Godavari Foundation's

Godavari College of Engineering, Jalgaon

Department of Computer

Lab Manual

Database System Laboratory

Practical No:- ____

Date:-_____

Name of Student:- _____

Class:-_____ **Roll No:-_____**

Title:

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Aim: -

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Software Requirement: _____

Hardware Requirement:- _____

Theory:-

GroupBy

GROUP BY is used to group values from a column

Syntax:-

```
SELECT column_name(s)
FROM table_name
WHERE condition
GROUP BY column_name(s)
ORDER BY column_name(s);
```

mysql> SELECT * FROM employee_tbl;

```
+------+------+------------+-------------------+
|  id  | name | work_date  | daily_typing_pages |
+------+------+------------+-------------------+
|   1  | John | 2007-01-24 |       250         |
|   2  | Ram  | 2007-05-27 |       220         |
|   3  | Jack | 2007-05-06 |       170         |
|   3  | Jack | 2007-04-06 |       100         |
|   4  | Jill | 2007-04-06 |       220         |
|   5  | Zara | 2007-06-06 |       300         |
|   5  | Zara | 2007-02-06 |       350         |
+------+------+------------+-------------------+
7 rows in set (0.00 sec)
```

mysql> SELECT COUNT(*) FROM employee_tbl;

```
+--------------------------+
|         COUNT(*)         |
+--------------------------+
|            7             |
+--------------------------+
```

By using aggregate functions in conjunction with a GROUP BY clause as follows

mysql> SELECT name, COUNT(*) FROM   employee_tbl GROUP BY name;

```
+------+----------+
| name | COUNT(*) |
+------+----------+
| Jack |     2    |
| Jill |     1    |
| John |     1    |
| Ram  |     1    |
| Zara |     2    |
+------+----------+
5 rows in set (0.04 sec)
```

Aggregate Functions

A. Mathematical Functions

1.Count() Function

count() function returns the total number of values in the expression.

Example:-

Mysql> SELECT COUNT(name) FROM employee;

2. Sum() Function

sum() function returns the total summed (non-NULL) value of an expression.

Example:-

Mysql> SELECT SUM(working_hours) AS "Total working hours" FROM employee;

3. AVG() Function

AVG() function calculates the average of the values specified in the column.

Example:-

Mysql> SELECT AVG(working_hours) AS "Average working hours" FROM employee

4. MIN() Function

MIN() function returns the minimum (lowest) value of the specified column.

Example:-

mysql> SELECT MIN(working_hours) AS Minimum_working_hours FROM employee;

5. MAX() Function

MAX() function returns the maximum (highest) value of the specified column.

Example:-

Mysql> SELECT MAX(working_hours) AS Maximum_working_hours FROM employee;

B. String Functions

CHAR_LENGTH(): Doesn't work for SQL Server. Use LEN() for SQL Server. This function is used to find the length of a word.

Syntax:- SELECT char_length('Hello!');

Output:- 6

CHARACTER_LENGTH(): Doesn't work for SQL Server. Use LEN() for SQL Server. This function is used to find the length of a line.

Syntax:- SELECT CHARACTER_LENGTH('geeks for geeks');

Output:- 15

CONCAT(): This function is used to add two words or strings.

Syntax:- SELECT 'Geeks' || ' ' || 'forGeeks' FROM dual;

Output:- 'GeeksforGeeks'

INSTR(): This function is used to find the occurrence of an alphabet.

Syntax:- INSTR('geeks for geeks', 'e');

Output:- 2 (the first occurrence of 'e')

Syntax:- INSTR('geeks for geeks', 'e', 1, 2);

Output:- 3 (the second occurrence of 'e')

LCASE(): This function is used to convert the given string into lower case.

Syntax:- LCASE ("GeeksFor Geeks To Learn");

Output:- geeksforgeeks to learn

LENGTH(): This function is used to find the length of a word.

Syntax:- LENGTH('GeeksForGeeks');

Output:- 13

LOWER(): This function is used to convert the upper case string into lower case.

