**GROUP BY and HAVING Clauses in MySQL**

In MySQL, the GROUP BY clause is used to group rows that have the same values into summary rows, like finding the sum of a group of values. The HAVING clause is used to filter the results of a GROUP BY operation, similar to how the WHERE clause is used for regular queries.

1. **GROUP BY Clause**

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| আমরা যাকে দিয়ে GROUP BY করবো , সেটার আন্ডারে সেইম যে যে থাকবে তা নিয়ে একটা সেইম আলাদা TABLE তৈরী করে নিবে। | **SELECT** grp,  **COUNT**(ID) **AS** team\_size,  **GROUP\_CONCAT**(name) **AS** all\_member  **FROM** example  **GROUP** **BY** grp; |
| .example table   |  |  |  | | --- | --- | --- | | Id | Name | Grp | | 1 | AN Mamun | A | | 2 | Jon | A | | 3 | Bard | B | | 4 | Rose | C | | 5 | Jak | A | | 6 | Juhan | A | | 7 | Jubryer | A | | 8 | Lili | B | | 9 | Cat | C | | 10 | Fish | C | | 11 | flower | B |   . | .  Output:   |  |  |  | | --- | --- | --- | | Grp | Team\_size | All\_member | | **A** | **5** | AN Mamun,Jon,Jak,Juhan,Jubaryer | | **B** | **3** | Bard,Lili,flower | | **C** | **3** | rose,Cat,Fish |   . |
| Group By করার পর ভিতরে এভাবে একটা structure তৈরী হয়;   |  |  |  | | --- | --- | --- | | **A** | **B** | **C** | | .   |  |  | | --- | --- | | 1 | AN Mamun | | 2 | Jon | | 5 | Jak | | 6 | Juhan | | 7 | jubaryer |   . | .   |  |  | | --- | --- | | 3 | Bard | | 8 | Lili | | 11 | flower |   . | .   |  |  | | --- | --- | | 4 | Rose | | 9 | cat | | 10 | Fish |   . |   . | |

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| |  |  |  | | --- | --- | --- | | Employee\_id | Department\_id | Salary | | 1 | 100 | 5000 | | 2 | 100 | 6000 | | 3 | 200 | 7000 | | 4 | 300 | 9000 |   . | **SELECT** department\_id, **SUM**(salary)  **FROM** employees  **GROUP** **BY** department\_id;  .  Outut:   |  |  | | --- | --- | | Department\_id | SUM(salary) | | 100 | 6000 | | 200 | 7000 | | 300 | 9000 |   . |

2. **Having Clause :** The HAVING clause is used to filter groups after the GROUP BY has been applied, typically in combination with aggregate functions. This is different from the WHERE clause, which filters rows before grouping.

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| Syntax:  **SELECT** column\_name, aggregate\_function(column\_name)  **FROM** table\_name  **GROUP** **BY** column\_name  **HAVING** aggregate\_function(column\_name) condition; | **SELECT** department\_id, **MAX**(salary)  **FROM** employees  **GROUP** **BY** department\_id  **HAVING** **MAX**(salary) > 6000;  --or  **SELECT** department\_id, **MAX**(salary) **AS** maxi  **FROM** employees  **GROUP** **BY** department\_id  **HAVING** maxi > 6000; |
| .   |  |  |  | | --- | --- | --- | | Employee\_id | Department\_id | Salary | | 1 | 100 | 5000 | | 2 | 100 | 6000 | | 3 | 200 | 7000 | | 4 | 300 | 9000 |   . | .   |  |  | | --- | --- | | Department\_id | Salary | | 200 | 7000 | | 300 | 9000 |   . |

### 3. Key Differences Between WHERE and HAVING

* WHERE is used to filter rows before the grouping is done.
* HAVING is used to filter rows after the grouping has been performed.

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| **SELECT** department\_id, **SUM**(salary) **AS** maxi\_salary  **FROM** employees  **WHERE** department\_id <> 200  **GROUP BY** department\_id  **HAVING** maxi\_salary < 8000; |  |
| |  |  |  | | --- | --- | --- | | Employee\_id | Department\_id | Salary | | 1 | 100 | 5000 | | 2 | 100 | 6000 | | 3 | 200 | 7000 | | 4 | 300 | 9000 |   . | |  |  | | --- | --- | | Department\_id | Salary | | 100 | 6000 |   . |