Module 10: MySQL Subquery

Subquery:

- Subquery is a
  - Subquery can return a single value or list of values.
  - We can use subquery to pass an aggregate value to the main query.
  - The syntax is:
    - **Select column_name_1 [, column_name_2]**
    - **From table**
    - **Where column_name Operator**
    - **(Select column_name_1 [,column_name_2]**
    - **FROM table [WHERE condition]);**

Subquery and Operators:

- When we use comparison operator the subquery must return a single value (in most cases an aggregate function).
- If the subquery returns a list of values then
  - IN Operator to test whether an expression is contained in a list of values returned by the subquery.
  - Comparison operator with ALL Keyword to check if the condition is true for all the values returned by the subquery.
  - Comparison operator with ANY/SOME Keyword to check if the condition is true for any of the values returned by the subquery.

CREATE TABLE with AS clause:

- We can use CREATE TABLE AS statement to create a new table based on the result set defined by a SELECT statement.
- The syntax is:
  - **CREATE**
- With CREATE TABLE AS only the column definitions and data are copied. Definitions of primary keys, foreign keys and indexes are not included in the new table.

CREATE TABLE with LIKE clause:

- We can use CREATE TABLE ... LIKE statement to create an empty table based on the definition of another table.
- The syntax is :
  - **CREATE**
- It will include any column attributes and indexes as defined in the original table.
- It won't preserve foreign key definitions.

Insert, Update and Delete using Subquery:

- Insert: To insert rows selected from one or more tables into another table we can code a subquery in place of values clause.
- Update: We can use a subquery in the WHERE clause of an UPDATE statement to provide one or more values used in the search condition.
- Delete: We can use a subquery in the WHERE clause of an DELETE statement to provide one or more values used in the search condition.

MCQs:

Consider two tables:

```
mysql> select * from customer;
+------+--------+
| cid  | cname  |
+------+--------+
|    1 | amit   |
|    2 | sumit  |
|    3 | rajesh |
+------+--------+
3 rows in set (0.04 sec)
```

```
mysql> select * from orders;
+------+---------------+------+------+----------+
| oid  | name          | cid  | qty  | price    |
+------+---------------+------+------+----------+
|  101 | java ref book |    1 |    2 |   200.00 |
|  102 | redmi phone   |    2 |    1 | 10499.00 |
|  103 | fan           |    1 |    1 |  5499.00 |
+------+---------------+------+------+----------+
```

Q1) What is the result of the following query?

select cname from customer where cid = (select cid from orders where name = 'fan');

Options:

A. sumit
B. amit
C. output order cannot be determined
D. error

Solution:

Q2) What is the result of the following query?

select cname from customer where cid IN (select cid from orders where name = 'fan' or like '%phone%');

Options:

A. amit and sumit
B. amit
C. sumit and amit.
D. error

Solution:

Q3) What is the result of the following query?

select cid, price from orders where price IN (select max(price) from orders);

Options:

A. error
B. sumit - 10499
C. 1 – 5499 and 2 – 10499
D. 2 - 10499

Solution: