

**Task:1. Database Design: 1. Create the database named "TechShop" 2. Define the schema for the Customers, Products, Orders, OrderDetails and Inventory tables based on the provided schema. 3. Create an ERD (Entity Relationship Diagram) for the database. 4. Create appropriate Primary Key and Foreign Key constraints for referential integrity. 5. Insert at least 10 sample records into each of the following tables. a. Customers b. Products c. Orders d. OrderDetails**

```
mysql> CREATE DATABASE TechShop;
```

Query OK, 1 row affected (0.02 sec)

```
mysql> USE TechShop;
```

Database changed

```
mysql> CREATE TABLE Customers (
```

```
-> CustomerID INT PRIMARY KEY AUTO_INCREMENT,
```

```
-> FirstName VARCHAR(50),
```

```
-> LastName VARCHAR(50),
```

```
-> Email VARCHAR(100),
```

```
-> Phone VARCHAR(20),
```

```
-> Address VARCHAR(255)
```

```
-> );
```

Query OK, 0 rows affected (0.12 sec)

```
mysql>
```

```
mysql> CREATE TABLE Products (
```

```
-> ProductID INT PRIMARY KEY AUTO_INCREMENT,
```

```
-> ProductName VARCHAR(100),
```

```
-> Description TEXT,
```

```
-> Price DECIMAL(10, 2)
```

```
-> );
```

Query OK, 0 rows affected (0.06 sec)

mysql>

mysql> CREATE TABLE Orders (

- > OrderID INT PRIMARY KEY AUTO\_INCREMENT,
- > CustomerID INT,
- > OrderDate DATE,
- > TotalAmount DECIMAL(10, 2),
- > FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)
- > );

Query OK, 0 rows affected (0.20 sec)

mysql>

mysql> CREATE TABLE OrderDetails (

- > OrderDetailID INT PRIMARY KEY AUTO\_INCREMENT,
- > OrderID INT,
- > ProductID INT,
- > Quantity INT,
- > FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),
- > FOREIGN KEY (ProductID) REFERENCES Products(ProductID)
- > );

Query OK, 0 rows affected (0.11 sec)

mysql>

mysql> CREATE TABLE Inventory (

- > InventoryID INT PRIMARY KEY AUTO\_INCREMENT,
- > ProductID INT,
- > QuantityInStock INT,
- > LastStockUpdate DATE,
- > FOREIGN KEY (ProductID) REFERENCES Products(ProductID)
- > );

