NEPAL COLLEGE OF INFORMATION TECHNOLOGY

BALKUMARI LALITPUR

(Affiliated To Pokhara University)

SUBJECT : Database Management System

LAB REPORT # 4

TITLE : Sub Queries & JOIN Queries

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To perform sub queries and join queries using DML.

LAB EXERCISE :
➔ Creating a Database named 'lab4'.

= create database lab4;

= use lab4;

OUTPUT :

```
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.001 sec)

MariaDB [(none)]> create database lab4;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> use lab4;
Database changed
```

➔ Creating Tables and Inserting data.

1) Customer Table :

= CREATE TABLE customer (cid INT, name VARCHAR(50), age INT, address
VARCHAR(50), salary DECIMAL(10, 2));

2) Order Table :

= CREATE TABLE `order` (oid INT, order_date DATETIME, cid INT, amount
DECIMAL(10, 2));

3) Employee Table :

= CREATE TABLE employee (eid INT, ename VARCHAR(50), job VARCHAR(50), did
INT, salary DECIMAL(10, 2));

4) Department Table :

=CREATE TABLE department (did INT, dname VARCHAR(50), location
VARCHAR(50));

OUTPUT :

```
MariaDB [lab4]> CREATE TABLE customer ( cid INT, name VARCHAR(50), age INT, address VARCHAR(50), salary DECIMAL(10, 2) );
Query OK, 0 rows affected (0.004 sec)

MariaDB [lab4]> CREATE TABLE `order` ( oid INT, order_date DATETIME, cid INT, amount DECIMAL(10, 2) );
Query OK, 0 rows affected (0.041 sec)

MariaDB [lab4]> CREATE TABLE employee ( eid INT, ename VARCHAR(50), job VARCHAR(50), did INT, salary DECIMAL(10, 2) );
Query OK, 0 rows affected (0.015 sec)

MariaDB [lab4]> CREATE TABLE department ( did INT, dname VARCHAR(50), location VARCHAR(50) );
Query OK, 0 rows affected (0.040 sec)
```

INSERTING DATA :

1) Customer Table :

= INSERT INTO customer VALUES (1, 'ram', 32, 'kathmandu', 2000.00), (2, 'shyam', 25, 'patan', 1500.00), (3, 'hari', 23, 'dharan', 2000.00), (4, 'gopal', 25, 'pokhara', 6500.00), (5, 'sita', 27, 'bhaktapur', 8500.00), (6, 'gita', 22, 'illam', 4500.00), (7, 'rita', 24, 'banepa', 10000.00);

2) Order Table :

= INSERT INTO order VALUES (102, '2015-10-08 00:00:00', 3, 3000), (100, '2014-10-08 00:00:00', 3, 1500), (101, '2014-11-20 00:00:00', 2, 1560), (103, '2013-05-20 00:00:00', 4, 2060);

3) Employee Table :

= INSERT INTO employee VALUES (1, 'arjun', 'AP', 1, 10000.00), (2, 'rabi', 'JP', 2, 12000.00), (3, 'rohan', 'AP', 2, 15000.00), (4, 'krishna', 'AP', 1, 20000.00);

4) Department Table :

= INSERT INTO department VALUES (1, 'accounting', 'kathmandu'), (2, 'sales', 'patan'), (3, 'research', 'banepa'), (4, 'operations', 'bhaktapur');

OUTPUT :

```
MariaDB [lab4]> INSERT INTO customer VALUES (1, 'ram', 32, 'kathmandu', 2000.00), (2, 'shyam', 25, 'patan', 1500.00), (3, 'hari', 23, 'dharan', 2000.00), (4, 'gopal', 25, 'pokhara', 6500.00),
 (5, 'sita', 27, 'bhaktapur', 8500.00), (6, 'gita', 22, 'illam', 4500.00), (7, 'rita', 24, 'banepa', 10000.00);
Query OK, 7 rows affected (0.012 sec)
Records: 7  Duplicates: 0  Warnings: 0

MariaDB [lab4]> INSERT INTO employee VALUES (1, 'arjun', 'AP', 1, 10000.00), (2, 'rabi', 'JP', 2, 12000.00), (3, 'rohan', 'AP', 2, 15000.00), (4, 'krishna', 'AP', 1, 20000.00);
Query OK, 4 rows affected (0.001 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [lab4]>
MariaDB [lab4]> INSERT INTO department VALUES (1, 'accounting', 'kathmandu'), (2, 'sales', 'patan'), (3, 'research', 'banepa'), (4, 'operations', 'bhaktapur');
Query OK, 4 rows affected (0.001 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [lab4]> INSERT INTO order VALUES (102, '2015-10-08 00:00:00', 3, 3000), (100, '2014-10-08 00:00:00', 3, 1500), (101, '2014-11-20 00:00:00', 2, 1560), (103, '2013-05-20 00:00:00', 4, 2
060);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the right syntax to use near 'order VALUES (102, '2015-10-08 00:
00:00', 3, 3000), (100, '2014-10-08 00:00:0...' at line 1
MariaDB [lab4]> INSERT INTO `order` VALUES (102, '2015-10-08 00:00:00', 3, 3000), (100, '2014-10-08 00:00:00', 3, 1500), (101, '2014-11-20 00:00:00', 2, 1560), (103, '2013-05-20 00:00:00', 4,
 2060);
Query OK, 4 rows affected (0.011 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

1) Display all employee names and salary whose salary is greater than minimum salary and job title starts with 'J'.

    = SELECT ename, salary FROM employee WHERE salary > (SELECT MIN(salary) FROM employee) AND job LIKE 'j%';

OUTPUT :

