Electronic gadgets

Task:1. Database Design:

1.Create the database named "TechShop"

```
mysql> CREATE DATABASE TechShop;
Query OK, 1 row affected (0.02 sec).
```

2.Define the schema for the Customers, Products, Orders, OrderDetails and Inventory tables based on the provided schema.

4. Create appropriate Primary Key and Foreign Key constraints for referential integrity.

```
mysql> USE TechShop;
Database changed
mysql> CREATE TABLE Customers (
    ->     CustomerID INT PRIMARY KEY AUTO_INCREMENT,
    ->     FirstName VARCHAR(50) NOT NULL,
    ->     LastName VARCHAR(50) NOT NULL,
    ->     Email VARCHAR(100) UNIQUE NOT NULL,
    ->     Phone VARCHAR(15) NOT NULL,
    ->     Address TEXT NOT NULL
    -> );
Query OK, 0 rows affected (0.06 sec).
```

```
mysql> desc customers;
+------------+--------------+------+-----+---------+----------------+
| Field      | Type         | Null | Key | Default | Extra          |
+------------+--------------+------+-----+---------+----------------+
| CustomerID | int          | NO   | PRI | NULL    | auto_increment |
| FirstName  | varchar(50)  | NO   |     | NULL    |                |
| LastName   | varchar(50)  | NO   |     | NULL    |                |
| Email      | varchar(100) | NO   | UNI | NULL    |                |
| Phone      | varchar(15)  | NO   |     | NULL    |                |
| Address    | text         | NO   |     | NULL    |                |
+------------+--------------+------+-----+---------+----------------+
6 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE Products (
    ->     ProductID INT PRIMARY KEY AUTO_INCREMENT,
    ->     ProductName VARCHAR(100) NOT NULL,
    ->     Description TEXT,
    ->     Price DECIMAL(10,2) NOT NULL CHECK (Price >= 0)
    -> );
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> desc products;
+-------------+---------------+------+-----+---------+----------------+
| Field       | Type          | Null | Key | Default | Extra          |
+-------------+---------------+------+-----+---------+----------------+
| ProductID   | int           | NO   | PRI | NULL    | auto_increment |
| ProductName | varchar(100)  | NO   |     | NULL    |                |
| Description | text          | YES  |     | NULL    |                |
| Price       | decimal(10,2) | NO   |     | NULL    |                |
+-------------+---------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE Orders (
    ->     OrderID INT PRIMARY KEY AUTO_INCREMENT,
    ->     CustomerID INT NOT NULL,
    ->     OrderDate DATE NOT NULL,
    ->     TotalAmount DECIMAL(10,2) NOT NULL CHECK (TotalAmount >= 0),
    ->     FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID) ON DELETE
          CASCADE  -> );Query OK, 0 rows affected (0.04 sec)
```

```
mysql> desc orders;
+-------------+---------------+------+-----+---------+----------------+
| Field       | Type          | Null | Key | Default | Extra          |
+-------------+---------------+------+-----+---------+----------------+
| OrderID     | int           | NO   | PRI | NULL    | auto_increment |
| CustomerID  | int           | NO   | MUL | NULL    |                |
| OrderDate   | date          | NO   |     | NULL    |                |
| TotalAmount | decimal(10,2) | NO   |     | NULL    |                |
+-------------+---------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)

mysql> CREATE TABLE OrderDetails (
    ->      OrderDetailID INT PRIMARY KEY AUTO_INCREMENT,
    ->      OrderID INT NOT NULL,
    ->      ProductID INT NOT NULL,
    ->      Quantity INT NOT NULL CHECK (Quantity > 0),
    ->      FOREIGN KEY (OrderID) REFERENCES Orders(OrderID) ON DELETE CASCADE,
    ->      FOREIGN KEY (ProductID) REFERENCES Products(ProductID) ON DELETE
CASCADE
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> desc orderdetails;
+---------------+------+------+-----+---------+----------------+
| Field         | Type | Null | Key | Default | Extra          |
+---------------+------+------+-----+---------+----------------+
| OrderDetailID | int  | NO   | PRI | NULL    | auto_increment |
| OrderID       | int  | NO   | MUL | NULL    |                |
| ProductID     | int  | NO   | MUL | NULL    |                |
| Quantity      | int  | NO   |     | NULL    |                |
+---------------+------+------+-----+---------+----------------+
4 rows in set (0.01 sec)

mysql> CREATE TABLE Inventory (
    ->      InventoryID INT PRIMARY KEY AUTO_INCREMENT,
    ->      ProductID INT NOT NULL,
    ->      QuantityInStock INT NOT NULL CHECK (QuantityInStock >= 0),
    ->      LastStockUpdate DATE NOT NULL,
    ->      FOREIGN KEY (ProductID) REFERENCES Products(ProductID) ON DELETE
         CASCADE);
Query OK, 0 rows affected (0.06 sec)

mysql> desc inventory;
+-----------------+------+------+-----+---------+----------------+
| Field           | Type | Null | Key | Default | Extra          |
+-----------------+------+------+-----+---------+----------------+
| InventoryID     | int  | NO   | PRI | NULL    | auto_increment |
| ProductID       | int  | NO   | MUL | NULL    |                |
| QuantityInStock | int  | NO   |     | NULL    |                |
| LastStockUpdate | date | NO   |     | NULL    |                |
+-----------------+------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```
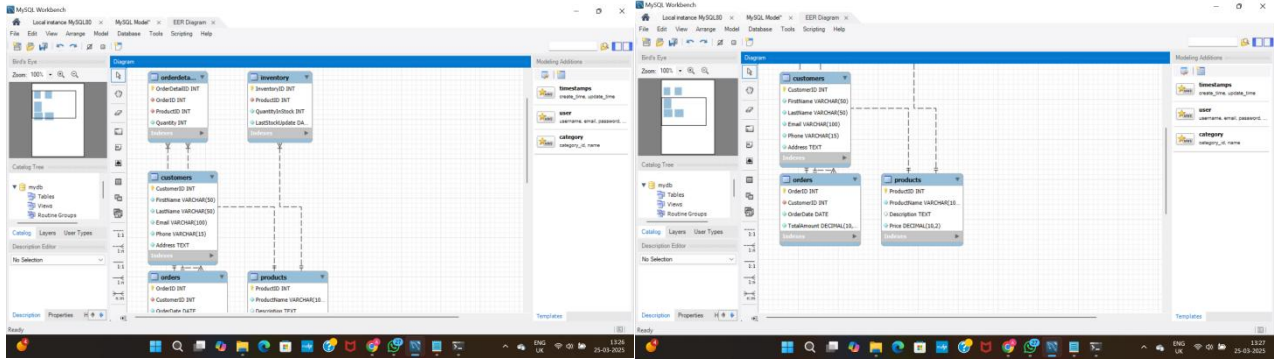
3.Create an ERD (Entity Relationship Diagram) for the database.

5. Insert at least 10 sample records into each of the following tables.
a. Customers
b. Products
c. Orders
d. OrderDetails
e. Inventory

