**Lab Exercise 7 - Grouping Data and Using Aggregate Functions in MySQL**

**Objective:**

To learn how to:

* Use aggregate functions like SUM, AVG, COUNT
* Group data using GROUP BY
* Filter grouped results using HAVING

**Software Required:**

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

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

**Task 1: Create Database and Use It**

CREATE DATABASE AggregateLab;

USE AggregateLab;

**Task 2: Create Sales Table**

CREATE TABLE Sales (

sale\_id INT PRIMARY KEY,

employee\_name VARCHAR(50),

region VARCHAR(50),

amount DECIMAL(10,2),

sale\_date DATE

);

**Task 3: Insert Sample Data**

INSERT INTO Sales VALUES

(1, 'Alice', 'North', 1500.00, '2023-01-10'),

(2, 'Bob', 'South', 1800.00, '2023-01-11'),

(3, 'Alice', 'North', 2000.00, '2023-01-15'),

(4, 'David', 'East', 1300.00, '2023-01-18'),

(5, 'Eva', 'North', 2100.00, '2023-01-20'),

(6, 'Bob', 'South', 1700.00, '2023-01-22'),

(7, 'Alice', 'North', 2200.00, '2023-01-25');

**Part B: Using Aggregate Functions**

**Task 4: Total Sales Amount**

SELECT SUM(amount) AS total\_sales FROM Sales;

**Task 5: Average Sale Amount**

SELECT AVG(amount) AS average\_sale FROM Sales;

**Task 6: Count Total Number of Sales**

SELECT COUNT(\*) AS number\_of\_sales FROM Sales;

**Part C: Grouping Data Using GROUP BY**

**Task 7: Total Sales Per Employee**

SELECT employee\_name, SUM(amount) AS total\_sales

FROM Sales

GROUP BY employee\_name;

**Task 8: Average Sale Per Region**

SELECT region, AVG(amount) AS average\_sales

FROM Sales

GROUP BY region;

**Task 9: Number of Sales Per Region**

SELECT region, COUNT(\*) AS sales\_count

FROM Sales

GROUP BY region;

**Part D: Filtering Grouped Results with HAVING**

**Task 10: Employees With Total Sales Greater Than 4000**

SELECT employee\_name, SUM(amount) AS total\_sales

FROM Sales

GROUP BY employee\_name

HAVING total\_sales > 4000;

**Task 11: Regions With More Than 2 Sales**

SELECT region, COUNT(\*) AS total\_sales

FROM Sales

GROUP BY region

HAVING total\_sales > 2;

**Part E: Combine WHERE with GROUP BY and HAVING**

**Task 12: Sales in January Only, Grouped by Employee**

SELECT employee\_name, SUM(amount) AS jan\_sales

FROM Sales

WHERE MONTH(sale\_date) = 1

GROUP BY employee\_name;

**Learning Outcomes:**

After completing this lab, you will be able to:

* Use SUM(), AVG(), COUNT() and other aggregate functions
* Group data using GROUP BY
* Filter grouped results using HAVING
* Combine WHERE, GROUP BY, and aggregate functions effectively