MAX & MIN:

EID	ENAME	SAL	DEPTNO
1	ALLEN	1000	20
2	BLAKE	2000	10
3	CLARK	3000	30
4	MILLER	1500	10
5	ADAMS	2500	20

1. WAQTD maximum salary of an employee.

```
SELECT MAX( SAL )
FROM EMP :
```

2. WAQTD name of the employee getting maximum salary.

```
FROM EMP;

SELECT ENAME
FROM EMP
WHERE SAL = MAX(SAL);
```

SELECT **ENAME**, MAX(SAL)

SELECT ENAME FROM EMP WHERE SAL = (SELECT MAX(SAL) FROM EMP);

WAQTD name and salary earned by the employee getting Minimum salary .

```
SELECT ENAME, SAL
FROM EMP
WHERE SAL = ( SELECT MIN( SAL )
FROM EMP );
```

TYPES OF SUB - QUERY:

- 1. SINGLE ROW SUB QUERY
- 2. MULTI ROW SUB QUERY

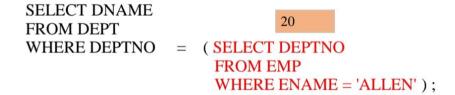
Example:

Emp

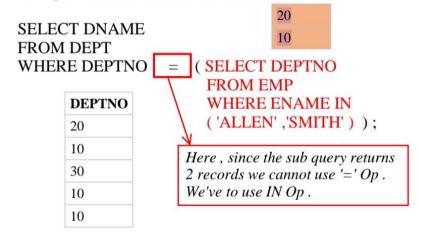
EID	ENAME	SAL	DEPTNO
1	ALLEN	1000	20
2	BLAKE	2000	10
3	CLARK	3000	30
4	MILLER	1500	10
5	SMITH	2500	10

$\overline{\mathrm{DEPT}}$		
DEPTNO	DNAME	LOC
10	D1	L1
20	D2	L2
30	D3	L3

1. WAQTD dname of ALLEN.



2. WAQTD dnames of allen and smith.



1. SINGLE ROW SUB QUERY:

- ➤ If the sub query returns exactly 1 record / value we call it as Single Row Sub Query.
- If it returns only 1 value then we can use the <u>normal</u> <u>operators</u> Or the <u>Special Operators</u> to compare the values.

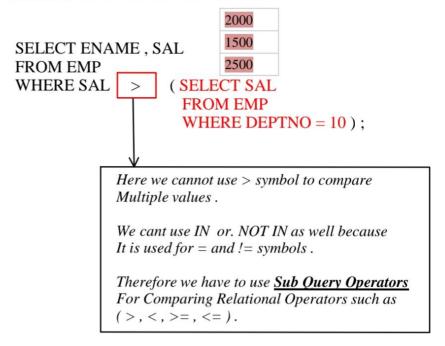
2. MULTI ROW SUB QUERY:

- ➤ If the sub query returns more than 1 record / value we call it as Multi Row Sub Query .
- If it returns more than 1 value then we cannot use the normal operators We have to use only Special Operators to compare the values.

Note: It is difficult to identify whether a query Belongs Single or Multi row So, it is always recommended to use Special Operators to Compare The values.

1. WAQTD ename and salary of the employees earning *more than* Employees of dept 10.

EID	ENAME	SAL	DEPTNO
1	ALLEN	1000	20
2	BLAKE	2000	10
3	CLARK	3000	30
4	MILLER	1500	10
5	SMITH	2500	10



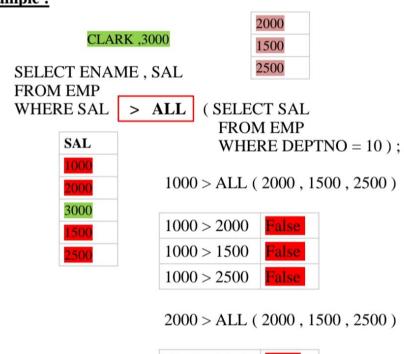
Sub Query Operators:

1. ALL:

"It is special Op used along with a relational Op (>, <, > = , <=) to compare the values present at the RHS ".

➤ <u>ALL Op returns</u> true if all the values at the RHS have satisfied the condition.

Example:



2000 > 2000	False
2000 > 1500	True
2000 > 2500	False

3000 > ALL (2000, 1500, 2500)

3000 > 2000	True
3000 > 1500	True
3000 > 2500	True

1500 > ALL (2000, 1500, 2500)

1500 > 2000	False
1500 > 1500	False
1500 > 2500	False

2500 > ALL (2000, 1500, 2500)

2500 > 2000	True
2500 > 1500	True
2500 > 2500	False

2. <u>ANY</u>:

"It is special Op used along with a relational Op (>, <, > = , <=)

2. ANY:

"It is special Op used along with a relational Op (>, <, > = , <=) to compare the values present at the RHS ".

• ANY Op returns true if one of the values at the RHS have satisfied the condition.

