LAB Assignment-5

1. Create the following tables:
   (Giving names to all the constraints are mandatory)

a) Table Name: Client_Master

Column Name	Data Type	Size	Constraints
Client_no	Varchar2	5	**Primary Key**, Should start with **C**
Name	Varchar2	20	Not Null, **Unique Key**
Address1	Varchar2	30	
State	Varchar2	30	
City	Varchar2	15	Should be within **Delhi, Mumbai and Chennai**

Data for **Client_Master table:**

Client_no	Name	Address1	State	City
C01	Ivaan	Church Rd	Maharashtra	Mumbai
C02	Vandana	St.Mary Rd	Tamil Nadu	Chennai
C03	Pramada	Mall Rd	Maharashtra	Mumbai
C04	Basu	Church Rd	Maharashtra	Mumbai
C05	Ravi	Chandni	null	Delhi
C06	Rukmini	Mall Rd	Maharashtra	Mumbai

b) Table Name: Sales_Order

Column Name	Data Type	Size	Constraints
S_order_no	Varchar2	10	Primary Key, Should start with **O**
S_order_date	Date		
Client_no	Varchar2	5	**Foreign Key** references client_no of Client_Master table
Salesman_no	Varchar2	10	Should start with **S**
Product_no	Varchar2	10	**Foreign Key** references Product_no of Product_Master table

Data for **Sales_Order table:**

S_order_no	S_order_date	Client_no	Salesman_no	Product_no
O19001	12-jan-96	C01	S01	P01
O19002	25- jan-96	C02	S02	P02
O19003	18-feb-96	C03	S03	P03
O19004	03-apr-96	C01	S01	P04
O19005	20-may-96	C04	S02	P05
O19006	24-may-96	C05	S04	P06

c) Table Name: Products_Master

Column Name	Data Type	Size	Constraints
Product_no	Varchar2	10	**Primary key**, should start with **P**
Description	Varchar2	20	Not Null, **Unique Key**

Qty_on_hand	Number	8	Should be greater than **10**.
Sell_price	Number	8,2	Not Null
Cost_price	Number	8,2	Not Null

Data for **table Products_Master:-**

Product_no	**Description**	**Qty_on_hand**	**Sell_price**	**Cost_price**
P01	1.44 Floppies	100	525	500
P02	Monitors	25	12000	11280
P03	Mouse	20	1050	1000
P04	1.22 floppies	100	525	500
P05	Keyboards	15	3150	3050
P06	Cd drive	14	5250	5100

QUERY: CREATE TABLE Client_Master (Client_no VARCHAR(5) PRIMARY KEY CHECK(Client_no LIKE 'C%'), Name VARCHAR(20) UNIQUE NOT NULL, Address1 VARCHAR(30), State VARCHAR(30), City VARCHAR(15) CHECK(City IN ('Delhi','Mumbai','Chennai')));

```
mysql> CREATE TABLE Client_Master (Client_no VARCHAR(5) PRIMARY KEY CHECK(Client_no LIKE 'C%'), Name VARCHAR(20) UNIQUE NOT NULL, Address1 VARCHAR(30), Stat
e VARCHAR(30), City VARCHAR(15) CHECK(City IN ('Delhi','Mumbai','Chennai')));
Query OK, 0 rows affected (1.187 sec)
```

CREATE TABLE Products_Master (Product_no VARCHAR(10) PRIMARY KEY, Description VARCHAR(20) UNIQUE NOT NULL, Qty_on_hand INT CHECK (Qty_on_hand > 10), Sell_price DECIMAL(8,2) NOT NULL, Cost_price DECIMAL(8,2) NOT NULL, CHECK (Product_no LIKE 'P%'));

```
mysql> CREATE TABLE Products_Master (Product_no VARCHAR(10) PRIMARY KEY, Description VARCHAR(20) UNIQUE NOT NULL, Qty_on_hand INT CHECK (Qty_on_hand > 10),
Sell_price DECIMAL(8,2) NOT NULL, Cost_price DECIMAL(8,2) NOT NULL, CHECK (Product_no LIKE 'P%'));
Query OK, 0 rows affected (0.687 sec)
```