```
mysql> INSERT INTO Customers (FirstName, LastName, Email, Phone, Address) VALUES
    -> ('John', 'Doe', 'john.doe@example.com', '1234567890', '123 Main St'),
    -> ('Alice', 'Smith', 'alice.smith@example.com', '9876543210', '456 Oak St'),
    -> ('Bob', 'Johnson', 'bob.j@example.com', '5556667777', '789 Pine St'),
    -> ('Clara', 'Brown', 'clara.b@example.com', '4445556666', '147 Birch St'),
    -> ('David', 'White', 'david.w@example.com', '3332221111', '369 Cedar St'),
    -> ('Emma', 'Clark', 'emma.c@example.com', '1112223333', '258 Spruce St'),
    -> ('Frank', 'Adams', 'frank.a@example.com', '6667778888', '753 Maple St'),
    -> ('Grace', 'Baker', 'grace.b@example.com', '9998887777', '951 Elm St'),
    -> ('Henry', 'Miller', 'henry.m@example.com', '7778889999', '852 Walnut St'),
    -> ('Ivy', 'Williams', 'ivy.w@example.com', '1239874560', '654 Willow St');
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from customers;
+------------+-----------+----------+-------------------------+------------+---------------+
| CustomerID | FirstName | LastName | Email                   | Phone      | Address       |
+------------+-----------+----------+-------------------------+------------+---------------+
|          1 | John      | Doe      | john.doe@example.com    | 1234567890 | 123 Main St   |
|          2 | Alice     | Smith    | alice.smith@example.com | 9876543210 | 456 Oak St    |
|          3 | Bob       | Johnson  | bob.j@example.com       | 5556667777 | 789 Pine St   |
|          4 | Clara     | Brown    | clara.b@example.com     | 4445556666 | 147 Birch St  |
|          5 | David     | White    | david.w@example.com     | 3332221111 | 369 Cedar St  |
|          6 | Emma      | Clark    | emma.c@example.com      | 1112223333 | 258 Spruce St |
|          7 | Frank     | Adams    | frank.a@example.com     | 6667778888 | 753 Maple St  |
|          8 | Grace     | Baker    | grace.b@example.com     | 9998887777 | 951 Elm St    |
|          9 | Henry     | Miller   | henry.m@example.com     | 7778889999 | 852 Walnut St |
|         10 | Ivy       | Williams | ivy.w@example.com       | 1239874560 | 654 Willow St |
+------------+-----------+----------+-------------------------+------------+---------------+
10 rows in set (0.00 sec)

