SQL TASK

Date: 18-July-2022

Aim: Design at least 10 SQL queries for suitable database application using SQL DML statements: all types of Join, Sub-Query.
Problem Staternent

1. Create table Customers with schema (ID, name, age, address, salary)

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> create table customers (
    -> id int primary key,
    -> name varchar(255),
    -> age int,
    -> address varchar(255),
    -> salary float
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> desc customers;
+---------+--------------+------+-----+---------+-------+
| Field   | Type         | Null | Key | Default | Extra |
+---------+--------------+------+-----+---------+-------+
| id      | int          | NO   | PRI | NULL    |       |
| name    | varchar(255) | YES  |     | NULL    |       |
| age     | int          | YES  |     | NULL    |       |
| address | varchar(255) | YES  |     | NULL    |       |
| salary  | float        | YES  |     | NULL    |       |
+---------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql>
```

2. Create table Orders with Schema(O_ID, o_date, customer_id, amount)

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> create table orders (
    -> o_id int primary key,
    -> o_date date,
    -> customer_id int,
    -> amount float
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> desc orders;
+-------------+-------+------+-----+---------+-------+
| Field       | Type  | Null | Key | Default | Extra |
+-------------+-------+------+-----+---------+-------+
| o_id        | int   | NO   | PRI | NULL    |       |
| o_date      | date  | YES  |     | NULL    |       |
| customer_id | int   | YES  |     | NULL    |       |
| amount      | float | YES  |     | NULL    |       |
+-------------+-------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

3. Insert 5 records to each table keeping few customer ids common to both the tables

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> insert into customers (id,name,age,address,salary)
    -> values
    -> (001,'ashutosh',18,'bareilly',30000),
    -> (008,'mukesh',21,'pune',40000),
    -> (012,'devansh',22,'kanpur',50000),
    -> (003,'usman',30,'mumbai',50000),
    -> (009,'jaish',20,'katihar',15000);
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from customers;
+----+----------+------+----------+--------+
| id | name     | age  | address  | salary |
+----+----------+------+----------+--------+
|  1 | ashutosh |   18 | bareilly |  30000 |
|  3 | usman    |   30 | mumbai   |  50000 |
|  8 | mukesh   |   21 | pune     |  40000 |
|  9 | jaish    |   20 | katihar  |  15000 |
| 12 | devansh  |   22 | kanpur   |  50000 |
+----+----------+------+----------+--------+
5 rows in set (0.00 sec)

mysql>
```

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> insert into orders (o_id,o_date,customer_id,amount)
    -> values
    -> (101,'2022-03-21',8,12000),
    -> (105,'2022-04-11',12,15000),
    -> (110,'2022-06-01',3,20000),
    -> (103,'2022-06-05',1,10000)
    -> ;
Query OK, 4 rows affected (0.03 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select * from orders;
+------+------------+-------------+--------+
| o_id | o_date     | customer_id | amount |
+------+------------+-------------+--------+
|  101 | 2022-03-21 |           8 |  12000 |
|  103 | 2022-06-05 |           1 |  10000 |
|  105 | 2022-04-11 |          12 |  15000 |
|  110 | 2022-06-01 |           3 |  20000 |
+------+------------+-------------+--------+
4 rows in set (0.00 sec)

mysql>
```

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> alter table orders
    -> add foreign key (customer_id) references customers(id)
    -> ;
Query OK, 4 rows affected (0.08 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> desc orders;
+-------------+-------+------+-----+---------+-------+
| Field       | Type  | Null | Key | Default | Extra |
+-------------+-------+------+-----+---------+-------+
| o_id        | int   | NO   | PRI | NULL    |       |
| o_date      | date  | YES  |     | NULL    |       |
| customer_id | int   | YES  | MUL | NULL    |       |
| amount      | float | YES  |     | NULL    |       |
+-------------+-------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
```

