1. Create the database named "TechShop"

```
mysql> create database TechShop;
Query OK, 1 row affected (0.01 sec)
```

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

Table Customers

```
mysql> create table Customers(CustomerID int primary key,
    -> FirstName text,
    -> LastName text,
    -> email text,
    -> Phone int,
    -> Address text);
```

```
mysql> desc Customers;
+------------+--------+------+-----+---------+-------+
| Field      | Type   | Null | Key | Default | Extra |
+------------+--------+------+-----+---------+-------+
| CustomerID | int    | NO   | PRI | NULL    |       |
| FirstName  | text   | YES  |     | NULL    |       |
| LastName   | text   | YES  |     | NULL    |       |
| email      | text   | YES  |     | NULL    |       |
| Phone      | bigint | YES  |     | NULL    |       |
| Address    | text   | YES  |     | NULL    |       |
+------------+--------+------+-----+---------+-------+
```

Table Products

```
mysql> create table Products(ProductID int primary key,
    -> ProductName text,
    -> Description text,
    -> Price int);
```

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

Table Orders

```
mysql> create table Orders(OrderID int primary key,
    -> CustomerID int,
    -> FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID),
    -> OrderDate date,
    -> TotalAmount int);
```

```
mysql> desc Orders;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| OrderID     | int  | NO   | PRI | NULL    |       |
| CustomerID  | int  | YES  | MUL | NULL    |       |
| OrderDate   | date | YES  |     | NULL    |       |
| TotalAmount | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
```

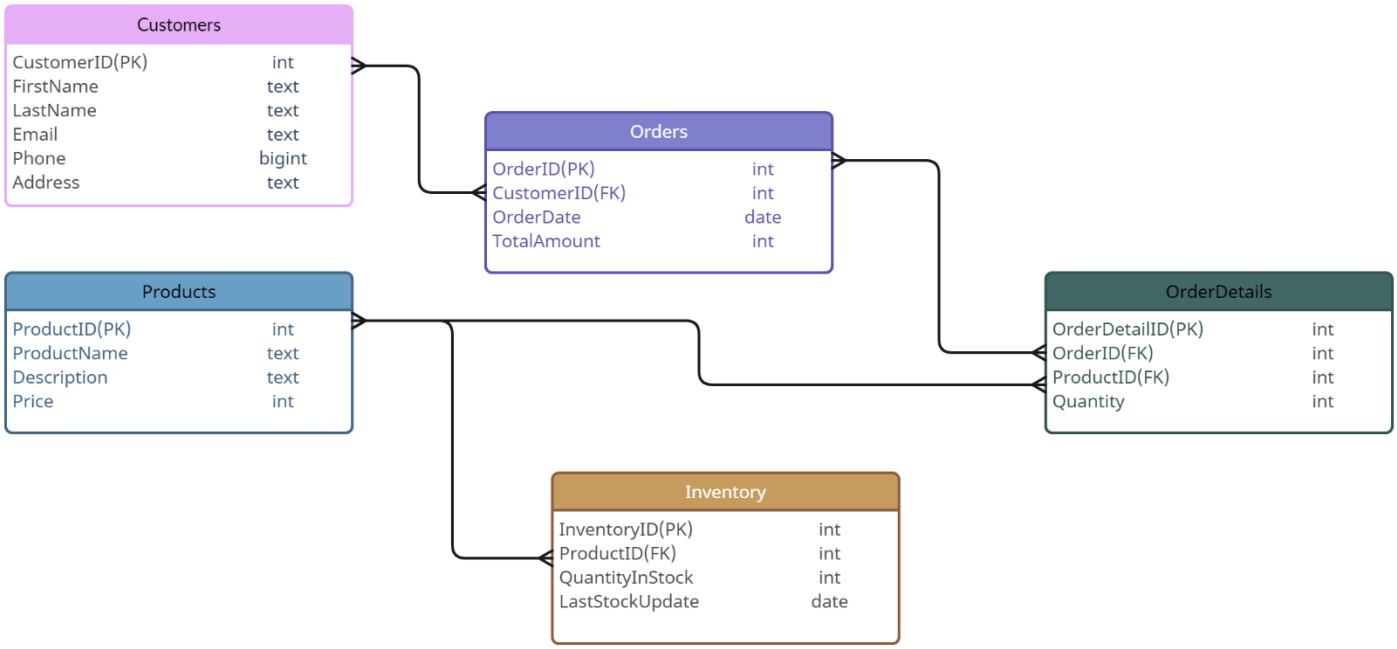
Table OrderDetails

```
mysql> create table OrderDetails(OrderDetailID int primary key,
    -> OrderID int,
    -> FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),
    -> ProductID int,
    -> FOREIGN KEY (ProductID) REFERENCES Products(ProductID),
    -> Quantity int);
Query OK, 0 rows affected (0.05 sec)

mysql> DESC OrderDetails;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| OrderDetailID | int  | NO   | PRI | NULL    |       |
| OrderID       | int  | YES  | MUL | NULL    |       |
| ProductID     | int  | YES  | MUL | NULL    |       |
| Quantity      | int  | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

Table Inventory