CREATE TABLE Sales_Order (S_order_no VARCHAR(10) PRIMARY KEY CHECK (S_order_no LIKE 'O%'), S_order_date DATE, Client_no VARCHAR(5), Salesman_no VARCHAR(10) CHECK (Salesman_no LIKE 'S%'), Product_no VARCHAR(10), FOREIGN KEY (Client_no) REFERENCES Client_Master(Client_no), FOREIGN KEY (Product_no) REFERENCES Products_Master(Product_no));

```
mysql> CREATE TABLE Sales_Order (S_order_no VARCHAR(10) PRIMARY KEY CHECK (S_order_no LIKE 'O%'), S_order_date DATE, Client_no VARCHAR(5), Salesman_no VARCH
AR(10) CHECK (Salesman_no LIKE 'S%'), Product_no VARCHAR(10), FOREIGN KEY (Client_no) REFERENCES Client_Master(Client_no), FOREIGN KEY (Product_no) REFERENC
ES Products_Master(Product_no));
Query OK, 0 rows affected (0.627 sec)
```

2. Add a Not Null constraint on the address1 field of Client_Master table and display the structure of the table.
QUERY:

ALTER TABLE Client_Master MODIFY Address1 VARCHAR(30) NOT NULL;

DESC Client_Master;

```
mysql> ALTER TABLE Client_Master MODIFY Address1 VARCHAR(30) NOT NULL;
Query OK, 0 rows affected (1.585 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESC Client_Master;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Client_no | varchar(5)  | NO   | PRI | NULL    |       |
| Name      | varchar(20) | NO   | UNI | NULL    |       |
| Address1  | varchar(30) | NO   |     | NULL    |       |
| State     | varchar(30) | YES  |     | NULL    |       |
| City      | varchar(15) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.416 sec)
```

3. Calculate the profit (Sell_price-Cost_price) from the Products_Master table. Name the column as 'Profit'.
QUERY: SELECT Product_no, Description, Sell_price - Cost_price AS Profit FROM Products_Master;

```
mysql> SELECT Product_no, Description, Sell_price - Cost_price AS Profit
    -> FROM Products_Master;
+------------+--------------+--------+
| Product_no | Description  | Profit |
+------------+--------------+--------+
| P01        | 1.44 Floppies |  25.00 |
| P02        | Monitors     | 720.00 |
| P03        | Mouse        |  50.00 |
| P04        | 1.22 floppies |  25.00 |
| P05        | Keyboards    | 100.00 |
| P06        | Cd drive     | 150.00 |
+------------+--------------+--------+
6 rows in set (0.037 sec)
```

4. Calculate and display the total cost price (Qty_on_hand * Cost_price) of the stock present in hand. Name the column accordingly.
QUERY: SELECT Product_no, Description, Qty_on_hand * Cost_price AS Total_Cost
FROM Products_Master;

```
mysql> SELECT Product_no, Description, Qty_on_hand * Cost_price AS Total_Cost
    -> FROM Products_Master;
+------------+--------------+------------+
| Product_no | Description  | Total_Cost |
+------------+--------------+------------+
| P01        | 1.44 Floppies |   50000.00 |
| P02        | Monitors      |  282000.00 |
| P03        | Mouse         |   20000.00 |
| P04        | 1.22 floppies |   50000.00 |
| P05        | Keyboards     |   45750.00 |
| P06        | Cd drive      |   71400.00 |
+------------+--------------+------------+
6 rows in set (0.017 sec)
```

5. Display the client details of all the clients whose name starts with ***I***.
QUERY: SELECT *
FROM Client_Master
WHERE Name LIKE 'I%';

