➢ Difference between Group By and Order By

Group By	Order By
used to group rows that have the same values in one or more columns, usually with aggregate functions like COUNT(), SUM(), AVG(), etc.	used to sort the final results in ascending (ASC) or descending (DESC) order.

➢ Why we use HAVING instead of WHERE when filtering aggregate results?

    1. WHERE filters individual rows before grouping.

    2. HAVING filters grouped results after aggregation.

       When using HAVING we can use aggregate functions like SUM () , COUNT (), AVG()
       When we use WHERE we can't use aggregate functions, because it filters the rows,

➢ Common beginner mistakes when writing aggregate functions
   1- Using WHERE instead of HAVING for aggregate filters
   2- Not using GROUP BY when selecting non-aggregated columns
   3- Selecting columns not in GROUP BY or not aggregated
   4- Grouping by the wrong column
   5- Forgetting AS to name aggregate results
   6- Misunderstanding COUNT(*) vs COUNT(column)

      ➢ When would you use COUNT(DISTINCT …), AVG(…), and SUM(…) together?

        ✓ You use all three when you want to:
        ✓ Measure quantity (COUNT)
        ✓ Measure average performance (AVG)
        ✓ Measure total impact or cost (SUM)

➢ How does GROUP BY affect query performance, and how can indexes help?
GROUP BY Performance & Indexes
GROUP BY slows queries on large tables because it needs to sort and group rows.

- ✓ Indexes can speed up GROUP BY by:

- ✓ Reducing the amount of data scanned

- ✓ Helping SQL group/sort faster

- ✓ Avoiding full table scans (especially with covering indexes)