SQL Subqueries

By Rahul Barve

SQL Subqueries

- A query inside a query is called as an Inner Query or a sub query.
- Used to perform fine operations using aggregate functions.
- Used to fetch results from the child table based upon the values available in the parent table.

SQL Clauses

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SQL Clauses

- SQL Clauses are used to perform fine tuning on the results fetched from the database.

SQL Clauses

- GROUP BY
- ORDER BY
- HAVING
- DISTINCT
- EXISTS
- ANY
- ALL

GROUP BY

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GROUP BY

- The GROUP BY clause is used to tell SQL what level of granularity the aggregate function should be calculated in.
- The level of granularity is represented by the columns in the SELECT statement that are not aggregate functions.

GROUP BY

- E.g.

```
SELECT MAX(SAL) FROM EMP GROUP BY
DEPTNO;
```

GROUP BY

- E.g.

```
SELECT DNAME, MAX(SAL) FROM EMP,
DEPT WHERE DEPT_ID = DEPTNO GROUP
BY DEPTNO, DNAME;
```

HAVING

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HAVING

- The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.
- E.g.

```
select deptno from emp group by
deptno having count(*) > 3;
```

EXISTS

EXISTS

- A comparison operator, which is used to check and match records between two queries on correlation basis and returns a BOOLEAN output (TRUE or FALSE).

EXISTS

- E.g.
- Listing the departments in which at least one employee is working:

```
SELECT * FROM DEPARTMENT_MASTER
WHERE EXISTS
(SELECT * FROM EMPLOYEE_MASTER WHERE
DEPT_ID = D_ID);
```

ANY

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ANY

- Used to compare a value to any applicable value in the list according to the condition.
- Similar to `IN` but generally used in case of sub-queries.
- Must be used along with comparison operators.
- Similar to `OR` predicate.

ANY

- E.g
- Displaying list of products sold with quantity 1.

```
  SELECT PRODUCT_NAME FROM PRODUCTS
WHERE PROD_ID =
ANY (SELECT PRODUCT_ID FROM ORDERS
     WHERE QUANTITY = 1)
```

ALL

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ALL

- Used to compare a value to all values in another value set.
- Similar to `AND` predicate.

ALL

- E.g
- Listing customers who placed orders that are larger than the average of each customer order.

```
SELECT DISTINCT CUST_NAME FROM
 CUSTOMERS, ORDERS WHERE
 CUST_ID = C_ID AND TOTALAMOUNT >
 ALL
(SELECT AVG(TOTALAMOUNT) FROM ORDERS
 GROUP BY C_ID)
```