Task 4:

Aggregate Functions and Grouping

Objective : Use aggregate functions and grouping to summarize data

Tools : DB Browser for SQLite / MySQL Workbench

Deliverables : SQL queries using SUM, COUNT, AVG, GROUP BY

Create new table

CREATE TABLE student_summary (student_id INTEGER PRIMARY KEY, name TEXT NOT NULL, department TEXT, age INTEGER, marks INTEGER);

Insert data

INSERT INTO student_summary (name, department, age, marks) VALUES

('Alice', 'CSE', 20, 85),

('Bob', 'ECE', 21, 78),

('Charlie', 'CSE', 20, 92),

('David', 'EEE', 22, 65),

('Eva', 'CSE', 21, 88),

('Frank', 'ECE', 23, 74),

('Grace', 'EEE', 22, 59);

student_id	name	department	age	marks
1	Alice	CSE	20	85
2	Bob	ECE	21	78
3	Charlie	CSE	20	92
4	David	EEE	22	65
5	Eva	CSE	21	88
6	Frank	ECE	23	74
7	Grace	EEE	22	59

1.Count students per department

SELECT department, COUNT(*) AS student_count FROM student_summary GROUP BY department;

department	student_count
CSE	3
ECE	2
EEE	2

2.Average marks per department

SELECT department, AVG(marks) AS average_marks FROM student_summary GROUP BY department;

department	average_marks
CSE	88.33333333333333
ECE	76
EEE	62

3.Count students per age

SELECT age, COUNT(*) AS number_of_students FROM student_summary GROUP BY age;

age	number_of_students
20	2
21	2
22	2
23	1

4. Highest marks per department

SELECT department, MAX(marks) AS highest_marks

FROM student_summary

GROUP BY department;

department	highest_marks
CSE	92
ECE	78
EEE	65

5. Lowest marks per department

SELECT department, MIN(marks) AS lowest_marks FROM student_summary GROUP BY department;

department	lowest_marks
CSE	85
ECE	74
EEE	59