

# Experiment 5: Implementation of Aggregate and Character Functions

---

## Aim:

Implementation of Aggregate and Character Functions

## Theory:

Aggregative operators perform computations or summarizations on data using SQL. Examples include MIN, MAX, SUM, AVG, and COUNT.

1. **Count:** Returns the count of tuples (rows) in a column. Using **DISTINCT** returns only the count of unique tuples.

- **Syntax:** **COUNT**(Column name)
- **Example:**

```
SELECT COUNT(Sal) FROM emp;
```

2. **SUM:** Returns the sum of all values in a column.

- **Syntax:** **SUM**(Column name)
- **Example:**

```
SELECT SUM(Sal) FROM emp;
```

3. **AVG:** Returns the average value of a column's values.

- **Syntax:** **AVG**(Column name)
- **Example:**

```
SELECT AVG(Sal) FROM emp;
```

4. **MAX:** Returns the maximum value of a column.

- **Syntax:** `MAX(Column name)`

- **Example:**

```
SELECT MAX(Sal) FROM emp;
```

- **Group By Example:**

```
SELECT deptno, MAX(sal) FROM emp GROUP BY deptno;
```

- **Result:**

DEPTNO	MAX(SAL)
10	5000
20	3000
30	2850

- **Filtered Example:**

```
SELECT deptno, MAX(sal)
FROM emp
GROUP BY deptno
HAVING MAX(sal) < 3000;
```

- **Result:**

DEPTNO	MAX(SAL)
30	2850

5. **MIN:** Returns the minimum value of a column.

- **Syntax:** `MIN(Column name)`

- **Example:**

```
SELECT deptno, MIN(sal)
FROM emp
GROUP BY deptno
HAVING MIN(sal) > 1000;
```

- **Result:**

DEPTNO	MIN(SAL)
10	1300

## 6. Character Functions:

- **initcap(char):** Capitalizes the first letter of each word.

```
SELECT initcap('hello') FROM dual;
```

- **lower(char):** Converts all characters to lowercase.

```
SELECT lower('HELLO') FROM dual;
```

- **upper(char):** Converts all characters to uppercase.

```
SELECT upper('hello') FROM dual;
```

- **ltrim(char, [set]):** Trims characters from the left.

```
SELECT ltrim('cseit', 'cse') FROM dual;
```

- **rtrim(char, [set]):** Trims characters from the right.

```
SELECT rtrim('cseit', 'it') FROM dual;
```

- **replace(char, search):** Replaces occurrences of a substring.

```
SELECT replace('jack and jue', 'j', 'bl') FROM dual;
```

## Conclusion:

We successfully performed the implementation of aggregate and character functions.