

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

```
mysql> use E_commerce;  
Database changed
```

```
mysql>
```

```
mysql> # Create Customers table
```

```
mysql> CREATE TABLE Customers (  
-> id INT PRIMARY KEY,  
-> name VARCHAR(255) NOT NULL,  
-> email VARCHAR(255) UNIQUE,  
-> address VARCHAR(255) NOT NULL  
-> );
```

```
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> # Create Sellers table
```

```
mysql> CREATE TABLE Sellers (  
-> id INT PRIMARY KEY,  
-> name VARCHAR(255) NOT NULL,  
-> email VARCHAR(255) UNIQUE,  
-> address VARCHAR(255) NOT NULL  
-> );
```

```
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> # Create Products table
```

```
mysql> CREATE TABLE Products (  
-> id INT PRIMARY KEY,  
-> name VARCHAR(255) NOT NULL,  
-> description TEXT,  
-> price DECIMAL(10,2) NOT NULL,  
-> seller_id INT NOT NULL,  
-> FOREIGN KEY (seller_id) REFERENCES Sellers(id)  
-> );
```

```
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> # Create Orders table
```

```
mysql> CREATE TABLE Orders (  
-> id INT PRIMARY KEY,  
-> order_date DATE NOT NULL,  
-> customer_id INT NOT NULL,  
-> FOREIGN KEY (customer_id) REFERENCES Customers(id)  
-> );
```

```
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> # Create OrderItems table
```

```
mysql> CREATE TABLE OrderItems (  
-> order_id INT NOT NULL,  
-> product_id INT NOT NULL,  
-> quantity INT NOT NULL,  
-> price DECIMAL(10,2) NOT NULL,  
-> PRIMARY KEY (order_id, product_id),  
-> FOREIGN KEY (order_id) REFERENCES Orders(id),
```

```
-> FOREIGN KEY (product_id) REFERENCES Products(id)
-> );
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> # Create ShippingInfo table
```

```
mysql> CREATE TABLE ShippingInfo (
-> order_id INT PRIMARY KEY,
-> shipping_address VARCHAR(255) NOT NULL,
-> shipping_method VARCHAR(50) NOT NULL,
-> estimated_delivery_date DATE NOT NULL,
-> FOREIGN KEY (order_id) REFERENCES Orders(id)
-> );
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> show tables;
```

```
+-----+
| Tables_in_E_commerce |
+-----+
| Customers             |
| OrderItems            |
| Orders                |
| Products              |
| Sellers               |
| ShippingInfo          |
+-----+
```

6 rows in set (0.00 sec)

```
mysql> INSERT INTO Customers (id, name, email, address)
-> VALUES
-> (1, 'Anuarg', 'anuag@gmail.com', 'Main Street'),
-> (2, 'Aman', 'aman@gmail.com', 'Maple Avenue'),
-> (3, 'Dharmendra', 'pandit@gmail.com', 'Oak Road');
```

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from Customers;
```

```
+---+-----+-----+-----+
| id | name   | email           | address   |
+---+-----+-----+-----+
| 1  | Anuarg | anuag@gmail.com | Main Street |
| 2  | Aman   | aman@gmail.com  | Maple Avenue |
| 3  | Dharmendra | pandit@gmail.com | Oak Road   |
+---+-----+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> INSERT INTO Sellers (id, name, email, address)
```

```
-> VALUES
-> (1, 'Amazon', 'seller@amazon.com', '1 Amazon Way'),
-> (2, 'eBay', 'seller@ebay.com', '2 eBay Way'),
-> (3, 'Target', 'seller@target.com', '3 Target Avenue');
```

Query OK, 3 rows affected (0.00 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> select * from Sellers;
```

```
+---+-----+-----+-----+
| id | name  | email          | address      |
+---+-----+-----+-----+
| 1 | Amazon | seller@amazon.com | 1 Amazon Way |
| 2 | eBay   | seller@ebay.com  | 2 eBay Way   |
| 3 | Target | seller@target.com | 3 Target Avenue |
+---+-----+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> INSERT INTO Products (id, name, description, price, seller_id)
```

```
-> VALUES
```

```
-> (1, 'iPhone 12', 'Latest Apple iPhone with OLED display', 999, 1),
-> (2, 'Samsung S21', 'Samsung's flagship smartphone for 2021', 899, 1),
-> (3, 'iPad Pro', 'Apple's professional-grade tablet', 1099, 1),
-> (4, 'Macbook Pro', 'Apple's high-performance laptop for professionals', 1999, 1),
-> (5, 'Canon EOS', 'Professional-grade DSLR camera', 1499, 2),
-> (6, 'Sony A7R', 'Full-frame mirrorless camera with 61MP sensor', 2799, 2),
-> (7, 'Xbox Series', 'Microsoft's latest gaming console', 499, 3),
-> (8, 'PS5', 'Sony's latest gaming console', 499, 3);
```

