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SQL Interview Question

MASTERING

WHERE vs. HAVING in SQL

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WHERE vs. HAVING: The Basics Explained

Ever wonder why **WHERE** and **HAVING** both filter data, but in different ways? Let’s break it down!

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Short Answer: Key Differences

- **WHERE** filters rows before grouping.
- **HAVING** filters groups after aggregation.

Example:
Using **WHERE** to filter salaries above $50K before calculating department averages.
Using **HAVING** to filter out departments with an average salary below $70K after aggregation.

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When to Use WHERE Clause

- **WHERE** is used before aggregation to filter individual rows.
- It only works on columns with actual values in rows—no aggregated data allowed.

Example:

Task: Show employees earning above $50K.

```
SELECT Name, Salary
FROM Employees
WHERE Salary > 50000;
```

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When to Use HAVING Clause

- **HAVING** works after aggregation, filtering groups created by **GROUP BY**.
- Use HAVING with aggregated data, like **SUM**, **COUNT**, or **AVG**.

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Example:
Task: Show departments with an average salary above $70K.

```sql
SELECT Department, AVG(Salary) AS AvgSalary
FROM Employees
GROUP BY Department
HAVING AVG(Salary) > 70000;
```

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WHERE vs. HAVING: Quick Comparison Table

Aspect	WHERE	HAVING
Filters	Rows	Groups
Applied	Before Aggregation	After Aggregation
Usage Scope	Regular Columns	Aggregated Data

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Real-World Example: Sales Analysis

Scenario:

A company wants to analyze quarterly sales performance:

1. Filter products that generated over $100K in individual sales.
2. Find categories with total quarterly sales over $500K.

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Query Solution:

```sql
SELECT Category, SUM(Sales) AS TotalSales
FROM SalesData
WHERE Sales > 100000
GROUP BY Category
HAVING SUM(Sales) > 500000;
```

Explanation:

- WHERE filters individual product sales over $100K.
- HAVING filters categories with total sales over $500K.

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Final Tips for WHERE and HAVING

1. Use WHERE to filter records early for efficiency.
2. Use HAVING to refine results on summarized data.
3. Rule of Thumb: Apply WHERE first, then HAVING if needed.

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