AY: 2024-25

Class:	**SE**	**Semester:**	**IV**
Course Code:	**CSL402**	**Course Name:**	**DBMS Lab**

Name of Student:	**Shravani Sandeep Raut**
Roll No. :	**48**
Experiment No.:	**5**
Title of the Experiment:	**Perform simple queries, string manipulation operations and aggregate functions.**
Date of Performance:	**05/03/2025**
Date of Submission:	**12/03/2025**

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Performance	5	
Understanding	5	
Journal work and timely submission	10	
Total	20	

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Performance	4-5	2-3	1
Understanding	4-5	2-3	1
Journal work and timely submission	8-10	5-8	1-4

Checked by

Name of Faculty : Ms. Neha Raut

Signature :

Date:

Aim :- Write simple query to manipulate string operations and perform aggregate functions like (MIN, MAX, SUM, AVERAGE, COUNT).

Objective :- To apply aggregate functions and string manipulation functions to perform simple queries in the database system

Theory:

Simple Queries in SQL:

In SQL, a simple query is a request for data from a database table or tables. It allows users to retrieve specific information by specifying the columns they want to retrieve and any conditions for filtering rows based on certain criteria. Simple queries are the backbone of interacting with databases, enabling users to extract the data they need for analysis, reporting, or further processing.

String Manipulation Operations:

String manipulation operations in SQL involve modifying or transforming string values stored in database columns. These operations are crucial for tasks such as formatting data, combining strings, converting case, or extracting substrings. By using string functions and operators, users can manipulate text data to suit their requirements, whether it's for display purposes or for further analysis.

Aggregate Functions:

Aggregate functions in SQL are used to perform calculations on sets of values and return a single result. These functions allow users to summarize data across multiple rows, providing insights into the overall characteristics of the dataset. Common aggregate functions include calculating counts, sums, averages, minimums, and maximums of numerical values. They are essential tools for data analysis, enabling users to derive meaningful insights from large datasets.

Benefits of Understanding These Concepts:

- Data Retrieval: Simple queries allow users to fetch specific data from databases, facilitating data retrieval for various purposes.
- Data Transformation: String manipulation operations enable users to format and transform text data according to their needs, improving data consistency and readability.
- Data Analysis: Aggregate functions help users summarize and analyze large datasets, providing valuable insights into trends, patterns, and statistical measures.
- Data Reporting: By combining simple queries, string manipulation operations, and aggregate functions, users can generate reports and visualizations that communicate key findings effectively.

Implementation:

```
use Student_mangement;

-- String manipulation

select First_name, upper(First_name) as FirstName_Upper from Student;
select First_name, lower(First_name) as FirstName_Lower from Student;
select First_name, Last_name, concat(First_name, ' ', Last_name) as Name from Student;
select First_name, DOB, year(DOB) as age from Student;
select Stud_Email, length(Stud_Email) as length from Student;

-- aggregate function

select min(Marks_Obtained) as MinMarks from Student_Marks;
select max(Marks_Obtained) as MaxMarks from Student_Marks;
select sum(Marks_Obtained) as Total from Student_Marks;
select avg(Marks_Obtained) as Average from Student_Marks;
select count(*) as Total_Student from Student;
```

Conclusion:

1. **Write syntax and explanation for each of the five aggregate functions**

1. **MIN()**
- **Purpose:** Returns the smallest value in a column.
- **Syntax:**
  SELECT MIN(column_name) FROM table_name;

2. **MAX()**
- **Purpose:** Returns the largest value in a column.
- **Syntax:**
  SELECT MAX(column_name) FROM table_name;

3. **SUM()**
- **Purpose:** Returns the total sum of numeric values in a column.
- **Syntax:**
  SELECT SUM(column_name) FROM table_name;

4. **AVG()**

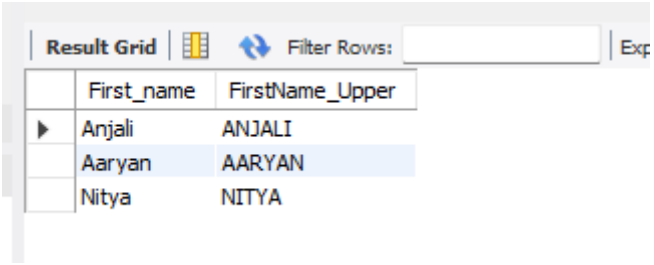
- **Purpose:** Returns the average of numeric values in a column.
- **Syntax:**
  SELECT AVG(column_name) FROM table_name;

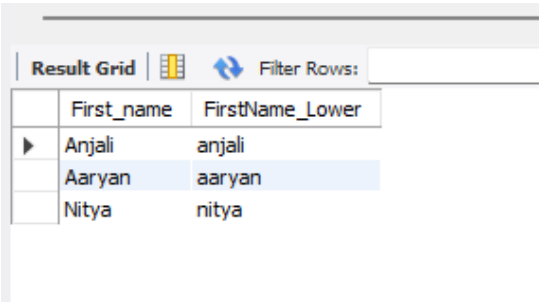
5. **COUNT()**

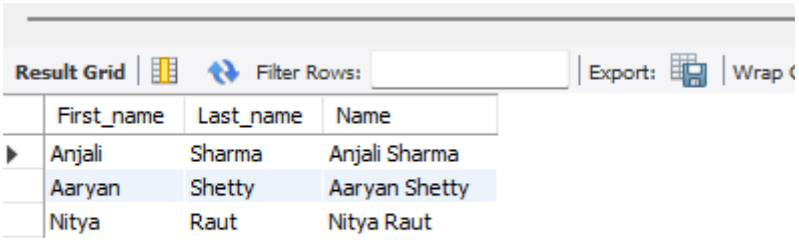
- **Purpose:** Returns the number of rows.
- **Syntax:**
  SELECT COUNT(column_name) FROM table_name;

2. Show results of operations performed.

-- String manipulation







Result Grid | Filter Rows:

First_name	DOB	age
Anjali	2005-07-23	2005
Aaryan	2005-03-21	2005
Nitya	2005-07-23	2005

Result Grid | Filter Rows:

Stud_Email	length
anjali@gmail.com	16
aaryan@gmail.com	16
rautns@gmail.com	16

-- aggregate function

Result Grid | Filter Rows:

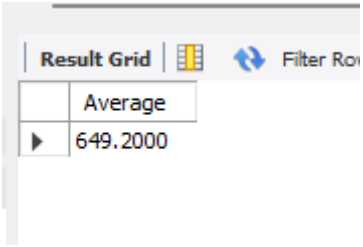
MinMarks
560

Result Grid | Filter Rows

MaxMarks
780

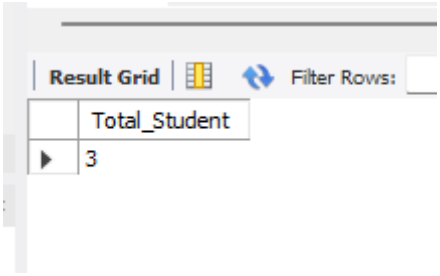
Result Grid | Filter

Total
3246



Result Grid | Filter Ro

	Average
▶	649.2000



Result Grid | Filter Rows:

	Total_Student
▶	3