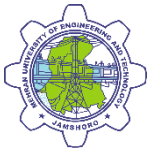

DEPARTMENT OF COMPUTER SYSTEMS ENGINEERING
MEHRAN UNIVERSITY OF ENGINEERING & TECHNOLOGY, JAMSHORO
Database Management Systems (4th Semester) 18CS
Lab Experiment 8

Roll No: **Date of Conduct:**

Submission Date: **Grade Obtained:**

Problem Recognition (0.3)	Completeness & accuracy (0.4)	Timeliness (0.3)	Score (1.0)

Objective: To study and practice SQL sub-queries.

Tools: MySQL, Oracle

Introduction:

Sub-Query: A subquery is a SQL query nested inside a larger query.

- A subquery may occur in :
  - - A SELECT clause
  - - A FROM clause
  - - A WHERE clause
- The subquery can be nested inside a SELECT, INSERT, UPDATE, or DELETE statement or inside another subquery.
- A subquery is usually added within the WHERE Clause of another SQL SELECT statement.
- You can use the comparison operators, such as >, <, or =. The comparison operator can also be a multiple-row operator, such as IN, ANY, or ALL.
- A subquery is also called an inner query or inner select, while the statement containing a subquery is also called an outer query or outer select.

The inner query executes first before its parent query so that the results of an inner query can be passed to the outer query.

You can use a subquery in a SELECT, INSERT, DELETE, or UPDATE statement to perform the following tasks:

- Compare an expression to the result of the query.
- Determine if an expression is included in the results of the query.
- Check whether the query selects any rows.

Syntax:

```
SELECT column_name [, column_name]
FROM   table1 [, table2 ]
WHERE  column_name OPERATOR
  (SELECT column_name [, column_name]
  FROM table1 [, table2]
  [WHERE])
```

- The subquery (inner query) executes once before the main query (outer query) executes.
- The main query (outer query) use the subquery result.

Lab Tasks

1. Display the employee name and hire date for all employees in the same department as BLAKE. Exclude Blake.

Task:

```
1    SELECT ename, hiredate
2    FROM emp
3    WHERE deptno = (SELECT deptno
4    FROM emp
5    WHERE ename = 'BLAKE')
6    AND ename != 'BLAKE'
```

1 Result | 2 Profiler | 3 Message

(Read Only)

ename	hiredate
MERKEL	1981-06-09
BUSH	1981-11-17

2. Display the employee name and salary for all employees who earn more than average salary.

Task:

```
1    SELECT ename, sal
2    FROM emp
3    WHERE sal > (SELECT AVG(sal)FROM emp)
4
```

1 Result | 2 Profiler | 3 Messages

(Read Only)

ename	sal
PUTIN	2975
MERKEL	2450
CARNEGIE	3000
BUSH	5000
TOOSK	3000
JACK	5000

3. Display the employee name, job and hire date for all employees who report to KING.

Task:

```
1     SELECT ENAME, JOB,HIREDATE
2     FROM emp
3   WHERE mgr = (SELECT id
4     FROM emp
5     WHERE ename = 'KING')
```

1 Result | 2 Profiler | 3 Messages | 4

(Read Only)

ENAME	JOB	HIREDATE
PUTIN	MANAGER	1981-04-02
MERKEL	MANAGER	1981-06-09

4. List the employee details whose salary is greater than the lowest salary of an employee belonging to deptno 20.

Task:

```
1   SELECT *FROM emp
2     WHERE (SAL > (SELECT MIN(SAL) FROM EMP WHERE DEPTNO = 20))AND DEPTNO=20
3     ORDER BY SAL
4     LIMIT 1;
```

1 Result | 2 Profiler | 3 Messages | 4 Table Data | 5 Info

(Read Only)

ID	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7876	SCOTT	CLERK	7788	1983-01-12	1100	*(NULL)*	20

5. Which department has the highest Monthly remuneration bill (Salaries of employees)?

Task:

```
Autocomplete: [Tab]->Next Tag. [Ctrl+Space]->List All Ta
1     SELECT deptno,SUM(sal)
2     FROM emp GROUP BY deptno
3   HAVING SUM(sal)>=ALL(SELECT SUM(sal)
4     FROM emp GROUP BY deptno);
```

1 Result | 2 Profiler | 3 Messages | 4 Tab

(Read Only)

deptno	sum(sal)
20	15875

6. Display the employees that earn a salary that is higher than the salary of all the clerks. Sort the result on salary from highest to lowest.

Task:

```
1     SELECT ename, job, sal
2   FROM emp WHERE sal > ALL (SELECT sal
3     FROM emp WHERE job = 'CLERK')
4     ORDER BY sal DESC
5
```

1 Result | 2 Profiler | 3 Messages | 4 Ta

(Read Only)

ename	job	sal
JACK	TEACHER	5000
BUSH	PRESIDENT	5000
TOOSK	ANALYST	3000
CARNEGIE	ANALYST	3000
PUTIN	MANAGER	2975
MERKEL	MANAGER	2450
BAROSSO	SALESMAN	1600
KING	SALESMAN	1500
CHIRACK	SALESMAN	1250
WALTON	SALESMAN	1250

7. Create a query to display the name, hire date and salary for all employees who have both the same salary and commission as employee SCOTT.

Task:

```
1     SELECT ename, hiredate, sal
2   FROM emp WHERE (sal, IFNULL(comm,0)) IN (SELECT sal, IFNULL(comm,0)
3     FROM emp WHERE ename = 'SCOTT')
4
```

1 Result | 2 Profiler | 3 Messages | 4 Table Data | 5 Info

(Read Only)

ename	hiredate	sal
KING	1981-09-08	1100
SCOTT	1983-01-12	1100

8. Display the names and salaries of those employees who earn highest salary in their department.

Task:

```
1   SELECT ename,  sal,  deptno
2   FROM emp WHERE sal IN
3     (SELECT MAX(sal) FROM emp GROUP BY deptno );
4
```

1 Result | 2 Profiler | 3 Messages | 4 Table Data

(Read Only)

ename	sal	deptno
WALTON	1250	30
CHIRACK	1250	30
BUSH	5000	10
JACK	5000	20