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TE IT(A)

**Assignment 4**

**Title** : Nested Queries

**Problem Statement** : Implement nested sub queries. Perform a test for set membership (in, not in), set comparison(<some, >=some, <all etc) and set cardinality (unique, not unique).

**Requirements** : MySql

**Prerequisites** :DDL and DML commands

**Theory** :

**Nested Query** :

A MySQL subquery is a query nested within another query such as SELECT , INSERT , UPDATE or DELETE . ... A MySQL subquery is called an inner query while the query that contains the subquery is called an outer query. A subquery can be used anywhere that expression is used and must be closed in parentheses.

**Set Membership Operators** :

We use the in and not in operations for **set membership.** IN, NOT IN operators in SQL are used with SELECT, UPDATE and DELETE statements/queries to select, update and delete only particular records in a table those meet the condition given in WHERE clause and conditions given in IN, NOT IN operators

1. Syntax for SQL **IN** operator : SELECT column\_name1, column\_name2, etc  
   FROM table\_name WHERE  column\_name1 IN (value1, value2, etc);
2. Syntax for SQL **NOT IN** operator : SELECT column\_name1, column\_name2, etc  
   FROM table\_name WHERE  column\_name1 NOT IN (value1, value2, etc);

**Set Comparison Operators** : Set comparison operators include SOME and ALL operator.

1. Some operator : SOME operator is used to compare a value with a single column set of values returned by the subquery. The SOME operator in SQL must match at least one value in a subquery and that value must be preceded by comparison operators.

Syntax : SELECT column\_name(s) FROM table\_name

WHERE expression comparison\_operator SOME (subquery)

Query : select name from instructor where Salary > some(select Salary

from instructor where dept='Computer Science');

1. All operator : ALL operator is used to select all tuples of SELECT STATEMENT. It is also used to compare a value to every value in another value set or result from a subquery.

* The ALL operator returns TRUE if all of the subqueries values meet the condition. The ALL must be preceded by comparison operators and evaluates true if all of the subqueries values meet the condition.
* ALL is used with SELECT, WHERE, HAVING statement.

Syntax : SELECT column\_name(s) FROM table\_name

WHERE column\_name comparison\_operator ALL

(SELECT column\_name FROM table\_name WHERE condition(s));

1. Any Operator : ANY compares a value to each value in a list or results from a query and evaluates to true if the result of an inner query contains at least one row. ANY must be preceded by [comparison operators](https://www.w3resource.com/sql/comparison-operators/sql-comparison-operators.php). Suppose using greater than ( >) with ANY means greater than at least one value.

Syntax : SELECT [column\_name... | expression1 ] FROM [table\_name]

WHERE expression2 comparison\_operator { ANY } ( subquery )

**Set Cardinality Operators** :

Unique Opeartor : Unique constraint in SQL is used to check whether the sub query has duplicate tuples in it’s result. It returns a boolean value indicating the presence/absence of duplicate tuples. Unique construct returns true only if the sub query has no duplicate tuples, else it return false.

Syntax : SELECT table.ID FROM table WHERE UNIQUE (SELECT table2.ID

FROM table2 WHERE table.ID = table2.ID);

**Conclusion** : Thus, we have implemented set set membership operators, set comparison operators, set cardinality operators.