New Section 1 Page 3

Example: 2000 1500 2500 SELECT ENAME, SAL FROM EMP (SELECT SAL WHERE SAL ANY FROM EMP SAL WHERE DEPTNO = 10); 1000 1000 > ANY (2000, 1500, 2500)2000 3000 1000 > 20001500 1000 > 15002500 1000 > 2500False 2000 > ANY (2000, 1500, 2500) 2000 > 2000False 2000 > 1500True 2000 > 25003000 > ANY (2000, 1500, 2500)3000 > 2000True 3000 > 1500True 3000 > 2500True

 $\frac{1500 > 2000}{1500 > 1500}$

1500 > ANY (2000, 1500, 2500)

False

1500 > ANY (2000,	1500,	2500
-------------------	-------	------

1500 > 2000	False
1500 > 1500	False
1500 > 2500	False

2500 > ANY (2000, 1500, 2500)

2500 > 2000	True
2500 > 1500	True
2500 > 2500	False

1. WAQTD name of the employee if the employee earns less than The employees working as salesman.

SELECT ENAME FROM EMP WHERE SAL < ALL (SELECT SAL

New Section 1 Page 4

FROM EMP WHERE JOB='SALESMAN');

2. WAQTD name of the employee if the employee earns less than At least a salesman.

SELECT ENAME
FROM EMP
WHERE SAL < ANY (SELECT SAL
FROM EMP
WHERE JOB ='SALESMAN');

3. WAQTD names of the employees earning more than ADAMS.

SELECT ENAME FROM EMP WHERE SAL > ALL (SELECT SAL FROM EMP WHERE ENAME ='ADAMS');

NESTED SUB QUERY:

" A sub query written inside a sub query is known as Nested Subquery "



➤ WE CAN NEST ABOUT 255 SUB QUERIES

New Section 1 Page 5



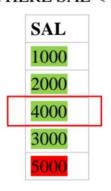
1. WAQTD maximum salary given to an employee .

2. WAQTD second maximum salary given to an employee .

4000 SELECT MAX(SAL) FROM MP

FROM MP 5000
WHERE SAL < (SELECT MAX(SAL)

FROM EMP);



3. WAQTD 3rd maximum salary .

SELECT MAX(SAL) 3000 FROM EMP WHERE SAL < (SELECT MAX(SAL) 4000 FROM EMP 3. WAQTD 3rd maximum salary.

SELECT MAX(SAL) 3000 FROM EMP WHERE SAL < (SELECT MAX(SAL) 4000 FROM EMP WHERE SAL < (SELECT MAX(SAL) 5000

4. WAQTD 4th maximum salary .

FROM EMP))

```
SELECT MAX(SAL) 2000
FROM EMP
WHERE SAL < ( SELECT MAX( SAL ) 3000
FROM EMP
WHERE SAL < (SELECT MAX(SAL) 4000
FROM EMP
WHERE SAL < (SELECT MAX(SAL) 5000
FROM EMP)))
```

SELECT MIN(SAL)

5. WAQTD 3 minimum salary.

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```
FROM EMP
WHERE SAL > ( SELECT MIN(SAL )
        FROM EMP
        WHERE SAL > ( SELECT MIN ( SAL )
                         FROM EMP));
```

6. WAQTD Dept name of the employee getting 2nd Minimum salary.

```
SELECT DNAME
FROM DEPT
WHERE DEPTNO = ( SELECT DEPTNO
FROM EMP
WHERE SAL = (SELECT MIN(SAL))
```

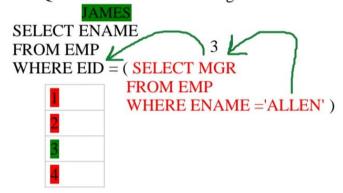
FROM EMP WHERE SAL > (SELECT MIN(SAL) FROM EMP)));

EMPLOYEE AND MANAGER RELATION:

EID	ENAME	MGR
1	ALLEN	3
2	SMITH	1
3	JAMES	2
4	KING	3

CASE 1:

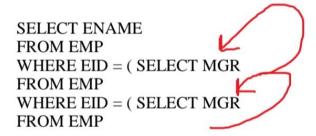
> WAQTD name of Allen's manager.



> WAQTD name of SMITH's manager.

> WAQTD name of SMITH's manager's manager .

EID	ENAME	MGR
1	ALLEN	3
2	SMITH	1
3	JAMES	2
4	KING	3





```
WHERE ENAME ='SMITH'));
```

WAQTD dname of King's Manager.

```
SELECT DNAME
FROM DEPT
WHERE DEPTNO = ( SELECT DEPTNO
FROM EMP
WHERE EID = ( SELECT MGR
FROM EMP
WHERE ENAME = 'KING' ) );
```

➤ WAQTD Location of Adams's manager's manager .

```
SELECT LOC
FROM DEPT
WHERE DEPTNO = ( SELECT DEPTNO
FROM EMP
WHERE EID = ( SELECT MGR
FROM EMP
WHERE EID = ( SELECT MGR
FROM EMP
WHERE EID = ( SELECT MGR
FROM EMP
WHERE ENAME = 'ADAMS' ) ) );
```

CASE -2

➤ WAQTD Names of the employees reporting to KING.

```
SELECT ENAME
FROM EMP
WHERE MGR = ( SELECT EID
FROM EMP
WHERE ENAME = 'KING' );
```

➤ WAQTD Name and salary given to the employees reporting To James .

```
SELECT ENAME, SAL
FROM EMP
WHERE MGR = ( SELECT EID
FROM EMP
WHERE ENAME ='JAMES');
```

To find Manager	Select MGR in Sub Q
To find Employees	Select EID in Sub Q