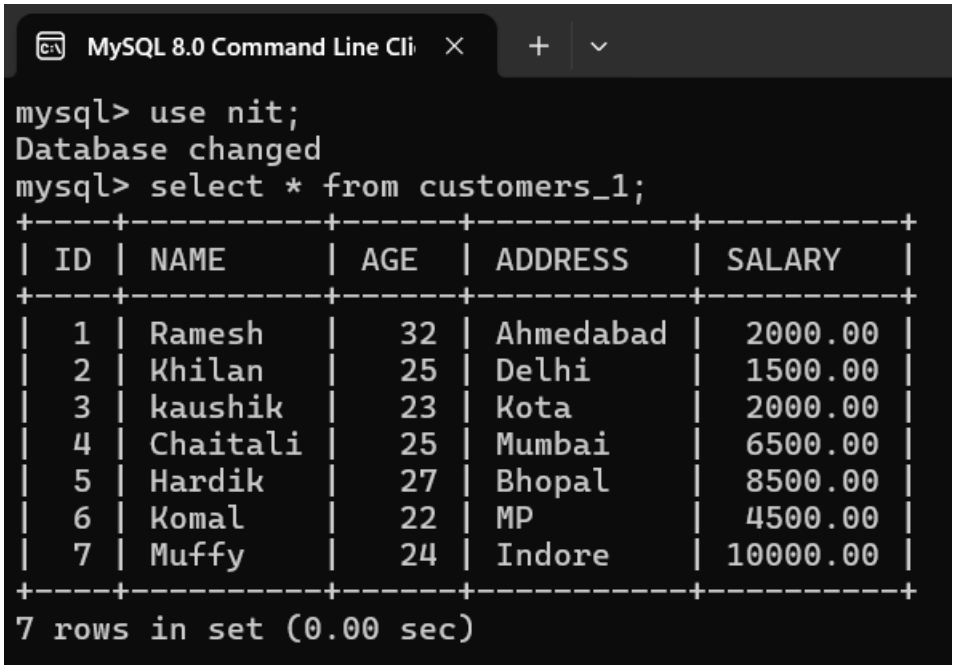
Logical operators in SQL – ALL, ANY (Explanation)

(By Sunitha Mekala)

Table name : Customers_1



1) ALL operator:

- Returns a boolean value as a result
- Returns TRUE if ALL of the subquery values meet the condition
- Is used with SELECT, WHERE and HAVING statements
  ALL means that the condition will be **true** only if the operation is true for **all** values in the range.

Eg: Actual query:

```
SQL> SELECT *
FROM CUSTOMERS_1
WHERE AGE > ALL (
      SELECT AGE
      FROM CUSTOMERS_1
      WHERE SALARY > 6500);
```

a) Lets retrieve the Subquery first:

```
SELECT AGE
FROM CUSTOMERS_1
WHERE SALARY > 6500;
```

Here first the subquery returns all the values with salary above Rs.6500. Here we found 2 records matching with that criteria.

```
mysql> SELECT AGE FROM CUSTOMERS_1 WHERE SALARY > 6500;
+------+
| AGE  |
+------+
|   27 |
|   24 |
+------+
2 rows in set (0.00 sec)
```

```
MySQL 8.0 Command Line Cli
mysql> use nit;
Database changed
mysql> select * from customers_1;
+----+----------+------+-----------+----------+
| ID | NAME     | AGE  | ADDRESS   | SALARY   |
+----+----------+------+-----------+----------+
|  1 | Ramesh   |   32 | Ahmedabad |  2000.00 |
|  2 | Khilan   |   25 | Delhi     |  1500.00 |
|  3 | kaushik  |   23 | Kota      |  2000.00 |
|  4 | Chaitali |   25 | Mumbai    |  6500.00 |
|  5 | Hardik   |   27 | Bhopal    |  8500.00 |
|  6 | Komal    |   22 | MP        |  4500.00 |
|  7 | Muffy    |   24 | Indore    | 10000.00 |
+----+----------+------+-----------+----------+
7 rows in set (0.00 sec)
```

Now lets perform the complete query using **ALL** operator:

```
SELECT *
FROM CUSTOMERS_1
WHERE AGE > ALL (
    SELECT AGE
    FROM CUSTOMERS_1
    WHERE SALARY > 6500);
```


```
SELECT *
FROM CUSTOMERS_1
WHERE AGE > ALL (
    27,24);
```

Complete query means that:

- Here by using ALL operator, the ALL operator will check if the AGE returned from the main query is > (greater than) **both** the ages (27,24) returned by the subquery, otherwise if greater than one age, the query wont get executed or doesn't gives desired output.(Note: In ALL operator the condition will be **true** only if the operation is true for **all** values in the range.)