```
mysql> create table Inventory(
    -> InventoryID int primary key,
    -> ProductId int,
    -> FOREIGN KEY (ProductID) REFERENCES Products(ProductID),
    -> QuantityInStock int,
    -> LastStockUpdate date);
Query OK, 0 rows affected (0.04 sec)

mysql> desc Inventory;
+-----------------+------+------+-----+---------+-------+
| Field           | Type | Null | Key | Default | Extra |
+-----------------+------+------+-----+---------+-------+
| InventoryID     | int  | NO   | PRI | NULL    |       |
| ProductId       | int  | YES  | MUL | NULL    |       |
| QuantityInStock | int  | YES  |     | NULL    |       |
| LastStockUpdate | date | YES  |     | NULL    |       |
+-----------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

3. Create an ERD (Entity Relationship Diagram) for the database.



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

```
mysql> desc Customers;
+------------+--------+------+-----+---------+-------+
| Field      | Type   | Null | Key | Default | Extra |
+------------+--------+------+-----+---------+-------+
| CustomerID | int    | NO   | PRI | NULL    |       |
| FirstName  | text   | YES  |     | NULL    |       |
| LastName   | text   | YES  |     | NULL    |       |
| email      | text   | YES  |     | NULL    |       |
| Phone      | bigint | YES  |     | NULL    |       |
| Address    | text   | YES  |     | NULL    |       |
+------------+--------+------+-----+---------+-------+
```

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

```
mysql> desc Orders;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| OrderID     | int  | NO   | PRI | NULL    |       |
| CustomerID  | int  | YES  | MUL | NULL    |       |
| OrderDate   | date | YES  |     | NULL    |       |
| TotalAmount | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
```

```
mysql> DESC OrderDetails;
+---------------+------+------+-----+---------+-------+
| Field         | Type | Null | Key | Default | Extra |
+---------------+------+------+-----+---------+-------+
| OrderDetailID | int  | NO   | PRI | NULL    |       |
| OrderID       | int  | YES  | MUL | NULL    |       |
| ProductID     | int  | YES  | MUL | NULL    |       |
| Quantity      | int  | YES  |     | NULL    |       |
+---------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> desc Inventory;
+-----------------+------+------+-----+---------+-------+
| Field           | Type | Null | Key | Default | Extra |
+-----------------+------+------+-----+---------+-------+
| InventoryID     | int  | NO   | PRI | NULL    |       |
| ProductId       | int  | YES  | MUL | NULL    |       |
| QuantityInStock | int  | YES  |     | NULL    |       |
| LastStockUpdate | date | YES  |     | NULL    |       |
+-----------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

5. Insert at least 10 sample records into each of the following tables.