mysql> INSERT INTO Products (ProductName, Description, Price) VALUES
    -> ('Laptop', 'High performance laptop', 1200.00),
    -> ('Smartphone', 'Latest model smartphone', 800.00),
    -> ('Tablet', '10-inch screen tablet', 450.00),
    -> ('Smartwatch', 'Fitness and health tracking', 200.00),
    -> ('Gaming Console', 'Latest-gen gaming console', 500.00),
    -> ('Wireless Headphones', 'Noise-canceling headphones', 150.00),
    -> ('External Hard Drive', '1TB storage', 100.00),
    -> ('Keyboard', 'Mechanical gaming keyboard', 75.00),
    -> ('Mouse', 'Ergonomic wireless mouse', 50.00),
    -> ('Monitor', '27-inch 4K UHD display', 300.00);
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from products;
+-----------+--------------------+----------------------------+---------+
| ProductID | ProductName        | Description                | Price   |
+-----------+--------------------+----------------------------+---------+
|         1 | Laptop             | High performance laptop    | 1200.00 |
|         2 | Smartphone         | Latest model smartphone    |  800.00 |
|         3 | Tablet             | 10-inch screen tablet      |  450.00 |
|         4 | Smartwatch         | Fitness and health tracking|  200.00 |
|         5 | Gaming Console     | Latest-gen gaming console  |  500.00 |
|         6 | Wireless Headphones| Noise-canceling headphones |  150.00 |
|         7 | External Hard Drive| 1TB storage                |  100.00 |
|         8 | Keyboard           | Mechanical gaming keyboard |   75.00 |
|         9 | Mouse              | Ergonomic wireless mouse   |   50.00 |
|        10 | Monitor            | 27-inch 4K UHD display     |  300.00 |
+-----------+--------------------+----------------------------+---------+
10 rows in set (0.00 sec)

