

Meta/Facebook Interview Question:

Which countries have risen in the rankings based on the number of comments between Dec 2021 vs Jan 2022?

Hint: Avoid gaps between ranks when ranking countries

Given two relations

```
Fb_comments_count(  
  User_id int,  
  Created_at datetime,  
  Number_of_comments int);
```

```
Fb_active_users(  
  User_id int,  
  Name varchar,  
  Status varchar,  
  Country varchar);
```

Solution:

The approach to the solution should be:

Step 1: Join the two tables on user_id (left join because not all users may have made comments)

```
=> Select *  
FROM Fb_active_users as a LEFT JOIN  
Fb_comments_count as b  
On a.User_id = b.User_id;
```

Step 2: Filter our table for Dec 2021 and Jan 2022

```
With dec_summary as(  
  Select *  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;  
  Where Created_at <= "2021-12-31" and Created_at > = "2021-12-01"  
)  
Jan_summary as(  
  Select *  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;
```

```
Where Created_at <= "2022-01-31" and Created_at > = "2022-01-01"  
);
```

Step 3: Exclude rows where the country is empty

```
With dec_summary as(  
  Select *  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;  
  Where Created_at <= "2021-12-31" and Created_at > = "2021-12-01"  
  AND Country IS NOT NULL  
)  
Jan_summary as(  
  Select *  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;  
  Where Created_at <= "2022-01-31" and Created_at > = "2022-01-01"  
  AND Country IS NOT NULL  
);
```

Step 4: Sum the number of comments per country

```
With dec_summary as(  
  Select  
    Country,  
    SUM(Number_of_comments) as number_of_comments_dec  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;  
  Where Created_at <= "2021-12-31" and Created_at > = "2021-12-01"  
  AND Country IS NOT NULL  
  GROUP BY Country  
)  
Jan_summary as(  
  Select Country, SUM(Number_of_comments) as number_of_comments_jan  
  FROM Fb_active_users as a LEFT JOIN  
  Fb_comments_count as b  
  On a.User_id = b.User_id;  
  Where Created_at <= "2022-01-31" and Created_at > = "2022-01-01"  
  AND Country IS NOT NULL  
  GROUP BY Country  
);
```

To check the output at this stage:

```

Select *
From jan_summary j
LEFT JOIN dec_summary d on j.country = d.country;

```

Step 5: Rank 2021 comments counts and 2022 comment counts

There are a number of ranking functions but since it is given in the problem that we can avoid gaps in between the ranks, therefore, we can go with the Dense rank function.

```

With dec_summary as(
Select Country, SUM(Number_of_comments) as number_of_comments_dec,
dense_rank() over(order by sum(Number_of_comments) DESC) as country_rank
FROM Fb_active_users as a LEFT JOIN
Fb_comments_count as b
On a.User_id = b.User_id;
Where Created_at <= "2021-12-31" and Created_at > = "2021-12-01"
AND Country IS NOT NULL
GROUP BY Country
),
Jan_summary as(
Select Country, SUM(Number_of_comments) as number_of_comments_jan,
dense_rank() over(order by sum(Number_of_comments) DESC) as country_rank
FROM Fb_active_users as a LEFT JOIN
Fb_comments_count as b
On a.User_id = b.User_id;
Where Created_at <= "2022-01-31" and Created_at > = "2022-01-01"
AND Country IS NOT NULL
GROUP BY Country
);

```

```

Select *
From jan_summary j
LEFT JOIN dec_summary d on j.country = d.country;

```

Step 6: Apply final filter to fetch only countries with ranking decline(Jan rank > dec rank)

```

With dec_summary as(
Select Country, SUM(Number_of_comments) as number_of_comments_dec,
dense_rank() over(order by sum(Number_of_comments) DESC) as country_rank
FROM Fb_active_users as a LEFT JOIN
Fb_comments_count as b
On a.User_id = b.User_id;

```

```

Where Created_at <= "2021-12-31" and Created_at > = "2021-12-01"
AND Country IS NOT NULL
GROUP BY Country
),
Jan_summary as(
Select Country, SUM(Number_of_comments) as number_of_comments_jan,
dense_rank() over(order by sum(Number_of_comments) DESC) as country_rank
FROM Fb_active_users as a LEFT JOIN
Fb_comments_count as b
On a.User_id = b.User_id;
Where Created_at <= "2022-01-31" and Created_at > = "2022-01-01"
AND Country IS NOT NULL
GROUP BY Country
);

Select j.country
From jan_summary j
LEFT JOIN dec_summary d on j.country = d.country
WHERE(j.country_rank<d.country_rank) OR d.country is NULL;

```