Query OK, 0 rows affected (0.13 sec)

```
mysql> -- Customers
```

```
mysql> INSERT INTO Customers (FirstName, LastName, Email, Phone, Address) VALUES
```

```
-> ('Alice', 'Johnson', 'alice.johnson@example.com', '1234567890', '123 Maple St'),  
-> ('Bob', 'Smith', 'bob.smith@example.com', '2345678901', '456 Oak St'),  
-> ('Charlie', 'Brown', 'charlie.brown@example.com', '3456789012', '789 Pine St'),  
-> ('David', 'Lee', 'david.lee@example.com', '4567890123', '321 Birch St'),  
-> ('Eva', 'Green', 'eva.green@example.com', '5678901234', '654 Cedar St'),  
-> ('Frank', 'Wright', 'frank.wright@example.com', '6789012345', '987 Walnut St'),  
-> ('Grace', 'Hall', 'grace.hall@example.com', '7890123456', '159 Elm St'),  
-> ('Hank', 'Moore', 'hank.moore@example.com', '8901234567', '753 Spruce St'),  
-> ('Ivy', 'King', 'ivy.king@example.com', '9012345678', '357 Ash St'),  
-> ('Jake', 'Stone', 'jake.stone@example.com', '0123456789', '951 Willow St');
```

```
Query OK, 10 rows affected (0.02 sec)
```

```
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql>
```

```
mysql> -- Products
```

```
mysql> INSERT INTO Products (ProductName, Description, Price) VALUES
```

```
-> ('Laptop', '14-inch laptop with 8GB RAM', 700.00),  
-> ('Mouse', 'Wireless optical mouse', 20.00),  
-> ('Keyboard', 'Mechanical keyboard', 45.00),  
-> ('Monitor', '24-inch LED monitor', 150.00),  
-> ('USB Drive', '32GB USB 3.0 drive', 15.00),  
-> ('Headphones', 'Bluetooth headphones', 60.00),  
-> ('Webcam', '1080p HD webcam', 35.00),  
-> ('Charger', '65W USB-C charger', 25.00),  
-> ('Backpack', 'Laptop backpack with padding', 40.00),  
-> ('Tablet', '10-inch Android tablet', 200.00);
```

```
Query OK, 10 rows affected (0.01 sec)
```

```
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql>
```

```
mysql> -- Orders
```

```
mysql> INSERT INTO Orders (CustomerID, OrderDate, TotalAmount) VALUES
```

```
-> (1, '2024-05-01', 735.00),  
-> (2, '2024-05-02', 65.00),  
-> (3, '2024-05-03', 195.00),  
-> (4, '2024-05-04', 25.00),  
-> (5, '2024-05-05', 260.00),  
-> (6, '2024-05-06', 85.00),  
-> (7, '2024-05-07', 200.00),  
-> (8, '2024-05-08', 60.00),  
-> (9, '2024-05-09', 40.00),  
-> (10, '2024-05-10', 740.00);
```

```
Query OK, 10 rows affected (0.02 sec)
```

```
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql>
```

```
mysql> -- OrderDetails
```

```
mysql> INSERT INTO OrderDetails (OrderID, ProductID, Quantity) VALUES
```

```
-> (1, 1, 1),  
-> (1, 2, 1),  
-> (2, 3, 1),  
-> (3, 4, 1),  
-> (3, 5, 3),  
-> (4, 8, 1),  
-> (5, 10, 1),  
-> (6, 6, 1),  
-> (6, 5, 1),  
-> (7, 10, 1);
```

```
Query OK, 10 rows affected (0.01 sec)
```

```
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql>
```

```
mysql> -- Inventory
```

```
mysql> INSERT INTO Inventory (ProductID, QuantityInStock, LastStockUpdate) VALUES
```

```
-> (1, 50, '2024-04-30'),
```

```
-> (2, 150, '2024-04-30'),
```

```
-> (3, 100, '2024-04-30'),
```

```
-> (4, 80, '2024-04-30'),
```

```
-> (5, 200, '2024-04-30'),
```

```
-> (6, 90, '2024-04-30'),
```

```
-> (7, 60, '2024-04-30'),
```

```
-> (8, 120, '2024-04-30'),
```

```
-> (9, 75, '2024-04-30'),
```

```
-> (10, 40, '2024-04-30');
```

```
Query OK, 10 rows affected (0.01 sec)
```

```
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT FirstName, LastName, Email
```

```
-> FROM Customers;
```

```
+-----+-----+-----+
| FirstName | LastName | Email          |
+-----+-----+-----+
| Alice    | Johnson | alice.johnson@example.com |
| Bob      | Smith   | bob.smith@example.com    |
| Charlie  | Brown   | charlie.brown@example.com |
| David    | Lee     | david.lee@example.com    |
| Eva      | Green   | eva.green@example.com    |
| Frank    | Wright  | frank.wright@example.com  |
| Grace    | Hall    | grace.hall@example.com    |
| Hank     | Moore   | hank.moore@example.com    |
| Ivy      | King    | ivy.king@example.com      |
```

```
| Jake | Stone | jake.stone@example.com |
```

```
+-----+-----+-----+
```

10 rows in set (0.00 sec)

