**Lab Exercise 4 - Retrieving Data Using SELECT in MySQL**

**Objective:**

To practice retrieving data from a MySQL table using SELECT queries with:

* Specific columns
* Row filtering (WHERE)
* Sorting (ORDER BY)
* Limiting results (LIMIT)

**Software Required:**

* MySQL Server / MySQL Workbench / phpMyAdmin
* SQL terminal or GUI tool

**Part A: Setup – Create Sample Table**

**Task 1: Create and Use Database**

CREATE DATABASE SelectLab;

USE SelectLab;

**Task 2: Create Table**

CREATE TABLE Students (

student\_id INT PRIMARY KEY,

first\_name VARCHAR(50),

last\_name VARCHAR(50),

department VARCHAR(50),

gpa DECIMAL(3,2),

enrollment\_year INT

);

**Task 3: Insert Sample Data**

INSERT INTO Students VALUES

(1, 'Alice', 'Johnson', 'Computer Science', 3.8, 2020),

(2, 'Bob', 'Smith', 'Mathematics', 3.2, 2019),

(3, 'Carol', 'Williams', 'Physics', 3.6, 2021),

(4, 'David', 'Brown', 'Computer Science', 2.9, 2022),

(5, 'Eva', 'Taylor', 'Mathematics', 3.9, 2020),

(6, 'Frank', 'Miller', 'Physics', 3.1, 2021);

**Part B: Selecting Data**

**Task 4: Select All Columns**

SELECT \* FROM Students;

**Task 5: Select Specific Columns**

* Only first\_name and gpa:

SELECT first\_name, gpa FROM Students;

**Part C: Filtering Rows with WHERE Clause**

**Task 6: Students from 'Computer Science' Department**

SELECT \* FROM Students WHERE department = 'Computer Science';

**Task 7: Students with GPA greater than 3.5**

SELECT \* FROM Students WHERE gpa > 3.5;

**Task 8: Students enrolled in 2020 or later**

SELECT \* FROM Students WHERE enrollment\_year >= 2020;

**Part D: Ordering Results**

**Task 9: Order Students by GPA (Highest to Lowest)**

SELECT \* FROM Students ORDER BY gpa DESC;

**Task 10: Order Students Alphabetically by Last Name**

SELECT \* FROM Students ORDER BY last\_name ASC;

**Part E: Limiting Returned Data**

**Task 11: Get the Top 3 Students by GPA**

SELECT \* FROM Students ORDER BY gpa DESC LIMIT 3;

**Task 12: Skip First 2 Records and Show Next 3**

SELECT \* FROM Students LIMIT 2, 3;

**Bonus Tasks (Optional)**

**Task 13: Combine WHERE and ORDER BY**  
List all students from Mathematics department, ordered by GPA:

SELECT \* FROM Students

WHERE department = 'Mathematics'

ORDER BY gpa DESC;

**Task 14: Show only students whose last names start with ‘B’**

SELECT \* FROM Students

WHERE last\_name LIKE 'B%';

**Learning Outcomes:**

By the end of this lab, you will be able to:

* Select specific columns and rows from a table
* Use filters to retrieve targeted data
* Sort results using ORDER BY
* Limit result sets using LIMIT and OFFSET
* Combine conditions for complex queries