SELECT Statement in SQL Server

Definition and Purpose of SELECT Statement

- The SELECT statement is fundamental command in SQL used in retrieve data from a database table. It allow users to view information stored in one or more tables without changing the actual data. The main purpose of SELECT is to extract meaningful data that can be used for viewing, reporting, and analysis.

- SELECT is used to answer questions like:
    - What data is stored in this table?
    - Which records match certain condition?
    - How can the data be organized or summarized?

Basic SELECT Queries

- Select all data from a table:
  SELECT * FROM Students;
    - This query retrieves all columns and all rows from the students table. It is commonly used to view the complete contents of a table.

- Select specific columns:
  SELECT * StudentName, Age FROM Students;
    - This query retrieves only the StudentName and Age columns. It is useful when only specific information is needed instead of the entire table.

- Select data with a condition
  SELECT * FROM Students WHERE Age > 20;
    - This query retrieves only students whose age is greater than 20. It demonstrates how SELECT can be combined with conditions to filter data.

WHERE, ORDER BY, and DISTINCT Examples

- WHERE Clause (Filtering data)
  SELECT * FROM Students WHERE City = 'Muscat';
    - The WHERE Clause filters records and returns only students who live in Muscat.

- ORDER BY Clause (Sorting data)
  SELECT * FROM Students ORDER BY Marks DESC

    - This query student by their marks in descending order, showing the highest marks first.

- DISTINCT Keyword (Removing duplicates)
  SELECT DISTINCT City FROM Students;
    - This query returns a list of unique cities, removing duplicate city names from the result.

Why SELECT Is Fundamental to SQL

The SELECT statements is fundamental to SQL because it is the primary way to access and analyze data in a database. All data-driven tasks depends on SELECT queries. Without SELECT, users would not be able to view, filter, or understand the data sorted in database. It forms the foundation upon which more advanced SQL operations are built.