## Tasks 2: Select, Where, Between, AND, LIKE:

### 1. Write an SQL query to retrieve the names and emails of all customers.

```
mysql> SELECT FirstName, LastName, Email
```

```
-> FROM Customers;
```

```
+-----+-----+-----+
```

```
| FirstName | LastName | Email |
```

```
+-----+-----+-----+
```

```
| Alice | Johnson | alice.johnson@example.com |
```

```
| Bob | Smith | bob.smith@example.com |
```

```
| Charlie | Brown | charlie.brown@example.com |
```

```
| David | Lee | david.lee@example.com |
```

```
| Eva | Green | eva.green@example.com |
```

```
| Frank | Wright | frank.wright@example.com |
```

```
| Grace | Hall | grace.hall@example.com |
```

```
| Hank | Moore | hank.moore@example.com |
```

```
| Ivy | King | ivy.king@example.com |
```

```
| Jake | Stone | jake.stone@example.com |
```

```
+-----+-----+-----+
```

10 rows in set (0.00 sec)

### 2. Write an SQL query to insert a new customer record into the "Customers" table. Include customer information such as name, email, and address.

```
mysql> SELECT
```

```
-> Orders.OrderID,
```

```
-> Orders.OrderDate,
```

```

-> Customers.FirstName,
-> Customers.LastName
-> FROM Orders
-> JOIN Customers ON Orders.CustomerID = Customers.CustomerID;

```

OrderID	OrderDate	FirstName	LastName
1	2024-05-01	Alice	Johnson
2	2024-05-02	Bob	Smith
3	2024-05-03	Charlie	Brown
4	2024-05-04	David	Lee
5	2024-05-05	Eva	Green
6	2024-05-06	Frank	Wright
7	2024-05-07	Grace	Hall
8	2024-05-08	Hank	Moore
9	2024-05-09	Ivy	King
10	2024-05-10	Jake	Stone

10 rows in set (0.00 sec)

### 3. Write an SQL query to insert a new customer record into the "Customers" table. Include customer information such as name, email, and address.

```

mysql> INSERT INTO Customers (FirstName, LastName, Email, Phone, Address)
-> VALUES ('John', 'Doe', 'john.doe@example.com', '1234567890', '101 Example Street');
Query OK, 1 row affected (0.01 sec)

```

```
mysql> SELECT * FROM customers;
```

CustomerID	FirstName	LastName	Email	Phone	Address
1	Alice	Johnson	alice.johnson@example.com	1234567890	123 Maple St

2	Bob	Smith	bob.smith@example.com	2345678901	456 Oak St
3	Charlie	Brown	charlie.brown@example.com	3456789012	789 Pine St
4	David	Lee	david.lee@example.com	4567890123	321 Birch St
5	Eva	Green	eva.green@example.com	5678901234	654 Cedar St
6	Frank	Wright	frank.wright@example.com	6789012345	987 Walnut St
7	Grace	Hall	grace.hall@example.com	7890123456	159 Elm St
8	Hank	Moore	hank.moore@example.com	8901234567	753 Spruce St
9	Ivy	King	ivy.king@example.com	9012345678	357 Ash St
10	Jake	Stone	jake.stone@example.com	0123456789	951 Willow St
11	John	Doe	john.doe@example.com	1234567890	101 Example Street

```

+-----+-----+-----+-----+-----+-----+

```

11 rows in set (0.00 sec)

#### 4. Write an SQL query to update the prices of all electronic gadgets in the "Products" table by increasing them by 10%.

```

mysql> UPDATE Products
    -> SET Price = Price * 1.10
    -> WHERE Description LIKE '%gadget%';

```

Query OK, 0 rows affected (0.00 sec)

Rows matched: 0 Changed: 0 Warnings: 0

```

mysql> SELECT * FROM products;

```

ProductID	ProductName	Description	Price
1	Laptop	14-inch laptop with 8GB RAM	700.00
2	Mouse	Wireless optical mouse	20.00
3	Keyboard	Mechanical keyboard	45.00
4	Monitor	24-inch LED monitor	150.00
5	USB Drive	32GB USB 3.0 drive	15.00
6	Headphones	Bluetooth headphones	60.00