More clarity:
You may question why the ages between 24 and 27 i.e, 25 age is not displayed as output,
Its because , the age 25 is > than age 24 but Age 25 !> 27 (so here both the conditions should satisfy – for this age 35 is > age 24 as well as age 35 > 27….so the desired output is age 32 record.

So, after executing the complete query we get the output as: only person with Age: 32 is greater than **both** the Ages (27, 24).

```
mysql> SELECT *
    -> FROM CUSTOMERS_1
    -> WHERE AGE > ALL (
    ->          SELECT AGE
    ->          FROM CUSTOMERS_1
    ->          WHERE SALARY > 6500);
+----+--------+------+-----------+---------+
| ID | NAME   | AGE  | ADDRESS   | SALARY  |
+----+--------+------+-----------+---------+
|  1 | Ramesh |   32 | Ahmedabad | 2000.00 |
+----+--------+------+-----------+---------+
1 row in set (0.00 sec)
```

2) ANY operator:

- returns a boolean value as a result
- returns TRUE if ANY of the subquery values meet the condition
  ANY means that the condition will be **true** if the operation is true for **any** of the values in the range.

So, by using ANY operator, simply if it satisfies any condition also we can get the desired output.

Eg: **Actual query:**

```
SQL> SELECT *
FROM CUSTOMERS_1
WHERE AGE > ANY (
      SELECT AGE
      FROM CUSTOMERS_1
      WHERE SALARY > 6500);
```

b) Lets retrieve the Subquery first:

```
SELECT AGE
FROM CUSTOMERS_1
WHERE SALARY > 6500;
```

Here first the subquery returns all the values with salary above Rs.6500. Here we found 2 records matching with that criteria.

```
mysql> SELECT AGE FROM CUSTOMERS_1 WHERE SALARY > 6500;
+------+
| AGE  |
+------+
|   27 |
|   24 |
+------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM CUSTOMERS_1 WHERE AGE;
+----+----------+------+-----------+----------+
| ID | NAME     | AGE  | ADDRESS   | SALARY   |
+----+----------+------+-----------+----------+
|  1 | Ramesh   |   32 | Ahmedabad |  2000.00 |
|  2 | Khilan   |   25 | Delhi     |  1500.00 |
|  3 | kaushik  |   23 | Kota      |  2000.00 |
|  4 | Chaitali |   25 | Mumbai    |  6500.00 |
|  5 | Hardik   |   27 | Bhopal    |  8500.00 |
|  6 | Komal    |   22 | MP        |  4500.00 |
|  7 | Muffy    |   24 | Indore    | 10000.00 |
+----+----------+------+-----------+----------+
7 rows in set (0.00 sec)
```

```
SELECT *
FROM CUSTOMERS_1
WHERE AGE > ANY (
      27,24);
```

Complete query means that:

- Here by using ANY operator, the ANY operator will check if the AGE returned from the main query is > (greater than) **any** age (27,24) returned by the subquery. It can either be greater than 27 or 24 age (i.e any age here in this scenario which is above 24 age, because equal to 24 is not considered as we used > operator.
(Note: In ALL operator the condition will be **true** only if the operation is true for **any** values in the range.)

More clarity:

You may question why the age 24 is not displayed instead 24 is one of the age in (27,24), so here condition is **> ANY,** so Age 24 **=** Age 24, but we need greater than 24 age, so criteria doesn't match with Age 24.

Output: Records displayed with Ages -> 25,27,32

```
mysql> SELECT *
    -> FROM CUSTOMERS_1
    -> WHERE AGE > ANY (
    ->           SELECT AGE
    ->           FROM CUSTOMERS_1
    ->           WHERE SALARY > 6500);
+----+----------+------+-----------+---------+
| ID | NAME     | AGE  | ADDRESS   | SALARY  |
+----+----------+------+-----------+---------+
|  1 | Ramesh   |   32 | Ahmedabad | 2000.00 |
|  2 | Khilan   |   25 | Delhi     | 1500.00 |
|  4 | Chaitali |   25 | Mumbai    | 6500.00 |
|  5 | Hardik   |   27 | Bhopal    | 8500.00 |
+----+----------+------+-----------+---------+
4 rows in set (0.00 sec)
```

THANK YOU