mysql> INSERT INTO Orders (CustomerID, OrderDate, TotalAmount) VALUES
    -> (1, '2024-03-01', 1400.00),
    -> (2, '2024-03-05', 950.00),
    -> (3, '2024-03-10', 300.00),
    -> (4, '2024-03-15', 650.00),
    -> (5, '2024-03-18', 850.00),
    -> (6, '2024-03-21', 1250.00),
    -> (7, '2024-03-25', 500.00),
    -> (8, '2024-03-28', 1750.00),
    -> (9, '2024-03-30', 700.00),
    -> (10, '2024-04-01', 2000.00);
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from orders;
+---------+------------+------------+-------------+
| OrderID | CustomerID | OrderDate  | TotalAmount |
+---------+------------+------------+-------------+
|       1 |          1 | 2024-03-01 |     1400.00 |
|       2 |          2 | 2024-03-05 |      950.00 |
|       3 |          3 | 2024-03-10 |      300.00 |
|       4 |          4 | 2024-03-15 |      650.00 |
|       5 |          5 | 2024-03-18 |      850.00 |
|       6 |          6 | 2024-03-21 |     1250.00 |
|       7 |          7 | 2024-03-25 |      500.00 |
|       8 |          8 | 2024-03-28 |     1750.00 |
|       9 |          9 | 2024-03-30 |      700.00 |
|      10 |         10 | 2024-04-01 |     2000.00 |
+---------+------------+------------+-------------+
10 rows in set (0.00 sec)

mysql> INSERT INTO OrderDetails (OrderID, ProductID, Quantity) VALUES
    -> (1, 1, 1),
    -> (1, 6, 2),
    -> (2, 2, 1),
    -> (2, 7, 1),
    -> (3, 3, 1),
    -> (4, 5, 1),
    -> (5, 8, 1),
    -> (6, 10, 1),
    -> (7, 4, 1),
    -> (8, 9, 1);
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from orderdetails;
+--------------+---------+-----------+----------+
| OrderDetailID | OrderID | ProductID | Quantity |
+--------------+---------+-----------+----------+
|            1 |       1 |         1 |        1 |
|            2 |       1 |         6 |        2 |
|            3 |       2 |         2 |        1 |
|            4 |       2 |         7 |        1 |
|            5 |       3 |         3 |        1 |
|            6 |       4 |         5 |        1 |
|            7 |       5 |         8 |        1 |
|            8 |       6 |        10 |        1 |
|            9 |       7 |         4 |        1 |
|           10 |       8 |         9 |        1 |
+--------------+---------+-----------+----------+
10 rows in set (0.00 sec)

mysql> INSERT INTO Inventory (ProductID, QuantityInStock, LastStockUpdate)
VALUES
    -> (1, 10, '2024-03-01'),
    -> (2, 15, '2024-03-02'),
    -> (3, 20, '2024-03-03'),
    -> (4, 12, '2024-03-04'),
    -> (5, 8, '2024-03-05'),
    -> (6, 30, '2024-03-06'),
    -> (7, 18, '2024-03-07'),
    -> (8, 25, '2024-03-08'),
    -> (9, 22, '2024-03-09'),
    -> (10, 10, '2024-03-10');
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from inventory;
+-------------+-----------+-----------------+-----------------+
| InventoryID | ProductID | QuantityInStock | LastStockUpdate |
+-------------+-----------+-----------------+-----------------+
|           1 |         1 |              10 | 2024-03-01      |
|           2 |         2 |              15 | 2024-03-02      |
|           3 |         3 |              20 | 2024-03-03      |
|           4 |         4 |              12 | 2024-03-04      |
|           5 |         5 |               8 | 2024-03-05      |
|           6 |         6 |              30 | 2024-03-06      |
|           7 |         7 |              18 | 2024-03-07      |
|           8 |         8 |              25 | 2024-03-08      |
|           9 |         9 |              22 | 2024-03-09      |
|          10 |        10 |              10 | 2024-03-10      |
+-------------+-----------+-----------------+-----------------+
10 rows in set (0.00 sec)
```