7	Webcam	1080p HD webcam	35.00
8	Charger	65W USB-C charger	25.00
9	Backpack	Laptop backpack with padding	40.00
10	Tablet	10-inch Android tablet	200.00

```
+-----+-----+-----+-----+
```

10 rows in set (0.00 sec)

## 5. Write an SQL query to delete a specific order and its associated order details from the "Orders" and "OrderDetails" tables. Allow users to input the order ID as a parameter

```
mysql> DELETE FROM OrderDetails WHERE OrderID = 3;
```

Query OK, 2 rows affected (0.01 sec)

```
mysql> DELETE FROM Orders WHERE OrderID = 3;
```

Query OK, 1 row affected (0.01 sec)

```
mysql> SELECT * FROM orders;
```

```
+-----+-----+-----+-----+
```

OrderID	CustomerID	OrderDate	TotalAmount
---------	------------	-----------	-------------

```
+-----+-----+-----+-----+
```

1	1	2024-05-01	735.00
2	2	2024-05-02	65.00
4	4	2024-05-04	25.00
5	5	2024-05-05	260.00
6	6	2024-05-06	85.00
7	7	2024-05-07	200.00
8	8	2024-05-08	60.00
9	9	2024-05-09	40.00
10	10	2024-05-10	740.00

```
+-----+-----+-----+-----+
```

9 rows in set (0.00 sec)

```
mysql> SELECT * FROM orderdetails;
```

```
+-----+-----+-----+-----+
| OrderDetailID | OrderID | ProductID | Quantity |
+-----+-----+-----+-----+
|      1 |      1 |      1 |      1 |
|      2 |      1 |      2 |      1 |
|      3 |      2 |      3 |      1 |
|      6 |      4 |      8 |      1 |
|      7 |      5 |     10 |      1 |
|      8 |      6 |      6 |      1 |
|      9 |      6 |      5 |      1 |
|     10 |      7 |     10 |      1 |
+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

## 6. Write an SQL query to insert a new order into the "Orders" table. Include the customer ID, order date, and any other necessary information.

```
mysql> INSERT INTO Orders (CustomerID, OrderDate, TotalAmount)
```

```
-> VALUES (3, '2024-05-03', 0.00);
```

Query OK, 1 row affected (0.01 sec)

```
mysql> SELECT * FROM orders;
```

```
+-----+-----+-----+-----+
| OrderID | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
|      1 |          1 | 2024-05-01 |      735.00 |
|      2 |          2 | 2024-05-02 |      65.00 |
|      4 |          4 | 2024-05-04 |      25.00 |
|      5 |          5 | 2024-05-05 |     260.00 |
|      6 |          6 | 2024-05-06 |      85.00 |
```

	7		7		2024-05-07		200.00	
	8		8		2024-05-08		60.00	
	9		9		2024-05-09		40.00	
	10		10		2024-05-10		740.00	
	11		3		2024-05-03		0.00	

```
+-----+-----+-----+-----+
```

10 rows in set (0.00 sec)

7. Write an SQL query to update the contact information (e.g., email and address) of a specific customer in the "Customers" table. Allow users to input the customer ID and new contact information.

```
mysql> UPDATE Customers
    -> SET Email = @NewEmail,
    ->   Address = @NewAddress
    -> WHERE CustomerID = @CustomerID;
```

Query OK, 0 rows affected (0.00 sec)

Rows matched: 0 Changed: 0 Warnings: 0

```
mysql> UPDATE Customers
    -> SET Email = 'emma.watson@example.com',
    ->   Address = '789 New Avenue'
    -> WHERE CustomerID = 5;
```

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

```
mysql> SELECT * FROM customers;
```

```
+-----+-----+-----+-----+-----+-----+
```

CustomerID	FirstName	LastName	Email	Phone	Address	
------------	-----------	----------	-------	-------	---------	--