```
mysql> INSERT INTO Customers (CustomerID, FirstName, LastName, Email, Phone, Address)
    -> VALUES
    ->     (1, 'John', 'Doe', 'john.doe@example.com', 1234567890, '123 Main St'),
    ->     (2, 'Jane', 'Smith', 'jane.smith@example.com', 9876543210, '456 Oak St'),
    ->     (3, 'Alice', 'Johnson', 'alice.johnson@example.com', 5551234567, '789 Pine St'),
    ->     (4, 'Bob', 'Williams', 'bob.williams@example.com', 9998887777, '101 Elm St'),
    ->     (5, 'Eva', 'Brown', 'eva.brown@example.com', 1112223333, '202 Maple St'),
    ->     (6, 'Charlie', 'Davis', 'charlie.davis@example.com', 4445556666, '303 Cedar St'),
    ->     (7, 'Grace', 'Miller', 'grace.miller@example.com', 7776665555, '404 Birch St'),
    ->     (8, 'David', 'Moore', 'david.moore@example.com', 2223334444, '505 Redwood St'),
    ->     (9, 'Sophia', 'Lee', 'sophia.lee@example.com', 6667778888, '606 Willow St'),
    ->     (10, 'Oliver', 'Anderson', 'oliver.anderson@example.com', 3334445555, '707 Walnut St');
Query OK, 10 rows affected (0.01 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 | Jane      | Smith    | jane.smith@example.com    | 9876543210 | 456 Oak St     |
|          3 | Alice     | Johnson  | alice.johnson@example.com | 5551234567 | 789 Pine St    |
|          4 | Bob       | Williams | bob.williams@example.com  | 9998887777 | 101 Elm St     |
|          5 | Eva       | Brown    | eva.brown@example.com     | 1112223333 | 202 Maple St   |
|          6 | Charlie   | Davis    | charlie.davis@example.com | 4445556666 | 303 Cedar St   |
|          7 | Grace     | Miller   | grace.miller@example.com  | 7776665555 | 404 Birch St   |
|          8 | David     | Moore    | david.moore@example.com   | 2223334444 | 505 Redwood St |
|          9 | Sophia    | Lee      | sophia.lee@example.com    | 6667778888 | 606 Willow St  |
|         10 | Oliver    | Anderson | oliver.anderson@example.com | 3334445555 | 707 Walnut St  |
+------------+-----------+----------+---------------------------+------------+----------------+
10 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Products (ProductID, ProductName, Description, Price)
    -> VALUES
    ->     (1, 'Laptop', 'High-performance laptop with SSD storage', 1200),
    ->     (2, 'Smartphone', 'Latest smartphone with dual cameras', 800),
    ->     (3, 'Headphones', 'Wireless over-ear headphones with noise cancellation', 150),
    ->     (4, 'Tablet', '10-inch tablet with HD display', 300),
    ->     (5, 'Smartwatch', 'Fitness tracking smartwatch with heart rate monitor', 200),
    ->     (6, 'Desktop PC', 'Powerful desktop PC for gaming and multitasking', 1500),
    ->     (7, 'Bluetooth Speaker', 'Portable speaker with built-in Bluetooth', 50),
    ->     (8, 'Camera', 'Digital camera with high-resolution sensor', 600),
    ->     (9, 'External Hard Drive', '1TB external hard drive for data storage', 80),
    ->     (10, 'Gaming Console', 'Latest gaming console with 4K support', 400);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Products;
+-----------+--------------------+-----------------------------------------------------+-------+
| ProductID | ProductName        | Description                                         | Price |
+-----------+--------------------+-----------------------------------------------------+-------+
|         1 | Laptop             | High-performance laptop with SSD storage            |  1200 |
|         2 | Smartphone         | Latest smartphone with dual cameras                 |   800 |
|         3 | Headphones         | Wireless over-ear headphones with noise cancellation |   150 |
|         4 | Tablet             | 10-inch tablet with HD display                      |   300 |
|         5 | Smartwatch         | Fitness tracking smartwatch with heart rate monitor |   200 |
|         6 | Desktop PC         | Powerful desktop PC for gaming and multitasking     |  1500 |
|         7 | Bluetooth Speaker  | Portable speaker with built-in Bluetooth            |    50 |
|         8 | Camera             | Digital camera with high-resolution sensor          |   600 |
|         9 | External Hard Drive | 1TB external hard drive for data storage            |    80 |
|        10 | Gaming Console     | Latest gaming console with 4K support               |   400 |
+-----------+--------------------+-----------------------------------------------------+-------+
10 rows in set (0.00 sec)
```

