Experiment No.5
Perform Simple queries, string manipulation operations and aggregate functions
Date of Performance:14/02/25
Date of Submission:21/02/25

Aim:- Perform Simple queries and aggregate functions.

Objective: Queries are a way of searching for and compiling data from one or more tables .aggregate functions are used to find Average, Maximum and minimum values, count values from given database

Theory:

Student (sid,sname,city,age, Marks)

Department(did, dname, sid)

Q1. Create a table student with given attributes.

Q2. Create a table department with given attributes.

Q3. Insert values into the respective tables & display them.

Q4. Update any row from student relation

Q5. Delete any row from the department table.

Q6. Give the minimum age of the student relation.

Q7. Find out the avg of marks of the student relation.

Q8. Give the total count of tuples in department relation group by did.

Implementation:

```
CREATE DATABASE students;
USE students;

-- Q1: Create a table student with given attributes
CREATE TABLE SE2_Students (
    sid INT PRIMARY KEY,
    sname VARCHAR(255),
    city VARCHAR(255),
    age INT,
    Marks DECIMAL(5,2)
);

-- Display table description
DESCRIBE SE2_Students;

-- Q2: Create a table department with given attributes
CREATE TABLE Dept_SE2 (
    did INT PRIMARY KEY,
    dname VARCHAR(50),
    sid INT,
    FOREIGN KEY (sid) REFERENCES SE2_Students(sid)
);

-- Display table description
DESCRIBE Dept_SE2;

-- Q3: Insert values into the respective tables & display them
INSERT INTO SE2_Students (sid, sname, city, age, Marks)
VALUES
(1, 'Aman Verma', 'Lucknow', 20, 85.5),
(2, 'Karan Patel', 'Indore', 22, 78.0),
(3, 'Ravi Kumar', 'Surat', 21, 80.2),
(4, 'Aakash Sharma', 'Delhi', 19, 88.7),
(5, 'Vikram Singh', 'Chennai', 20, 88.7);

SELECT * FROM SE2_Students;

INSERT INTO Dept_SE2 (did, dname, sid)
VALUES
(10, 'Computer', 1),
(11, 'IT', 2),
(12, 'ExTC', 3),
(13, 'CSCDS', 4),
(14, 'Civil', 5);
```

```
SELECT * FROM Dept_SE2;

-- Q4: Update any row from student relation
UPDATE SE2_Students
SET city = 'Pune', age = 21
WHERE sid = 1;

SELECT * FROM SE2_Students;

-- Q5: Delete any row from the department table
DELETE FROM Dept_SE2
WHERE did = 13;

SELECT * FROM Dept_SE2;

-- Q6: Give the minimum age of the student relation
SELECT MIN(age) AS min_age FROM SE2_Students;

-- Q7: Find out the average marks of the student relation
SELECT AVG(Marks) AS Average_Marks FROM SE2_Students;

-- Q8: Give the total count of tuples in department relation grouped by did
SELECT did, COUNT(*) AS tuple_count
FROM Dept_SE2
GROUP BY did;
```

Output:-

Q1 .

	Field	Type	Null	Key	Default	Extra
▶	sid	int	NO	PRI	NULL	
	sname	varchar(255)	YES		NULL	
	city	varchar(255)	YES		NULL	
	age	int	YES		NULL	
	Marks	decimal(5,2)	YES		NULL	

Q2.

Field	Type	Null	Key	Default	Extra
did	int	NO	PRI	NULL	
dname	varchar(50)	YES		NULL	
sid	int	YES	MUL	NULL	

Q3.

sid	sname	city	age	Marks
1	Aman Verma	Lucknow	20	85.50
2	Karan Patel	Indore	22	78.00
3	Ravi Kumar	Surat	21	80.20
4	Aakash Sharma	Delhi	19	88.70
5	Vikram Singh	Chennai	20	88.70
NULL	NULL	NULL	NULL	NULL

did	dname	sid
10	Computer	1
11	IT	2
12	ExTC	3
13	CSCDS	4
14	Civil	5
NULL	NULL	NULL

Q4.

sid	sname	city	age	Marks
1	Aman Verma	Pune	21	85.50
2	Karan Patel	Indore	22	78.00
3	Ravi Kumar	Surat	21	80.20
4	Aakash Sharma	Delhi	19	88.70
5	Vikram Singh	Chennai	20	88.70
NULL	NULL	NULL	NULL	NULL

Q5.

did	dname	sid
10	Computer	1
11	IT	2
12	ExTC	3
14	Civil	5
NULL	NULL	NULL

Q6.

min_age
19

Q7.

Average_Marks
84.220000

Q8.

	did	tuple_count
▶	10	1
	11	1
	12	1
	14	1

Conclusion: The experiment successfully demonstrated the creation and management of database tables and effectively applied SQL queries to manipulate and retrieve data. Using aggregate functions like MIN, AVG, and COUNT, key insights were extracted from the data, showcasing the ability to handle relational databases efficiently and achieve the stated objectives.