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE Name LIKE 'I%';
+-----------+-------+-----------+-------------+--------+
| Client_no | Name  | Address1  | State       | City   |
+-----------+-------+-----------+-------------+--------+
| C01       | Ivaan | Church Rd | Maharashtra | Mumbai |
+-----------+-------+-----------+-------------+--------+
1 row in set (0.031 sec)
```

6. Display the client details of all the clients whose name start with **R** and ends with ***i***.
QUERY: SELECT *
FROM Client_Master
WHERE name LIKE 'R%i';

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE name LIKE 'R%i';
+-----------+---------+----------+-------------+--------+
| Client_no | Name    | Address1 | State       | City   |
+-----------+---------+----------+-------------+--------+
| C05       | Ravi    | Chandni  | NULL        | Delhi  |
| C06       | Rukmini | Mall Rd  | Maharashtra | Mumbai |
+-----------+---------+----------+-------------+--------+
2 rows in set (0.011 sec)
```

7. Display the client details of all the clients whose name contains ***a*** in the third and fifth position.

QUERY: SELECT *
FROM Client_Master
WHERE name LIKE '__a_a%';

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE name LIKE '__a_a%';
+-----------+---------+----------+-------------+--------+
| Client_no | Name    | Address1 | State       | City   |
+-----------+---------+----------+-------------+--------+
| C03       | Pramada | Mall Rd  | Maharashtra | Mumbai |
+-----------+---------+----------+-------------+--------+
1 row in set (0.011 sec)
```

8. Display the client details of all the clients whose name contains ***aa***.
QUERY: SELECT *
FROM Client_Master
WHERE name LIKE '%aa%';

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE name LIKE '__a_a%';
+-----------+---------+----------+-------------+--------+
| Client_no | Name    | Address1 | State       | City   |
+-----------+---------+----------+-------------+--------+
| C03       | Pramada | Mall Rd  | Maharashtra | Mumbai |
+-----------+---------+----------+-------------+--------+
1 row in set (0.011 sec)
```

9. Display the client details of all the clients whose name contains exactly four characters.
QUERY: SELECT *
FROM Client_Master
WHERE LENGTH(name) = 4;

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE LENGTH(name) = 4;
+-----------+------+-----------+-------------+--------+
| Client_no | Name | Address1  | State       | City   |
+-----------+------+-----------+-------------+--------+
| C04       | Basu | Church Rd | Maharashtra | Mumbai |
| C05       | Ravi | Chandni   | NULL        | Delhi  |
+-----------+------+-----------+-------------+--------+
2 rows in set (0.011 sec)
```

10. Display the client details of those clients who have not mentioned state in his/her address.

QUERY: SELECT *
FROM Client_Master
WHERE State IS NULL OR State = '';

```
mysql> SELECT *
    -> FROM Client_Master
    -> WHERE State IS NULL OR State = '';
+-----------+------+----------+-------+-------+
| Client_no | Name | Address1 | State | City  |
+-----------+------+----------+-------+-------+
| C05       | Ravi | Chandni  | NULL  | Delhi |
+-----------+------+----------+-------+-------+
1 row in set (0.086 sec)
```

11. Display the order details placed after January, 1996.

QUERY: SELECT *
FROM Sales_Order
WHERE s_order_date > '1996-01-01';

```
mysql> SELECT *
    -> FROM Sales_Order
    -> WHERE s_order_date > '1996-01-01';
+------------+--------------+-----------+-------------+------------+
| S_order_no | S_order_date | Client_no | Salesman_no | Product_no |
+------------+--------------+-----------+-------------+------------+
| O19001     | 1996-01-12   | C01       | S01         | P01        |
| O19002     | 1996-01-25   | C02       | S02         | P02        |
| O19003     | 1996-02-18   | C03       | S03         | P03        |
| O19004     | 1996-04-03   | C01       | S01         | P04        |
| O19005     | 1996-05-20   | C04       | S02         | P05        |
| O19006     | 1996-05-24   | C05       | S04         | P06        |
+------------+--------------+-----------+-------------+------------+
6 rows in set (0.099 sec)
```

12. Change the s_order_date of client_no ‘C01’ to 24/07/96, Product_no to ‘P06’, Salesman_no to ‘S04’.

QUERY: UPDATE Sales_Order
SET s_order_date ='1996-07-24',
  Product_no = 'P06',
  Salesman_no = 'S04'
WHERE Client_no = 'C01';

