FUNCTIONS

A block of codes to perform the particular task.

Functions can be categorized as :

→ Aggregate Functions
→ Character Functions
→ Number Functions
→ Date functions
→ Window Functions

Aggregate Functions

Aggregate Functions take n number of input and generates single output.

Types of Aggregate Functions

> MAX(): This function is used to obtain the maximum value from the given column.
Syntax: MAX(column_name);

> MIN(): This function is used to obtain the minimum value from the given column.
Syntax: MIN(column_name);

> SUM(): This function is used to obtain the total value from the given column.
Syntax: SUM(column_name);

> AVG(): This function is used to obtain the average value from the given column.
Syntax: AVG(column_name);

> COUNT(): This function is used to obtain the number of value from the given column.
Syntax: COUNT(*/column_name);

Note : Only COUNT(*) takes * as a argument.

Characteristics of Aggregate Functions

> Aggregate Functions execute group by group.
> We cannot pass normal columns along with aggregate Functions.
> We cannot nest aggregate functions.
> We cannot pass multiple columns inside Aggregate functions.
> We cannot pass aggregate functions inside WHERE clause.
> Aggregate Functions ignore NULL values.
> We can pass group by expression along with aggregate functions/

53. WAQTD THE MAX SAL AND THE MIN SALARY GIVEN TO THE EMPS.

```
SELECT MAX(SAL),MIN(SAL)
FROM EMP;
```

54. WAQTD THE MAX SALARY AND TOTAL SALARY, AVG SALARY GIVEN TO THE EMPS.

```
SELECT MAX(SAL),SUM(SAL),AVG(SAL)
FROM EMP;
```

55. WAQTD THE MAXIMUM SALARY AND TOTAL SALARY GIVEN TO SALESMAN.

```
SELECT MAX(SAL),SUM(SAL)
FROM EMP
WHERE JOB='SALESMAN';
```

56. WAQTD THE MAXIMUM SALARY, TOTAL, SALARY, MIN SALARY GIVEN TO ALL THE EMPS WHOSE FNAME STAERTS WITH S OR A.

```
SELECT MAX(SAL),SUM(SAL),MIN(SAL)
FROM EMP
WHERE FNAME LIKE 'S%' OR FNAME LIKE 'A%';
```

57. WAQTD THE NUMBER OF EMPS WORKING IN THE COMPANY.

```
SELECT COUNT(*)
FROM EMP;
```

58. WAQTD THE ELDEST EMP IN THE COMPANY.

```
SELECT MIN(DOB)
FROM EMP;
```

59. WAQTD THE DOJ OF THE RECENTLY JOINED EMP.

```
SELECT MAX(DOJ)
FROM EMP;
```

60. WAQTD THE NUMBER OF JOB ROLES AVAILABLE IN

THE COMPANY.

```
SELECT COUNT(DISTINCT JOB)
FROM EMP;
```

61. WAQTD THE NUMBER OF EMPS WORKING IN DEPT 113.

```
SELECT COUNT(*)
FROM EMP
WHERE DNO=113;
```

62. WAQTD THE NUMBER OF EMPS WORKING IN DEPT 113, 112.

```
SELECT COUNT(*)
FROM EMP
WHERE DNO IN (113,112);
```

GROUP BY clause

GROUP BY clause is used to group the records.

Syntax:

```
SELECT aggregate_functions/group_by_expression
FROM table_name
[WHERE filter_condition]
```

```
GROUP BY column_name;
         group_by_expression
```

Characteristics of GROUP BY clause

> It executes row by row.
> GROUP BY clause executes after FROM clause if there is no WHERE clause.
> GROUP BY clause converts the row records into group records.
> We can pass multiple columns inside GROUP BY clause.
> After the execution of GROUP BY clause, the other clauses execute group by group.
> We can display only Aggregate functions and

group by expression.

Note: The columns which is passed inside GROUP BY clause is known as group_by_expression.

