LAB-4: IN BUILT FUNCTIONS

SQL has many built-in functions for performing processing on string or numeric data. Following is the list of all useful SQL built-in functions −

Various In-Built Functions are

1) Count()
2) Sum()
3) Avg()
4) Min()
5) Max()

Count():

The COUNT() function returns the number of rows in a database table.
Syntax:
COUNT(*) or COUNT([ALL|DISTINCT] expression)

SUM() Function

The SUM() function returns the total sum of a numeric column.
Syntax:
SUM() or SUM([ALL|DISTINCT] expression)

AVG() Function

The AVG() function calculates the average of a set of values.
Syntax:
AVG() or AVG([ALL|DISTINCT] expression)

MIN() Function

The MIN() aggregate function returns the lowest value (minimum) in a set of non-NULL values.
Syntax:
MIN() or MIN([ALL|DISTINCT] expression)

MAX() Function

The MAX() aggregate function returns the highest value (maximum) in a set of non-NULL values.
Syntax:
MAX() or MAX([ALL|DISTINCT] expression)

QUESTIONS:

a. **Display all the details of the records whose employee name starts with 'A'**

SELECT * FROM EMPLOYEEE;
SELECT * FROM EMPLOYEEE WHERE ENAME LIKE 'A%';

```
mysql> SELECT * FROM EMPLOYEEE;
+-------+-----------------+--------------+--------+--------+
| EMPNO | ENAME           | JOB          | DEPTNO | SAL    |
+-------+-----------------+--------------+--------+--------+
|     1 | ROSHAN SHRESTHA | MANAGER      |      1 | 200000 |
|     2 | UKESH SHRESTHA  | ASST.MANAGER |      1 | 100000 |
|     3 | SUMIT ADHIKARI  | SALES HEAD   |      2 | 100000 |
|     4 | SHREEJAN BALAMI | SALES OFFICER|      3 |  80000 |
|     5 | KUSHAL PIYA     | ASP          |      4 |  15000 |
|     6 | RAMESH SHRESTHA | ASP          |      5 |  15000 |
|     7 | ANSH SHRESTHA   | LECTURER     |      6 |  20000 |
|     8 | AMIR SHRESTHA   | LECTURER     |      6 |  20000 |
+-------+-----------------+--------------+--------+--------+
8 rows in set (0.00 sec)

mysql> SELECT * FROM EMPLOYEEE WHERE ENAME LIKE 'A%';
+-------+--------------+----------+--------+-------+
| EMPNO | ENAME        | JOB      | DEPTNO | SAL   |
+-------+--------------+----------+--------+-------+
|     7 | ANSH SHRESTHA | LECTURER |      6 | 20000 |
|     8 | AMIR SHRESTHA | LECTURER |      6 | 20000 |
+-------+--------------+----------+--------+-------+
2 rows in set (0.00 sec)
```

b. **Display all the details of the records whose employee name does not starts with 'A'**

SELECT * FROM EMPLOYEEE WHERE ENAME NOT LIKE 'A%';

```
mysql> SELECT * FROM EMPLOYEEE WHERE ENAME NOT LIKE 'A%';
+-------+-----------------+--------------+--------+--------+
| EMPNO | ENAME           | JOB          | DEPTNO | SAL    |
+-------+-----------------+--------------+--------+--------+
|     1 | ROSHAN SHRESTHA | MANAGER      |      1 | 200000 |
|     2 | UKESH SHRESTHA  | ASST.MANAGER |      1 | 100000 |
|     3 | SUMIT ADHIKARI  | SALES HEAD   |      2 | 100000 |
|     4 | SHREEJAN BALAMI | SALES OFFICER|      3 |  80000 |
|     5 | KUSHAL PIYA     | ASP          |      4 |  15000 |
|     6 | RAMESH SHRESTHA | ASP          |      5 |  15000 |
+-------+-----------------+--------------+--------+--------+
6 rows in set (0.00 sec)
```

c. Display the rows whose salary ranges from 15000 to 30000

SELECT * FROM EMPLOYEEE WHERE SAL>=’15000’ AND SAL <= ‘30000’;

```
mysql> SELECT * FROM EMPLOYEEE WHERE SAL>='15000' AND SAL <= '30000';
+-------+-----------------+----------+--------+-------+
| EMPNO | ENAME           | JOB      | DEPTNO | SAL   |
+-------+-----------------+----------+--------+-------+
|     5 | KUSHAL PIYA     | ASP      |      4 | 15000 |
|     6 | RAMESH SHRESTHA | ASP      |      5 | 15000 |
|     7 | ANSH SHRESTHA   | LECTURER |      6 | 20000 |
|     8 | AMIR SHRESTHA   | LECTURER |      6 | 20000 |
+-------+-----------------+----------+--------+-------+
4 rows in set (0.00 sec)
```