```
+-----+-----+-----+-----+-----+-----+
```

1	Alice	Johnson	alice.johnson@example.com	1234567890	123 Maple St	
2	Bob	Smith	bob.smith@example.com	2345678901	456 Oak St	

3	Charlie	Brown	charlie.brown@example.com	3456789012	789 Pine St
4	David	Lee	david.lee@example.com	4567890123	321 Birch St
5	Eva	Green	emma.watson@example.com	5678901234	789 New Avenue
6	Frank	Wright	frank.wright@example.com	6789012345	987 Walnut St
7	Grace	Hall	grace.hall@example.com	7890123456	159 Elm St
8	Hank	Moore	hank.moore@example.com	8901234567	753 Spruce St
9	Ivy	King	ivy.king@example.com	9012345678	357 Ash St
10	Jake	Stone	jake.stone@example.com	0123456789	951 Willow St
11	John	Doe	john.doe@example.com	1234567890	101 Example Street

```
+-----+-----+-----+-----+-----+-----+
```

11 rows in set (0.00 sec)

## 8. Write an SQL query to recalculate and update the total cost of each order in the "Orders" table based on the prices and quantities in the "OrderDetails" table.

```
mysql> UPDATE Orders
```

```
-> SET TotalAmount = (
->  SELECT SUM(od.Quantity * p.Price)
->  FROM OrderDetails od
->  JOIN Products p ON od.ProductID = p.ProductID
->  WHERE od.OrderID = Orders.OrderID
-> );
```

Query OK, 8 rows affected (0.01 sec)

Rows matched: 10 Changed: 8 Warnings: 0

```
mysql> SELECT * FROM orders;
```

```
+-----+-----+-----+-----+
| OrderID | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 1 | 1 | 2024-05-01 | 720.00 |
| 2 | 2 | 2024-05-02 | 45.00 |
```

	4		4		2024-05-04		25.00	
	5		5		2024-05-05		200.00	
	6		6		2024-05-06		75.00	
	7		7		2024-05-07		200.00	
	8		8		2024-05-08		NULL	
	9		9		2024-05-09		NULL	
	10		10		2024-05-10		NULL	
	11		3		2024-05-03		NULL	

```
+-----+-----+-----+-----+
```

10 rows in set (0.00 sec)

**9. Write an SQL query to delete all orders and their associated order details for a specific customer from the "Orders" and "OrderDetails" tables. Allow users to input the customer ID as a parameter.**

```
mysql> SET @CustomerID = 4;
```

Query OK, 0 rows affected (0.00 sec)

```
mysql> DELETE od
```

```
-> FROM OrderDetails od
```

```
-> JOIN Orders o ON od.OrderID = o.OrderID
```

```
-> WHERE o.CustomerID = @CustomerID;
```

Query OK, 1 row affected (0.01 sec)

```
mysql> DELETE FROM Orders
```

```
-> WHERE CustomerID = @CustomerID;
```

Query OK, 1 row affected (0.01 sec)

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

```
+-----+-----+-----+-----+
```

```
| OrderID | CustomerID | OrderDate | TotalAmount |
```

```
+-----+-----+-----+-----+
```

	1		1		2024-05-01		720.00	
	2		2		2024-05-02		45.00	
	6		6		2024-05-06		75.00	
	7		7		2024-05-07		200.00	
	8		8		2024-05-08		NULL	
	9		9		2024-05-09		NULL	
	10		10		2024-05-10		NULL	
	11		3		2024-05-03		NULL	

```
+-----+-----+-----+-----+
```

8 rows in set (0.00 sec)

```
mysql> SELECT * FROM Orderdetails;
```

```
+-----+-----+-----+-----+
```

```
| OrderDetailID | OrderID | ProductID | Quantity |
```

```
+-----+-----+-----+-----+
```

	1		1		1		1	
	2		1		2		1	
	3		2		3		1	
	8		6		6		1	
	9		6		5		1	
	10		7		10		1	