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63. WAQTD THE NUMBER OF EMPS WORKING IN EACH DEPT.

```
SELECT COUNT(*),DNO
FROM EMP
GROUP BY DNO;
```

64. WAQTD THE MAX SALARY GIVEN TO ALL THE EMPS IN EVERY JOB ROLE.

```
SELECT JOB,MAX(SAL)
FROM EMP
GROUP BY JOB;
```

65. WAQTD THE TOTAL SALARY GIVEN TO ALL THE EMPS IN EVERY JOB ROLE EXCEPT CEO AND HR.

```
SELECT JOB,SUM(SAL)
FROM EMP
WHERE JOB NOT IN ('CEO','HR')
GROUP BY JOB;
```

66. WAQTD THE NUMBER OF EMPS WORKING IN EVERY DEPT IF THE EMP IS A SALESMAN OR MANAGER.

```
SELECT COUNT(*),DNO
FROM EMP
WHERE JOB IN ('SALESMAN','MANAGER')
GROUP BY DNO;
```

67. WAQTD THE MAXIMUM SAL, MIN SALARY, TOTAL SALARY, AVG SALARY GIVEN TO EVERY DNO WHO IS NOT GETTING ANY COMM.

```
SELECT MAX(SAL),MIN(SAL),SUM(SAL),AVG(SAL),DNO
```

```
FROM EMP
WHERE COMM IS NOT NULL
GROUP BY DNO;
```

68. WAQTD THE NUMBER OF EMP WORKING IN EVERY DEPT WHO ARE GETTING SAL MORE THAN OR EQUAL TO 32000 AND SAL LESS THAN OR EQUAL TO 50000.

```
SELECT COUNT(*),DNO
FROM EMP
WHERE SAL BETWEEN 32000 AND 50000
GROUP BY DNO;
```

HAVING CLAUSE

HAVING CLAUSE is used to filter the group records.

Syntax:

```
SELECT aggregate_functions/group_by_expression
FROM table_name
[WHERE filter_condition]
GROUP BY column_name
HAVING filter_group_condition;
```

Characteristics of HAVING clause

> HAVING clause executes group by group.
> It is used to filter the group conditions.
> It executes after the GROUP BY clause.
> We can pass multiple group conditions inside HAVING clause.

What is the difference b/w WHERE and HAVING clause?

WHERE

>It executes row by row
>WHERE clause executes after FROM clause.

>We cannot pass aggregate functions inside WHERE clause.

HAVING

>It executes group by group.
>HAVING clause executes after GROUP BY clause.
>HAVING clause always take aggregate functions as argument.

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69. WAQTD THE NUMBER OF EMPS WORKING IN EVERY DEPT WHO ARE GETTING SAL MORE THAN OR EQUAL TO 30000 AND MAX SAL LESS THAN OR EQUAL TO

150000.

```
SELECT COUNT(*),DNO
FROM EMP
WHERE SAL≥30000
GROUP BY DNO
HAVING MAX(SAL)≤150000;
```

70. WAQTD THE MAX SALARY, MIN SALARY IN EVERY DEPT IF THE DEPT TOTAL SAL IS MORE THAN 75000.

```
SELECT MAX(SAL),MIN(SAL),DNO
FROM EMP
GROUP BY DNO
HAVING SUM(SAL)>75000;
```

71. WAQTD THE AVG SAL, TOTAL SALARY OF ALL THE EMPS FROM EVERY JOB ROLES IF THE TOTAL SALARY EXCEEDS 90000 EXCEPT CEO AND HR.

```
SELECT AVG(SAL),SUM(SAL),JOB
FROM EMP
WHERE JOB NOT IN ('CEO','HR')
GROUP BY JOB
HAVING SUM(SAL)>90000;
```

72. WAQTD THE NUMBER OF EMPS WORKING IN EVRY DEPT IF THE DEPT MIN SAL MORE THAN 50000 AND MAX SAL LESS THAN 600000.

```
SELECT COUNT(*),DNO
FROM EMP
GROUP BY DNO
HAVING MIN(SAL)>50000 AND MAX(SAL)<600000;
```

73. WAQTD THE AVG SALARY, MIN SALARY GIVEN TO ALL THE EMP IF THE DEPT CONTAINS ATLEAST 3 EMPS WORKING IN IT.

```
SELECT AVG(SAL),MIN(SAL),DNO
FROM EMP
GROUP BY DNO
HAVING COUNT(*)≥3;
```

74. WAQTD THE NUMBER OF EMPS WHO ARE GETTING

SAME SALARY.

```
SELECT COUNT(*),SAL
FROM EMP
GROUP BY SAL
HAVING COUNT(*)≥2;
```

75. WAQTD THE NUMBER OF EMP WHO JOINED THE COMPANY ON THE SAME DAY.

76. WAQTD THE NUMBER OF EMP GETTING SAME SALARY AND WORKING IN SAME DEPT.