**Task 3: Writing Basic SELECT Queries**

**Objective:**

Extract data from one or more tables. Tools :DB Browser for SQLite / MySQL

**Workbench Deliverables:**

SQL script with SELECT, WHERE, ORDER BY, LIMIT

**Hints/Mini Guide:**

1.Use SELECT \* and specific columns

2.Apply WHERE, AND, OR, LIKE, BETWEEN

3.Sort with ORDER BY

**1. WHERE Clause in Oracle 11g**

**Purpose:**

Used to filter rows based on conditions.

**Syntax:**

SELECT column1, column2

FROM table\_name

WHERE condition;

**Rules:**

* Must follow FROM clause.
* Can use operators: =, !=, >, <, >=, <=, BETWEEN, LIKE, IN, IS NULL, IS NOT NULL.
* Combine conditions using AND, OR, and NOT.

**2. ORDER BY Clause in Oracle 11g**

**Purpose:**

Used to sort query results.

**Syntax:**

SELECT column1, column2

FROM table\_name

ORDER BY column1 [ASC|DESC], column2 [ASC|DESC];

**Rules:**

* Default is ASC (ascending).
* You can sort by column name, column alias, or column position (1-based index).
* Can sort by multiple columns.

**3. LIMIT Alternative in Oracle 11g**

Oracle **does not support LIMIT** (that’s MySQL syntax). Instead, use:

**ROWNUM for limiting rows:**

SELECT \* FROM Books WHERE ROWNUM <= 5;

But ROWNUM is applied **before ORDER BY**, so it's tricky if you want **top N sorted rows**.

**4. OFFSET and FETCH FIRST in Oracle — Important Note**

These clauses ***are NOT supported in Oracle 11g***.  
They were introduced in **Oracle 12c and above** as part of the SQL:2008 standard for pagination.

**🡪 In Oracle 12c and later**

SELECT \* FROM Books

ORDER BY YearPublished DESC

OFFSET 5 ROWS FETCH FIRST 10 ROWS ONLY;

* OFFSET 5 ROWS: Skips the first 5 rows.
* FETCH FIRST 10 ROWS ONLY: Then returns 10 rows from the 6th row onward.

Very useful for pagination (e.g., page 2 of 10 results per page).

**1. What does SELECT \* do?**

* **SELECT \*** retrieves **all columns** from a table.

Example:

SELECT \* FROM Books;

Returns every row and every column in Books.

**2. How do you filter rows?**

* Use the **WHERE** clause to apply conditions:

SELECT \* FROM Members WHERE JoinDate > '2024-01-01';

* Combine conditions with AND, OR, NOT.

**3. What is LIKE '%value%'?**

* Used for **pattern matching** in text fields:
  + % = any number of characters
  + \_ = a single character

Example:

SELECT \* FROM Books WHERE Title LIKE '%Science%';

Finds all titles **containing** "Science".

**4. What is BETWEEN used for?**

* Filters rows within a **range** (inclusive of endpoints):

SELECT \* FROM Books WHERE YearPublished BETWEEN 2000 AND 2020;

* Equivalent to:

YearPublished >= 2000 AND YearPublished <= 2020

**5. How do you limit output rows?**

* In **Oracle 11g**, use:

SELECT \* FROM Books WHERE ROWNUM <= 5;

* LIMIT is **not supported** in Oracle 11g.
* From Oracle 12c:

SELECT \* FROM Books FETCH FIRST 5 ROWS ONLY;

**6. Difference between = and IN**

| **Operator** | **Use for** | **Example** | **Meaning** |
| --- | --- | --- | --- |
| = | One value | WHERE CategoryID = 2 | Matches only 2 |
| IN | Multiple values | WHERE CategoryID IN (2, 3, 4) | Matches 2, 3, or 4 |

**7. How to sort in descending order?**

* Use ORDER BY ... DESC

SELECT \* FROM Members ORDER BY JoinDate DESC;

**8. What is aliasing?**

* Giving a **temporary name** to a column or table.
* Syntax:

SELECT Title AS BookTitle FROM Books;

* Used for readability or when using functions:

SELECT COUNT(\*) AS TotalBooks FROM Books;

**9. Explain DISTINCT**

* Removes **duplicate values** in result set.
* Example:

SELECT DISTINCT CategoryID FROM Books;

Returns unique category IDs only.

**10. What is the default sort order?**

* **Ascending (ASC)** is the default:

SELECT \* FROM Books ORDER BY Title;

is equivalent to:

ORDER BY Title ASC;