```
mysql> -- Insert 10 sample records into Orders table
mysql> INSERT INTO Orders (OrderID, CustomerID, OrderDate, TotalAmount)
    -> VALUES
    ->     (1, 1, '2024-01-15', 500),
    ->     (2, 3, '2024-01-16', 1200),
    ->     (3, 2, '2024-01-17', 300),
    ->     (4, 5, '2024-01-18', 800),
    ->     (5, 4, '2024-01-19', 150),
    ->     (6, 1, '2024-01-20', 1000),
    ->     (7, 6, '2024-01-21', 200),
    ->     (8, 7, '2024-01-22', 400),
    ->     (9, 9, '2024-01-23', 700),
    ->     (10, 8, '2024-01-24', 600);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Orders;
+---------+------------+------------+-------------+
| OrderID | CustomerID | OrderDate  | TotalAmount |
+---------+------------+------------+-------------+
|       1 |          1 | 2024-01-15 |         500 |
|       2 |          3 | 2024-01-16 |        1200 |
|       3 |          2 | 2024-01-17 |         300 |
|       4 |          5 | 2024-01-18 |         800 |
|       5 |          4 | 2024-01-19 |         150 |
|       6 |          1 | 2024-01-20 |        1000 |
|       7 |          6 | 2024-01-21 |         200 |
|       8 |          7 | 2024-01-22 |         400 |
|       9 |          9 | 2024-01-23 |         700 |
|      10 |          8 | 2024-01-24 |         600 |
+---------+------------+------------+-------------+
10 rows in set (0.00 sec)
```

```
mysql> -- Insert 10 sample records into OrderDetails table
mysql> INSERT INTO OrderDetails (OrderDetailID, OrderID, ProductID, Quantity)
    -> VALUES
    ->     (1, 1, 2, 3),
    ->     (2, 1, 5, 2),
    ->     (3, 2, 3, 1),
    ->     (4, 3, 1, 4),
    ->     (5, 4, 4, 2),
    ->     (6, 5, 2, 1),
    ->     (7, 6, 6, 3),
    ->     (8, 7, 8, 2),
    ->     (9, 8, 10, 1),
    ->     (10, 10, 7, 4);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

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

```
mysql> -- Insert 10 sample records into Inventory table
mysql> INSERT INTO Inventory (InventoryID, ProductID, QuantityInStock, LastStockUpdate)
    -> VALUES
    ->     (1, 1, 50, '2024-01-15'),
    ->     (2, 2, 30, '2024-01-16'),
    ->     (3, 3, 100, '2024-01-17'),
    ->     (4, 4, 20, '2024-01-18'),
    ->     (5, 5, 10, '2024-01-19'),
    ->     (6, 6, 5, '2024-01-20'),
    ->     (7, 7, 40, '2024-01-21'),
    ->     (8, 8, 15, '2024-01-22'),
    ->     (9, 9, 25, '2024-01-23'),
    ->     (10, 10, 8, '2024-01-24');
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Inventory;
+-------------+-----------+-----------------+-----------------+
| InventoryID | ProductId | QuantityInStock | LastStockUpdate |
+-------------+-----------+-----------------+-----------------+
|           1 |         1 |              50 | 2024-01-15      |
|           2 |         2 |              30 | 2024-01-16      |
|           3 |         3 |             100 | 2024-01-17      |
|           4 |         4 |              20 | 2024-01-18      |
|           5 |         5 |              10 | 2024-01-19      |
|           6 |         6 |               5 | 2024-01-20      |
|           7 |         7 |              40 | 2024-01-21      |
|           8 |         8 |              15 | 2024-01-22      |
|           9 |         9 |              25 | 2024-01-23      |
|          10 |        10 |               8 | 2024-01-24      |
+-------------+-----------+-----------------+-----------------+
10 rows in set (0.00 sec)
```