



National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

**High Impact Skills Development Program
in Artificial Intelligence, Data Science, and Blockchain**

Lab 04 SQL Queries (Subqueries)

Instructor: Dr. Bilal Ali

Lab Engineer:



Lab 04: SQL Queries (Subqueries)

Introduction

The sub query in SQL is a query within query. A sub- query is composed of an outer query and an inner query.

Objectives

After completing this lab, you should be able to do the following:

- Understand and practice the single row sub queries
- Understand and practice the multiple row sub queries

Tools/Software Requirement

- MySQL Community Server
- MySQL Workbench

Helping Material

<https://www.w3resource.com/sql/subqueries/understanding-sql-subqueries.php>

Description:

For example, you want to see all the employees whose salary is above average salary. For this you have to first compute the average salary using AVG function and then compare employees' salaries with this computed salary. This is possible using subquery. Here the sub query will first compute the average salary and then main query will execute.

```
Select *  
from emp  
where sal >  
      (select avg(sal)  
       from emp);
```

Similarly we want to see the name and empno of that employee whose salary is maximum.

```
Select *  
from emp  
where sal = (select max(sal)  
            from emp);
```



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We want to see how many employees are there whose salary is above average.

```
Select count(*)  
from emp  
where sal >  
      (select max(sal)  
       from emp);
```

We want to see those employees who are working in 'DALLAS'. Remember emp and dept are joined on deptno and loc column is in the dept table. Assuming that wherever the department is located the employee is working in that city.

```
Select *  
from emp  
  
where deptno IN  
      (select deptno  
       from dept  
       where loc='DALLAS');
```

Lab Tasks

On the basis of the knowledge of the sub-queries, attempt the following questions using the Subqueries concept. The information needs can also be met through join operations; however you need to practice the subqueries. Try to implement subqueries concept as much as possible. You can use join operation in your queries if required.

Write SQL queries for the following information needs using subquery approach.

- a) Number of customers who never rented BREAKING HOME.
- b) List accumulative replacement cost of the movies that were never rented.
- c) Find customers who are associated to City Abu Dhabi or Aden.
- d) What category does the movie COMA HEAD belong to?
- e) Find the movies whose rental duration is less than the rental duration of movie 'AFRICAN EGG'.
- f) Find those films whose category id is greater than every category id of available films.