Syntax:- SELECT LOWER('GEEKSFORGEEKS.ORG');

Output:- geeksforgeeks.org

LTRIM(): This function is used to cut the given sub string from the original string.

Syntax:- LTRIM('123123geeks', '123');

Output:- geeks

REPEAT(): This function is used to write the given string again and again till the number of times mentioned.

Syntax:- SELECT REPEAT('geeks', 2);

Output:- geeksgeeks

REPLACE(): This function is used to cut the given string by removing the given sub string.

Syntax:- REPLACE('123geeks123', '123');

Output:- geeks

REVERSE(): This function is used to reverse a string.

Syntax:- SELECT REVERSE('geeksforgeeks.org');

Output:- ‘gro.skeegrofskeeg’

STRCMP(): This function is used to compare 2 strings.

Syntax:- SELECT STRCMP('google.com', 'geeksforgeeks.com');

Output:- -1

UCASE(): This function is used to make the string in upper case.

Syntax:- UCASE ("GeeksForGeeks");

Output:- GEEKSFORGEEKS

MYSQL QUERIES

Group By Queries:-

```
use student;

select * from Reservation;

select Branch_Code, sum(Total_Fare) TotalFare
from Reservation
group by Branch_Code;

select sum(Total_Fare) TotalFare from Reservation;

select Branch_Code, sum(Total_Fare) TotalFare, max(Total_Fare) MaxFare,
min(Total_Fare) MinFare
from Reservation
group by Branch_Code;

select Branch_Code, sum(Total_Fare) TotalFare, max(Total_Fare) MaxFare,
min(Total_Fare) MinFare
from Reservation
where Flightno='AN56'
group by Branch_Code;
```

Having Clause Queries:-

```
select Branch_Code, sum(Total_Fare) TotalFare, max(Total_Fare) MaxFare,
min(Total_Fare) MinFare from Reservation
where Flightno='AN56'
group by Branch_Code
having Branch_Code='SBI';
```

Group by Multiple Column Queries:-

```
select Branch_Code, Flightno, sum(Total_Fare) TotalFare
from Reservation
group by Flightno, Branch_Code;
```

Mathematical Function Queries:-

```
use student;

select * from Branch;
select count(*) TotalRows from Branch;
```

```
select * from Reservation;
select count(*) TotalRows from Reservation;

select * from Airbus;
select max(First_cap) FirstCap, min(Eco_cap) EcoCap from Airbus;

select * from Reservation;
select avg(Total_Fare) Total_Fare from Reservation;
select sum(Total_Fare) Total_Fare from Reservation;

select round(120.8333) Value;
select round(120.5333) Value;
select round(120.4333) Value;
select truncate(120.8333,2) Value;
select truncate(120.8333,0) Value;
select truncate(120.8333,4) Value;
select power(4,3) Value;
select power(2,2) Value;
select sqrt(4) Value;
select * from Reservation;
select Pnr, Pass_Name, IFNULL(Credit_Card_No,0) Value from Reservation;
select IFNULL(CAST(Credit_Card_No AS Char),'CASH') Value from Reservation;
```

Character Function Queries:-

```
use student;

select * from Branch;
select Branch_Code, length(Add1) Address1, length(Add2) Address2 from Branch;

select * from Fare;
select Route_Code, substr(Route_Code,1,3) rtcd from Fare;

select replace('A001','A','B') ChangeData;
select rtrim('A001   ') ChangeData;
select ltrim('   A001') ChangeData;

select * from Branch;
select Branch_Code, lower(Branch_Code) Branch_Code1 from Branch;
select Add1, upper(Add1) Address from Branch;

select reverse('A001') ChangeData;
select repeat("MYSQL ",5) ChangeData;
select strcmp("MYSQL","MYSQL") ChangeData;
select strcmp("SQL","MYSQL") ChangeData;
select decode(encode('F','First'),'First') ChangeData;
```

Conclusion:-

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_____
_____
_____