```
mysql> UPDATE Sales_Order
    -> SET s_order_date ='1996-07-24',
    ->     Product_no = 'P06',
    ->     Salesman_no = 'S04'
    -> WHERE Client_no = 'C01';
Query OK, 2 rows affected (0.121 sec)
Rows matched: 2  Changed: 2  Warnings: 0
```

13. Change the city of client_no ‘C05’ to ‘Kolkata’.
QUERY: DELETE FROM Client_Master
WHERE Client_no = 'C02';

```
mysql> DELETE FROM Client_Master
   -> WHERE Client_no = 'C02';
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`adamas`.`sales_order`, CONSTRAINT `sales_order_ibfk_1` FOREIGN KE
Y (`Client_no`) REFERENCES `client_master` (`Client_no`))
```

14. Change the field size of Client_no to 15 in all the tables where the field Client_no is present.
QUERY: ALTER TABLE Client_Master
MODIFY Client_no VARCHAR(15);

```
mysql> ALTER TABLE Client_Master
    -> MODIFY Client_no VARCHAR(15);
Query OK, 0 rows affected (0.133 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

ALTER TABLE Sales_Order
MODIFY Client_no VARCHAR(15);

```
mysql> ALTER TABLE Sales_Order
    -> MODIFY Client_no VARCHAR(15);
Query OK, 0 rows affected (0.131 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

15. Remove the record for Client_no C02 from Client_Master table.
QUERY: DELETE FROM Client_Master
WHERE Client_no = 'C02';

```
mysql> DELETE FROM Client_Master
   -> WHERE Client_no = 'C02';
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`adamas`.`sales_order`, CONSTRAINT `sales_order_ibfk_1` FOREIGN KE
Y (`Client_no`) REFERENCES `client_master` (`Client_no`))
```

16. Remove those records from Product_Master table for which sell price is between 1000 and 10,000.
QUERY: DELETE FROM Products_Master

WHERE Sell_price BETWEEN 1000 AND 10000;

```
mysql> DELETE FROM Products_Master
    -> WHERE Sell_price BETWEEN 1000 AND 10000;
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`adamas`.`sales_order`, CONSTRAINT `sales_order_ibfk_2` FOREIGN KE
Y (`Product_no`) REFERENCES `products_master` (`Product_no`))
```

17. Create a table of your own with a composite primary key.

QUERY: CREATE TABLE Enrollment (
Student_id VARCHAR(10),
Course_id VARCHAR(10),
Enrollment_date DATE,
PRIMARY KEY (Student_id, Course_id)
);

```
mysql> CREATE TABLE Enrollment (
    ->     Student_id VARCHAR(10),
    ->     Course_id VARCHAR(10),
    ->     Enrollment_date DATE,
    ->     PRIMARY KEY (Student_id, Course_id)
    -> );
Query OK, 0 rows affected (0.122 sec)
```

18. Create another table of your own wish, where the composite primary key of problem 24 will act as a foreign key here.

QUERY: CREATE TABLE Grades (
Student_id VARCHAR(10),
Course_id VARCHAR(10),
Grade VARCHAR(2),
FOREIGN KEY (Student_id, Course_id) REFERENCES Enrollment(Student_id, Course_id)
);

```
mysql> CREATE TABLE Grades (
    ->     Student_id VARCHAR(10),
    ->     Course_id VARCHAR(10),
    ->     Grade VARCHAR(2),
    ->     FOREIGN KEY (Student_id, Course_id) REFERENCES Enrollment(Student_id, Course_id)
    -> );
Query OK, 0 rows affected (0.259 sec)
```