d. Calculate the total and average salary amount of the emp table

SELECT * FROM EMP;
SELECT SUM(SAL) FROM EMP;
SELECT AVG(SAL) FROM EMP;

```
mysql> SELECT * FROM EMP;
+-------+-----------------+---------------+--------+--------+
| EMPNO | ENAME           | JOB           | DEPTNO | SAL    |
+-------+-----------------+---------------+--------+--------+
|     1 | ROSHAN SHRESTHA | MANAGER       |      1 | 200000 |
|     2 | UKESH SHRESTHA  | ASST.MANAGER  |      1 | 100000 |
|     3 | SUMIT ADHIKARI  | SALES HEAD    |      2 | 100000 |
|     4 | SHREEJAN BALAMI | SALES OFFICER |      3 |  80000 |
|     5 | KUSHAL PIYA     | ASP           |      4 |  15000 |
|     6 | RAMESH SHRESTHA | ASP           |      5 |  15000 |
+-------+-----------------+---------------+--------+--------+
6 rows in set (0.01 sec)

mysql> SELECT SUM(SAL) FROM EMP;
+----------+
| SUM(SAL) |
+----------+
|   510000 |
+----------+
1 row in set (0.00 sec)

mysql> SELECT AVG(SAL) FROM EMP;
+------------+
| AVG(SAL)   |
+------------+
| 85000.0000 |
+------------+
1 row in set (0.00 sec)
```

e. Count the total records in the emp table

SELECT COUNT(*) FROM EMP;

```
mysql> SELECT COUNT(*) FROM EMP;
+----------+
| COUNT(*) |
+----------+
|        6 |
+----------+
1 row in set (0.00 sec)
```

f. Determine the max and min salary and rename the column as max_salary and min_salary

SELECT MAX(SAL) AS MAX_SALARY, MIN(SAL) AS MIN_SALARY FROM EMP;

```
mysql> SELECT MAX(SAL) AS MAX_SALARY, MIN(SAL) AS MIN_SALARY FROM EMP ;
+------------+------------+
| MAX_SALARY | MIN_SALARY |
+------------+------------+
|     200000 |      15000 |
+------------+------------+
1 row in set (0.00 sec)
```

g. Find how many job titles are available in employee table

SELECT * FROM EMPLOYEEE;
SELECT COUNT(DISTINCT JOB) FROM EMLOYEEE;

```
mysql> SELECT * FROM EMPLOYEEE
    -> ;
+-------+-----------------+--------------+--------+--------+
| EMPNO | ENAME           | JOB          | DEPTNO | SAL    |
+-------+-----------------+--------------+--------+--------+
|     1 | ROSHAN SHRESTHA | MANAGER      |      1 | 200000 |
|     2 | UKESH SHRESTHA  | ASST.MANAGER |      1 | 100000 |
|     3 | SUMIT ADHIKARI  | SALES HEAD   |      2 | 100000 |
|     4 | SHREEJAN BALAMI | SALES OFFICER|      3 |  80000 |
|     5 | KUSHAL PIYA     | ASP          |      4 |  15000 |
|     6 | RAMESH SHRESTHA | ASP          |      5 |  15000 |
|     7 | ANSH SHRESTHA   | LECTURER     |      6 |  20000 |
|     8 | AMIR SHRESTHA   | LECTURER     |      6 |  20000 |
+-------+-----------------+--------------+--------+--------+
8 rows in set (0.00 sec)

mysql> SELECT COUNT(DISTINCT JOB) FROM EMPLOYEEE;
+---------------------+
| COUNT(DISTINCT JOB) |
+---------------------+
|                   6 |
+---------------------+
1 row in set (0.00 sec)
```

h. What is the difference between maximum and minimum salaries of employee in the organization?

SELECT MAX(SAL) -MIN(SAL) DIFFERENCE FROM EMPLOYEEE;

```
mysql> SELECT MAX(SAL) - MIN(SAL) DIFFERENCE FROM EMPLOYEEE;
+------------+
| DIFFERENCE |
+------------+
|     185000 |
+------------+
1 row in set (0.00 sec)
```