Analytical Function and Windows Functions

- Analytical functions are used to assign the rank to rows of the table.
- Analytical functions are always used with OVER clause, over(Partition by order by CN) partition is optional and order by is compulsory

Example: SELECT SCOTT.EMP.*, RANK () OVER (ORDER BY ASC) AS RANK FROM SCOTT.EMP;

1. **RANK**
2. **DENSE_RANK**
3. **ROW_NUMBER**
4. **LAG**
5. **LEAD**

1. **RANK:** It assign the rank to the table, In this it skips the next rank whenever duplicate occurs

Example: SELECT SCOTT.EMP.*, RANK() OVER (ORDER BY SAL DESC) FROM SCOTT.EMP;

2. **DENSE_RANK:** It assign the rank to the table, In this which doesn't skip the next rank whanever duplicate occurs.

Example: SELECT SCOTT.EMP.*, DENSE_RANK () OVER (ORDER BY SAL DESC) DENSE_RK FROM SCOTT.EMP;

3. ROW_NUMBER: It assign the rank to the table. It assigns rank in sequential manner.

EXAMPLE: SELECT SCOTT.EMP.*, ROW_NUMBER () OVER (ORDER BY SAL DESC) RW_N FROM SCOTT.EMP;

SELECT SCOTT.EMP.*, ROW_NUMBER () OVER (PARTITION BY DEPTNO ORDER BY SAL DESC) FROM SCOTT.EMP;

4. **LEAD:**

- By using lead function, we can retrieve the next value of a row in a column of the same table. (not using join).
- The last row value is null by default.

Example: SELECT (COLUMN_NAME, CONTEXT, DEFAULT VALUE) OVER (ORDER BY CN) FROM TABLE_NAME;

Example:

SELECT LEAD (SAL, 1) OVER (ORDER BY SAL DESC) FROM SCOTT.EMP;

SELECT SCOTT.EMP.*, LEAD (SAL, 1) OVER (ORDER BY SAL DESC) FROM SCOTT.EMP;

SELECT SCOTT.EMP*, LEAD (SAL,1,LATEST) OVER (ORDER BY SAL DESC) FROM SCOTT.EMP;

LAG:

- By using lag function we can retrieve previous row value in a column of the same table (without join)
- Here first row value is null.

Example:

SELECT SCOTT.EMP*, LAG (SAL, 1) OVER (ORDER BY DESC) FROM SCOTT.EMP;

Example:

Table A	Ascending(Asc)	Rank	Dense_Rank	Row_Number
100	100	1	1	1
200	100	1	1	2
100	100	1	1	3
300	200	4	2	4
100	200	4	2	5
400	300	6	3	6
200	400	7	4	7
500	500	8	5	8
500	500	8	5	9
500	500	8	5	10
600	600	11	6	11
700	600	11	6	12
800	700	13	7	13
600	700	13	7	14
700	800	15	8	15