DEPARTMENT OF COMPUTER ENGINEERING

EXPERIMENT NO 6

Title: Study and implement different, string manipulation operations and aggregate functions.

Aim: Perform String operations and Aggregate function on the user database.

Theory:

SQL String functions are the predefined functions that allow the database users for string manipulation. These functions only accept, process, and give results of the string data type.

There are many string functions available some are listed here:

1. LCASE ()
2. UCASE ()
3. LEN ()
4. MID ()
5. ROUND ()

1. **LCASE ()**: LCASE stands for Lowercase which is a scalar function used to convert strings of characters to lowercase.

Table Employee:

S. No.	Emp_ID	Name	Salary
1.	213	ABHAY	12000
2.	214	Aakash	15200
3.	215	bittu	13400

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SELECT LCASE(Name) FROM Employee;

Output:

LCASE(Name)
abhay
aakash
bittu

2. **UCASE():** UCASE stands for Uppercase and this function is used to convert all the characters of a string to uppercase.

SELECT UCASE(Name) FROM Employee;

Output:

UCASE(Name)
ABHAY
AAKASH
BITTU

3. **LEN():** This function is used to get the length of any string value.

SELECT LENGTH(Name) FROM Employee;

Output:

LENGTH(Name)
5
6
5
4

4. **MID():** This scalar function is useful when we want to extract substrings from any column containing string values.

SELECT MID(Name, 3, 2) FROM Employee;

MID(Name,3,2)
ha
ka

tt

5. **ROUND ():** Round function is used when you need to round off any numeric value which is in decimal point values.

SELECT ROUND(Marks) FROM Student;

Output:

ROUND(Marks)
82
79
64
70

Aggregate Functions

These functions are used to perform various mathematical calculations on a single or group of values in the databases. The aggregate functions in SQL are very powerful to perform operations on the data. As we know about MS Excel functions, we can perform almost every mathematical calculation in Excel. This is just like MS Excel where we are also applying some formulas to the data stored in the databases. The aggregate functions return only a single value and these functions are also useful to summarize the data. When you start using these

functions in SQL, you will get more familiar with the working of these functions. In aggregate functions, the NULL values are ignored while performing calculations except for the COUNT function.

1. **SUM():** Sum is a function that totals the numeric values of a column and gives us the output. SUM() is a mathematical function that adds all the values in a column and returns the SUM() of that column.

Employee table:

S. No.	Emp_ID	Name	Salary
1.	213	Abhay	12000
2.	214	Aakash	15200
3.	215	Bittu	13400
4.	216	Ravi	15000

SELECT SUM(Salary) FROM Employee;

Output:

SUM(Salary)
55600

2. **COUNT()**: The count function is very useful to get the total number of rows present in the table. You can also give a condition to count these rows and can also run it without a condition.

SELECT COUNT(Emp_ID) FROM Employee;

Output:

count(Emp_ID)
4

AVG(): As we already know how to calculate Average in Mathematics. So, this function does the same as we did in Maths to find the averages.

SELECT AVG(Salary) FROM Employee;

Output:

avg(Salary)
13900

3. **MIN():** The MIN() function returns the minimum value from a selected column. The minimum value can be extracted when there are integer values in that column.

SELECT MIN(Age) FROM Employee;

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Output:

MIN(Age)
21

4. **MAX():** Max function becomes very important when we want to get the maximum value of any column. But this should be kept in mind, the MAX() function will work for integer values only.

SELECT MAX(Salary) FROM Employee;

Output:

MAX(Salary)
15200

Conclusion: Hence in this way we have implemented different string and aggregate function.