

SQL Interview Questions Answers

1. Write a query to find the second highest salary from an employee table.

Answer:

```
SELECT MAX(salary) AS second_highest_salary
FROM employees
WHERE salary < (SELECT MAX(salary) FROM employees);
```

2. How would you retrieve the top 5 highest-paid employees from an employee table?

Answer:

```
SELECT *
FROM employees
ORDER BY salary DESC
LIMIT 5;
```

3. Write a query to delete duplicate rows from a table based on a specific column.

Answer :

```
DELETE FROM employees
WHERE id NOT IN (
    SELECT MIN(id)
    FROM employees
    GROUP BY column_name
);
```

4. Explain the difference between INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN.

Answer:

INNER JOIN: Returns rows with matching values in both tables.

LEFT JOIN: Returns all rows from the left table, and matching rows from the right table. If no match, NULL is returned.

RIGHT JOIN: Similar to LEFT JOIN but returns all rows from the right table.

FULL OUTER JOIN: Combines the result of LEFT JOIN and RIGHT JOIN, including unmatched rows with NULLs.

5. Write a query to calculate the average salary for each department.

Answer:

```
SELECT department_id, AVG(salary) AS average_salary
FROM employees
GROUP BY department_id;
```

6. How do you use the CASE statement in SQL, and provide an example?

Answer:

The CASE statement is used for conditional logic.

```
SELECT employee_id,
       Salary,
       CASE
           WHEN salary > 50000 THEN 'High'
           WHEN salary BETWEEN 30000 AND 50000 THEN 'Medium'
           ELSE 'Low'
       END AS salary_category
```

FROM employees;

7. Write a query to find employees who have not been assigned to any department.

Answer:

```
SELECT *  
FROM employees  
WHERE department_id IS NULL;
```

8. Explain the concept of a primary key and a foreign key in SQL.

Answer:

Primary Key: A unique identifier for each row in a table. Ensures no duplicate or NULL values.

Foreign Key: Establishes a relationship between two tables by referencing the primary key of another table.

9. Write a query to add a new column to an existing table.

Answer:

```
ALTER TABLE employees  
ADD COLUMN age INT;
```

10. How can you handle NULL values in SQL when performing calculations?

Answer: Use functions like COALESCE() or ISNULL() to replace NULL with a default value.

```
SELECT name, salary + COALESCE(bonus, 0) AS total_salary  
FROM employees;
```

11. Explain the difference between WHERE and HAVING clauses in SQL.

Answer: WHERE: Filters rows before aggregation.

HAVING: Filters groups after aggregation.

Example:

```
SELECT department_id, AVG(salary)
FROM employees
WHERE department_id IS NOT NULL
GROUP BY department_id
HAVING AVG(salary) > 50000;
```