Experiment No.5
Perform simple queries, string manipulation operations and aggregate functions.
Date of Performance:
Date of Submission:

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 company1;

Insert into manager(name1,Experience,Phone_No,Salary,ManagerID)

Values('hea',7,3456767,9800,609);
```

1)Upper

```
Select upper('sir') from manager;
```

upper('sir')
SIR
SIR
SIR
SIR
SIR

2)Lower

```
Select lower('SIR') from manager;
```

lower('SIR')
sir
sir
sir
sir
sir

3)Trim

```
Select trim(' sir ') from manager;
```

trim(' sir ')
sir
sir
sir
sir

4)length

```
Select length('sir') from manager;
```

length('sir')
3
3
3
3
3

5)Lpad

Select lpad('sir',10,'*') from manager;

lpad('sir',10,'*')
*******sir
*******sir
*******sir
*******sir
*******sir

6)Rpad

Select rpad('sir',10,'*') from manager;

rpad('sir',10,'*')
sir*******
sir*******
sir*******
sir*******
sir*******

7)Replace

Select replace('jack and jue','j','bl') from manager;

replace('jack and jue','j','bl')
black and blue
black and blue
black and blue
black and blue

Aggregate Function

1)min

Select min(name1) from manager;

Result Grid	
min(name1)
▶ hea

2)max

Select max(name1) from manager;

Result Grid		Filter
max(name1)		
▶ sir		

3)Sum

Select sum(Phone_No) from manager

Result Grid		Filter R
sum(Phone_No)		
▶ 59999709		

Conclusion:

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

Ans

1. COUNT():

   - Syntax: COUNT(expression)

   - Explanation: Calculates the number of rows that match a specified condition or expression.

2. SUM():

   - Syntax: SUM(expression)

   - Explanation: Calculates the sum of values in a numeric column or result set, ignoring NULL values.

3. AVG():

   - Syntax: AVG(expression)

   - Explanation: Calculates the average value of a numeric column or result set, ignoring NULL values.

4. MIN():

- Syntax: MIN(expression)

- Explanation: Returns the minimum value from a set of values, ignoring NULL values.

5. MAX():

- Syntax: MAX(expression)

- Explanation: Returns the maximum value from a set of values, ignoring NULL values.

These functions are used for data analysis and summarization in SQL queries.

2. Show results of operations performed.

Ans
1. COUNT(): Shows the number of rows that match a specified condition or expression.
2. SUM(): Displays the total sum of values in a numeric column or result set.
3. AVG(): Presents the average value of a numeric column or result set.
4. MIN(): Shows the smallest value from a set of values.
5. MAX(): Displays the largest value from a set of values.

These functions provide valuable insights into data analysis and summarization.