

Aggregate Functions & Grouping - Mini Guide & Interview Q&A;

Mini Guide:

1. Apply aggregate functions on numeric columns:

```
SELECT SUM(salary), AVG(salary), MIN(salary), MAX(salary) FROM employees;
```

2. Use GROUP BY to categorize:

```
SELECT department, AVG(salary) FROM employees GROUP BY department;
```

3. Filter groups using HAVING:

```
SELECT department, AVG(salary) FROM employees GROUP BY department HAVING  
AVG(salary) > 50000;
```

Interview Questions & Answers:

1. **What is GROUP BY?** Groups rows with the same value(s) into summary rows.

2. **Difference between WHERE and HAVING?** WHERE filters before grouping, HAVING filters after aggregation.

3. **COUNT(*) vs COUNT(column)?** COUNT(*) counts all rows, COUNT(column) ignores NULLs.

4. **Group by multiple columns?** Yes.

```
SELECT dept, job_title, AVG(salary) FROM employees GROUP BY dept,  
job_title;
```

5. **ROUND()** rounds numeric values.

```
SELECT ROUND(AVG(salary), 2) FROM employees;
```

6. **Highest salary by department?**

```
SELECT department, MAX(salary) FROM employees GROUP BY department;
```

7. **Default GROUP BY behavior?** Groups based on listed columns.

8. **AVG & SUM?** AVG() = average, SUM() = total.

9. **Count distinct values?**

```
SELECT COUNT(DISTINCT department) FROM employees;
```

10. **Aggregate function?** Calculates on multiple values, returns one result.

Sample SQL Queries:

```
-- Total salary by department
```

```
SELECT department, SUM(salary) AS total_salary FROM employees GROUP BY  
department;
```

```
-- Average salary by job title
```

```
SELECT job_title, ROUND(AVG(salary), 2) AS avg_salary FROM employees  
GROUP BY job_title;
```

```
-- Count employees per department with more than 5 employees
```

```
SELECT department, COUNT(*) AS employee_count FROM employees GROUP BY  
department HAVING COUNT(*) > 5;
```

```
-- Minimum and maximum salary by department
```

```
SELECT department, MIN(salary) AS min_salary, MAX(salary) AS max_salary  
FROM employees GROUP BY department;
```