Query OK, 8 rows affected (0.01 sec)

Records: 8 Duplicates: 0 Warnings: 0

```
mysql> SELECT * FROM Products;
```

```
+---+-----+-----+-----+-----+
| id | name      | description                                     | price | seller_id |
+---+-----+-----+-----+-----+
| 1 | iPhone 12 | Latest Apple iPhone with OLED display          | 999.00 | 1 |
| 2 | Samsung S21 | Samsung's flagship smartphone for 2021          | 899.00 | 1 |
| 3 | iPad Pro   | Apple's professional-grade tablet                | 1099.00 | 1 |
| 4 | Macbook Pro | Apple's high-performance laptop for professionals | 1999.00 | 1 |
| 5 | Canon EOS  | Professional-grade DSLR camera                  | 1499.00 | 2 |
| 6 | Sony A7R   | Full-frame mirrorless camera with 61MP sensor    | 2799.00 | 2 |
| 7 | Xbox Series | Microsoft's latest gaming console                | 499.00 | 3 |
| 8 | PS5        | Sony's latest gaming console                    | 499.00 | 3 |
+---+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

```
mysql> INSERT INTO Orders (id, order_date, customer_id)
```

```
-> VALUES
```

```
-> (1, '2023-04-01', 1),
-> (2, '2023-04-02', 2),
-> (3, '2023-04-03', 3);
```

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> SELECT * FROM Orders;
```

```
+---+-----+-----+
| id | order_date | customer_id |
+---+-----+-----+
| 1 | 2023-04-01 | 1 |
| 2 | 2023-04-02 | 2 |
| 3 | 2023-04-03 | 3 |
+---+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> INSERT INTO OrderItems (order_id, product_id, quantity, price)
-> VALUES
-> (1, 1, 2, 1998),
-> (1, 3, 1, 1099),
-> (2, 5, 1, 1499),
-> (2, 6, 1, 2799),
-> (3, 7, 1, 499);
```

Query OK, 5 rows affected (0.01 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
mysql> SELECT * FROM OrderItems;
```

order_id	product_id	quantity	price
1	1	2	1998.00
1	3	1	1099.00
2	5	1	1499.00
2	6	1	2799.00
3	7	1	499.00

5 rows in set (0.00 sec)

```
mysql> INSERT INTO ShippingInfo (order_id, shipping_address, shipping_method,
estimated_delivery_date)
```

```
-> VALUES
-> (1, '123 Main St, Bangalore, Karnataka, India', 'Standard Shipping', '2023-04-08'),
-> (2, '456 Maple Ave, Mumbai, Maharashtra, India', 'Express Shipping', '2023-04-05'),
-> (3, '789 Oak Rd, New Delhi, Delhi, India', 'Priority Shipping', '2023-04-04');
```

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

```
mysql> SELECT * FROM ShippingInfo;
```

order_id	shipping_address	shipping_method	estimated_delivery_date
1	123 Main St, Bangalore, Karnataka, India	Standard Shipping	2023-04-08
2	456 Maple Ave, Mumbai, Maharashtra, India	Express Shipping	2023-04-05
3	789 Oak Rd, New Delhi, Delhi, India	Priority Shipping	2023-04-04

3 rows in set (0.00 sec)

Now let's apply normalization to the tables to ensure data consistency and avoid data redundancy.

#Modify OrderItems table to remove price column

```
CREATE TABLE OrderItems (
  order_id INT NOT NULL,
  product_id INT NOT NULL,
  quantity INT NOT NULL,
  PRIMARY KEY (order_id, product_id),
  FOREIGN KEY (order_id) REFERENCES Orders(id),
  FOREIGN KEY (product_id) REFERENCES Products(id)
```

```
);  
# Create ProductSellers table  
CREATE TABLE ProductSellers (  
  product_id INT NOT NULL,  
  seller_id INT NOT NULL,  
  PRIMARY KEY (product_id, seller_id),  
  FOREIGN KEY (product_id) REFERENCES Products(id),  
  FOREIGN KEY (seller_id) REFERENCES Sellers(id)  
);  
  
# Modify Products table to remove seller_id column  
ALTER TABLE Products DROP COLUMN seller_id;
```