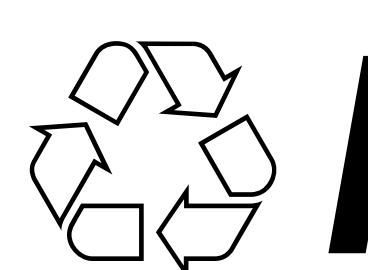


SQL Interview Questions with Solutions



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Amney Mounir

1. Basic Functions

Write a SQL query to retrieve the latest login date for each video game player from the database.

player_login table

Column Name	Description
player_id	Unique identifier for each player
login_date	Timestamp of the player's login

1. Basic Functions

Solution:

```
SELECT  
    player_id,  
    MAX(login_date)  
FROM  
    player_login  
GROUP BY 1  
ORDER BY 2 DESC
```

2. Rankings

Write a SQL query to find the 1 product with the highest number of orders. In case of a tie in order counts, select the product that comes first in alphabetical order.

orders table

id	product_id	customer_id	order_date
1	1	1	2022-01-01
2	1	2	2022-01-02
3	2	2	2022-01-04

products table

id	name	price	category_id
1	Dress	10	1
2	Wallet	20	3

2. Rankings

Solution:

```
SELECT
    p.name AS product_name
FROM products p
INNER JOIN orders o ON p.id = o.product_id
GROUP BY 1
ORDER BY COUNT(*) DESC, 1
LIMIT 1;
```

3. Ratios

Your task is to write a query to retrieve all phone numbers that are not confirmed.

all_numbers table

Column Name	Description
phone_number	Phone from list of all numbers

confirmed_numbers table

Column Name	Description
phone_number	Phone that has been confirmed

3. Ratios

Solution:

```
SELECT a.*  
FROM all_numbers a  
LEFT JOIN confirmed_numbers c ON a.phone_number = c.phone_number  
WHERE c.phone_number IS NULL
```

4. Window Functions

You're tasked with finding employees with the highest and lowest salaries.

worker table

Column Name	Description
worker_id	Identifier of worker
first_name	First name
last_name	Last name
salary	Salary value
joining_date	Joining date
department	Name of department

title table



Column Name	Description
worker_ref_id	Identifier of worker
worker_title	Title of worker
affected_from	Data of title
salary	Salary value

4. Window Functions

Solution:

```
WITH cte AS
  (SELECT *,
    RANK() OVER(
      ORDER BY salary) AS lowest_sal,
    RANK() OVER(
      ORDER BY salary DESC) AS highest_sal
   FROM worker)
SELECT worker_id,
       salary,
       department,
       CASE
         WHEN highest_sal = 1 THEN 'Highest Salary'
         ELSE 'Lowest Salary'
       END AS salary_type
  FROM cte
 WHERE lowest_sal = 1
   OR highest_sal = 1
```

5. Percentiles

Write a query to report the median of searches made by a user.

search_frequency table

Column Name	Description
searches	The number of searches
num_users	# users with that search frequency

5. Percentiles

Solution 1:

```
WITH searches_expanded AS (
    SELECT searches
    FROM search_frequency
    CROSS JOIN GENERATE_SERIES(1,num_users)
)

SELECT
    ROUND(PERCENTILE_CONT(0.50) WITHIN GROUP (ORDER BY searches)::DECIMAL, 1) AS median
FROM searches_expanded;
```

Solution 2:

```
WITH RECURSIVE ungroup_cte
AS (
    SELECT
        searches,
        num_users
    FROM search_frequency
    UNION ALL
    SELECT
        cte.searches,
        cte.num_users - 1
    FROM ungroup_cte cte
    WHERE cte.num_users > 1
)

SELECT
    ROUND(PERCENTILE_CONT(0.5) WITHIN
        GROUP(ORDER BY searches)::DECIMAL,1) AS median
FROM ungroup_cte;
```

6. Text Analysis

Retrieve all words in the table that contain exactly two vowels in any list.

google_word_lists table

Column Name	Description
words1	List of words 1
words2	List of words 2

6. Text Analysis

Solution:

```
SELECT word
FROM
(SELECT UNNEST (STRING_TO_ARRAY(words1, ',')) AS word
FROM google_word_lists
UNION SELECT UNNEST (STRING_TO_ARRAY(words2, ',')) AS word
FROM google_word_lists) words
WHERE NOT word ~ '([aeiou].*){3}'
AND word ~ '([aeiou].*){2}'
```

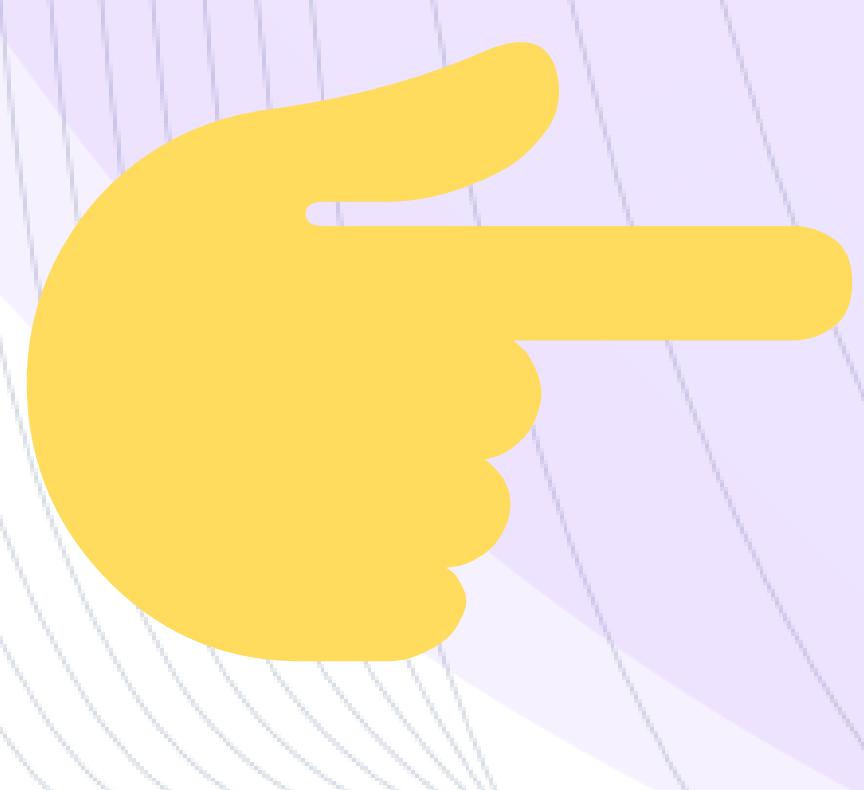
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