```
+-----+-----+-----+-----+
```

6 rows in set (0.00 sec)

**10. Write an SQL query to insert a new electronic gadget product into the "Products" table, including product name, category, price, and any other relevant details.**

```
INSERT INTO Products (ProductName, Description, Price)
```

```
VALUES ('Smartwatch', 'Bluetooth-enabled smartwatch with fitness tracking features', 199.99);
```

**11. Write an SQL query to update the status of a specific order in the "Orders" table (e.g., from "Pending" to "Shipped"). Allow users to input the order ID and the new status.**

```
mysql> UPDATE Orders
```

```
-> SET Status = @NewStatus
```

```
-> WHERE OrderID = @OrderID;
```

```
Query OK, 0 rows affected (0.00 sec)
```

```
Rows matched: 0 Changed: 0 Warnings: 0
```

```
mysql> set @NewStatus = "shipped";
```

```
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> set @OrderID = 6;
```

```
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> UPDATE Orders
```

```
-> SET Status = @NewStatus
```

```
-> WHERE OrderID = @OrderID;
```

```
Query OK, 1 row affected (0.01 sec)
```

```
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> select * from orders;
```

```
+-----+-----+-----+-----+-----+
| OrderID | CustomerID | OrderDate | TotalAmount | Status |
+-----+-----+-----+-----+-----+
| 1 | 1 | 2024-05-01 | 720.00 | pending |
| 2 | 2 | 2024-05-02 | 45.00 | pending |
| 6 | 6 | 2024-05-06 | 75.00 | shipped |
| 7 | 7 | 2024-05-07 | 200.00 | pending |
| 8 | 8 | 2024-05-08 | NULL | pending |
| 9 | 9 | 2024-05-09 | NULL | pending |
```

```
| 10 | 10 | 2024-05-10 | NULL | pending |
```

```
+-----+-----+-----+-----+-----+
```

7 rows in set (0.00 sec)

## 12. Write an SQL query to calculate and update the number of orders placed by each customer in the "Customers" table based on the data in the "Orders" table.

```
mysql> ALTER TABLE Customers
```

```
-> ADD COLUMN OrderCount INT DEFAULT 0;
```

Query OK, 0 rows affected (0.02 sec)

Records: 0 Duplicates: 0 Warnings: 0

```
mysql> UPDATE Customers
```

```
-> SET OrderCount = (
```

```
-> SELECT COUNT(*)
```

```
-> FROM Orders
```

```
-> WHERE Orders.CustomerID = Customers.CustomerID
```

```
-> )
```

```
-> ;
```

Query OK, 7 rows affected (0.01 sec)

Rows matched: 11 Changed: 7 Warnings: 0

```
mysql> select * from customers;
```

```
+-----+-----+-----+-----+-----+-----+-----+
```

```
| CustomerID | FirstName | LastName | Email | Phone | Address | OrderCount |
```

```
+-----+-----+-----+-----+-----+-----+-----+
```

```
| 1 | Alice | Johnson | alice.johnson@example.com | 1234567890 | 123 Maple St | 1 |
```

```
| 2 | Bob | Smith | bob.smith@example.com | 2345678901 | 456 Oak St | 1 |
```

```
| 3 | Charlie | Brown | charlie.brown@example.com | 3456789012 | 789 Pine St | 0 |
```

```
| 4 | David | Lee | david.lee@example.com | 4567890123 | 321 Birch St | 0 |
```



5	Eva	Green	emma.watson@example.com	5678901234	789 New Avenue	
6	Frank	Wright	frank.wright@example.com	6789012345	987 Walnut St	1
7	Grace	Hall	grace.hall@example.com	7890123456	159 Elm St	1
8	Hank	Moore	hank.moore@example.com	8901234567	753 Spruce St	1
9	Ivy	King	ivy.king@example.com	9012345678	357 Ash St	1
10	Jake	Stone	jake.stone@example.com	0123456789	951 Willow St	1
11	John	Doe	john.doe@example.com	1234567890	101 Example Street	0