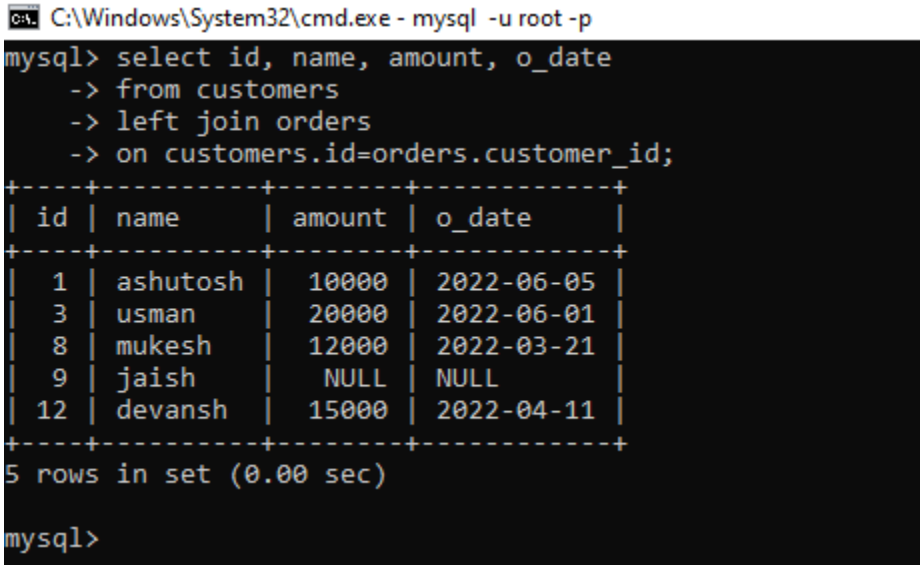
4. Perform the inner join on customers and orders table to enlist the id, name, amount and o_date

C:\Windows\System32\cmd.exe - mysql -u root -p

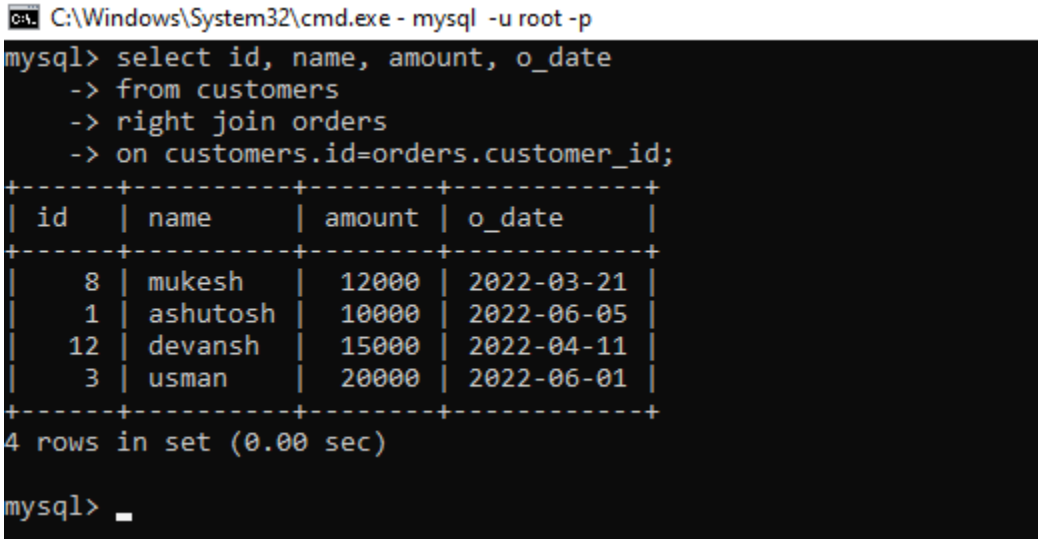
```
mysql> select id, name, amount, o_date
    -> from customers
    -> inner join orders
    -> on customers.id=orders.customer_id;
+----+----------+--------+------------+
| id | name     | amount | o_date     |
+----+----------+--------+------------+
|  8 | mukesh   |  12000 | 2022-03-21 |
|  1 | ashutosh |  10000 | 2022-06-05 |
| 12 | devansh  |  15000 | 2022-04-11 |
|  3 | usman    |  20000 | 2022-06-01 |
+----+----------+--------+------------+
4 rows in set (0.00 sec)

mysql>
```

5. Perform the left outer join on customers and orders table to enlist the id, name, amount and o date



6. Perform the right outer join on customers and orders table to enlist the id, name, amount and o_date



7. Perform the full outer join on customers and orders table to enlist the id, name, amount and o date by using 'union all set operation

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> select id, name, amount, o_date
    -> from customers
    -> left join orders
    -> on customers.id=orders.customer_id
    -> union all
    -> select id, name, amount, o_date
    -> from customers
    -> right join orders
    -> on customers.id=orders.customer_id;
+------+----------+--------+------------+
| id   | name     | amount | o_date     |
+------+----------+--------+------------+
|    1 | ashutosh |  10000 | 2022-06-05 |
|    3 | usman    |  20000 | 2022-06-01 |
|    8 | mukesh   |  12000 | 2022-03-21 |
|    9 | jaish    |   NULL | NULL       |
|   12 | devansh  |  15000 | 2022-04-11 |
|    8 | mukesh   |  12000 | 2022-03-21 |
|    1 | ashutosh |  10000 | 2022-06-05 |
|   12 | devansh  |  15000 | 2022-04-11 |
|    3 | usman    |  20000 | 2022-06-01 |
+------+----------+--------+------------+
9 rows in set (0.00 sec)

