTINCT(spend_date), 'both' platform FROM Spending
) p
LEFT JOIN (
    SELECT
        spend_date,
        user_id,
        IF(mobile_amount > 0, IF(desktop_amount > 0, 'both', 'mobile'), 'desktop') platform,
        (mobile_amount + desktop_amount) amount
    FROM (
        SELECT
            spend_date,
            user_id,
            SUM(CASE platform WHEN 'mobile' THEN amount ELSE 0 END) mobile_amount,
            SUM(CASE platform WHEN 'desktop' THEN amount ELSE 0 END) desktop_amount
        FROM Spending
        GROUP BY spend_date, user_id
    ) o
) t
ON p.platform=t.platform AND p.spend_date=t.spend_date
GROUP BY spend_date, platform
```

`mysql` `union`

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