**🧠 What is HAVING in SQL?**

HAVING is a **filtering clause used after grouping data** using GROUP BY.

Think of it like this:

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

You only use HAVING when you're working with **aggregate functions** like COUNT(), SUM(), AVG(), MAX(), MIN() — and you want to filter those **grouped results**.

**🛒 Case Scenario: Retail Store**

Imagine you're analyzing a sales database for a supermarket. You have a table called sales\_data that looks like this:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **id** | **product** | **category** | **store** | **quantity** | **revenue** |
| 1 | Bread | Bakery | Nairobi | 20 | 800 |
| 2 | Milk | Dairy | Mombasa | 30 | 1200 |
| 3 | Bread | Bakery | Mombasa | 10 | 400 |
| 4 | Cheese | Dairy | Nairobi | 25 | 2500 |
| 5 | Cake | Bakery | Nairobi | 5 | 1000 |
| 6 | Yogurt | Dairy | Nairobi | 15 | 900 |

**🎯 Goal: Find product categories with total revenue above 2000**

You want to:

1. Group the sales by category
2. Calculate the total revenue for each category
3. Show only those categories where total revenue > 2000

**🔧 Step-by-Step Breakdown**

**✅ Step 1: Use GROUP BY to aggregate data**

SELECT category, SUM(revenue) AS total\_revenue

FROM sales\_data

GROUP BY category;

🧾 Output:

|  |  |
| --- | --- |
| **category** | **total\_revenue** |
| Bakery | 2200 |
| Dairy | 4600 |

**✅ Step 2: Use HAVING to filter the groups**

Now we want only the categories where total revenue > 3000:

SELECT category, SUM(revenue) AS total\_revenue

FROM sales\_data

GROUP BY category

HAVING SUM(revenue) > 3000;

🧾 Output:

|  |  |
| --- | --- |
| **category** | **total\_revenue** |
| Dairy | 4600 |

✅ **Explanation**:

* GROUP BY category → Grouped the data by category
* SUM(revenue) → Calculated total revenue for each group
* HAVING SUM(revenue) > 3000 → Filtered only those groups with revenue above 3000

**⚠️ Key Difference: WHERE vs HAVING**

| **Clause** | **Used to filter** | **Can use aggregates?** |
| --- | --- | --- |
| WHERE | Before grouping | ❌ No |
| HAVING | After grouping | ✅ Yes |

**🧪 More Realistic Examples**

**🔍 Example 1: Show stores with more than 2 product types sold**

sql

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SELECT store, COUNT(DISTINCT product) AS product\_count

FROM sales\_data

GROUP BY store

HAVING COUNT(DISTINCT product) > 2;

**🔍 Example 2: Find categories where the average quantity sold is greater than 15**

SELECT category, AVG(quantity) AS avg\_quantity

FROM sales\_data

GROUP BY category

HAVING AVG(quantity) > 15;

**📝 Summary**

* HAVING is **used with GROUP BY**
* It filters **aggregate results**
* Think: "I want only the groups where something like total sales, average rating, or count is greater/less than a value"
* You cannot use HAVING without some kind of aggregation