mysql>
```

8. Perform the self join on customers table to enlist the pair of customers belonging to same address

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> select c1.name, c2.name
    -> from customers c1, customers c2
    -> where c1.address=c2.address;
+----------+----------+
| name     | name     |
+----------+----------+
| mukesh   | ashutosh |
| ashutosh | ashutosh |
| usman    | usman    |
| mukesh   | mukesh   |
| ashutosh | mukesh   |
| jaish    | jaish    |
| devansh  | devansh  |
+----------+----------+
7 rows in set (0.00 sec)

mysql>
```

9. Perform the Cross/ Cartesian join on customers and orders table to enlist the id, name, amount and o_date

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> select id, name, amount, o_date
    -> from customers
    -> cross join orders;
+----+----------+--------+------------+
| id | name     | amount | o_date     |
+----+----------+--------+------------+
|  1 | ashutosh |  20000 | 2022-06-01 |
|  1 | ashutosh |  15000 | 2022-04-11 |
|  1 | ashutosh |  10000 | 2022-06-05 |
|  1 | ashutosh |  12000 | 2022-03-21 |
|  3 | usman    |  20000 | 2022-06-01 |
|  3 | usman    |  15000 | 2022-04-11 |
|  3 | usman    |  10000 | 2022-06-05 |
|  3 | usman    |  12000 | 2022-03-21 |
|  8 | mukesh   |  20000 | 2022-06-01 |
|  8 | mukesh   |  15000 | 2022-04-11 |
|  8 | mukesh   |  10000 | 2022-06-05 |
|  8 | mukesh   |  12000 | 2022-03-21 |
|  9 | jaish    |  20000 | 2022-06-01 |
|  9 | jaish    |  15000 | 2022-04-11 |
|  9 | jaish    |  10000 | 2022-06-05 |
|  9 | jaish    |  12000 | 2022-03-21 |
| 12 | devansh  |  20000 | 2022-06-01 |
| 12 | devansh  |  15000 | 2022-04-11 |
| 12 | devansh  |  10000 | 2022-06-05 |
| 12 | devansh  |  12000 | 2022-03-21 |
+----+----------+--------+------------+
20 rows in set (0.00 sec)

mysql>
```

10. Design the sub query with select statement for displaying all the details of the customers having salary greater than 20000

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> select * from customers where salary > 20000;
+----+----------+------+----------+--------+
| id | name     | age  | address  | salary |
+----+----------+------+----------+--------+
|  1 | ashutosh |   18 | bareilly |  30000 |
|  3 | usman    |   30 | mumbai   |  50000 |
|  8 | mukesh   |   21 | bareilly |  40000 |
| 12 | devansh  |   22 | kanpur   |  50000 |
+----+----------+------+----------+--------+
4 rows in set (0.01 sec)

mysql>
```

11. Create a backup table- cust_bkp' of the table customers by using insert statement with the subquery

Select C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> select * from cust_bkp;
+----+----------+------+----------+--------+
| id | name     | age  | address  | salary |
+----+----------+------+----------+--------+
|  1 | ashutosh |   18 | bareilly |  30000 |
|  3 | usman    |   30 | mumbai   |  50000 |
|  8 | mukesh   |   21 | bareilly |  40000 |
|  9 | jaish    |   20 | katihar  |  15000 |
| 12 | devansh  |   22 | kanpur   |  50000 |
+----+----------+------+----------+--------+
5 rows in set (0.00 sec)

mysql>
```

12 Update the salaries by 10% of all the customers(in customers table) having age greater than or equals to 24 by using subquery with update clause(by using backup table cust_bkp)

C:\Windows\System32\cmd.exe - mysql -u root -p

```
mysql> update cust_bkp set salary=salary+(salary/10) where age>=24;
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from cust_bkp;
+----+----------+------+----------+--------+
| id | name     | age  | address  | salary |
+----+----------+------+----------+--------+
|  1 | ashutosh |   18 | bareilly |  30000 |
|  3 | usman    |   30 | mumbai   |  55000 |
|  8 | mukesh   |   21 | bareilly |  40000 |
|  9 | jaish    |   20 | katihar  |  15000 |
| 12 | devansh  |   22 | kanpur   |  50000 |
+----+----------+------+----------+--------+
5 rows in set (0.00 sec)

mysql>
```

13. Delete all the customers having age greater than 26 by using delete clause with the subquery