```
MariaDB [lab4]> SELECT ename, salary FROM employee WHERE salary > (SELECT MIN(salary) FROM employee) AND job LIKE 'j%';
+-------+----------+
| ename | salary   |
+-------+----------+
| rabi  | 12000.00 |
+-------+----------+
1 row in set (0.011 sec)
```

2) Find all employees who work in the same job as 'arjun'.

    = SELECT * FROM employee WHERE job = (SELECT job FROM employee WHERE ename = 'arjun');

OUTPUT :

```
MariaDB [lab4]> SELECT * FROM employee WHERE job = (SELECT job FROM employee WHERE ename = 'arjun');
+------+---------+------+------+----------+
| eid  | ename   | job  | did  | salary   |
+------+---------+------+------+----------+
|    1 | arjun   | AP   |    1 | 10000.00 |
|    3 | rohan   | AP   |    2 | 15000.00 |
|    4 | krishna | AP   |    1 | 20000.00 |
+------+---------+------+------+----------+
3 rows in set (0.001 sec)
```

3) Display information about employees who earn more than employee in dept 1.

    = SELECT * FROM employee WHERE salary > (SELECT MAX(salary) FROM employee WHERE did = 1);

OUTPUT :

```
MariaDB [lab4]> SELECT * FROM employee  WHERE salary > (SELECT MAX(salary) FROM employee WHERE did = 1);
Empty set (0.001 sec)
```

4) Implement JOIN queries.

✔ **INNER JOIN :**

    = SELECT customer.cid, customer.name FROM customer INNER JOIN `order` ON customer.cid = order.cid;

OUTPUT :

```
MariaDB [lab4]> SELECT customer.cid, customer.name, customer.salary FROM customer INNER JOIN `order` ON customer.cid = order.cid;
+------+-------+---------+
| cid  | name  | salary  |
+------+-------+---------+
|    2 | shyam | 1500.00 |
|    3 | hari  | 2000.00 |
|    3 | hari  | 2000.00 |
|    4 | gopal | 6500.00 |
+------+-------+---------+
4 rows in set (0.000 sec)
```

✔   **LEFT JOIN :**

= SELECT customer.cid, customer.name FROM customer LEFT JOIN `order` ON

customer.cid = order.cid;

OUTPUT :

```
MariaDB [lab4]> SELECT customer.cid, customer.name, customer.salary FROM customer LEFT JOIN `order` ON customer.cid = order.cid;
+------+-------+----------+
| cid  | name  | salary   |
+------+-------+----------+
|    3 | hari  |  2000.00 |
|    3 | hari  |  2000.00 |
|    2 | shyam |  1500.00 |
|    4 | gopal |  6500.00 |
|    1 | ram   |  2000.00 |
|    5 | sita  |  8500.00 |
|    6 | gita  |  4500.00 |
|    7 | rita  | 10000.00 |
+------+-------+----------+
8 rows in set (0.001 sec)
```

✔   **RIGHT JOIN :**

= SELECT customer.cid, customer.name FROM customer RIGHT JOIN `order` ON

customer.cid = order.cid;

OUTPUT :

```
MariaDB [lab4]> SELECT customer.cid, customer.name, customer.salary FROM customer RIGHT JOIN `order` ON customer.cid = order.cid
+------+-------+---------+
| cid  | name  | salary  |
+------+-------+---------+
|    2 | shyam | 1500.00 |
|    3 | hari  | 2000.00 |
|    3 | hari  | 2000.00 |
|    4 | gopal | 6500.00 |
+------+-------+---------+
4 rows in set (0.001 sec)
```

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