Tech Shop Assignment

Creating Schema:

1. Customers:

- CustomerID (Primary Key)
- FirstName
- LastName
- Email
- Phone
- Address

```
create table Customers(

CustomerID int PRIMARY KEY NOT NULL,

FirstName varchar(20) NOT NULL,

LastName varchar(20) NOT NULL,

Email varchar(30),

Phone int,

Address varchar(20));
```

2. Products:

- ProductID (Primary Key)
- ProductName
- Description
- Price

```
create table Products(

ProductID int PRIMARY KEY NOT NULL,

ProductName varchar(50),

Description varchar(80),

Price DECIMAL(10, 2);
```

3. Orders:

- OrderID (Primary Key)
- CustomerID (Foreign Key referencing Customers)
- OrderDate
- TotalAmount

```
create table Orders(

OrderID int PRIMARY KEY NOT NULL,
```

CustomerID int FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID),

OrderDate DATE,

TotalAmount DECIMAL(10, 2));

4. OrderDetails:

- OrderDetailID (Primary Key)
- OrderID (Foreign Key referencing Orders)
- ProductID (Foreign Key referencing Products)
- Quantity

create table OrderDetails(

OrderDetailID int PRIMARY KEY NOT NULL,

OrderID int FOREIGN KEY (OrderID) references Orders(OrderID),

ProductID int foreign key(ProductID) references Products(ProductID),

Quantity int);

5. Inventory

- InventoryID (Primary Key)
- ProductID (Foreign Key referencing Products)
- QuantityInStock
- LastStockUpdate

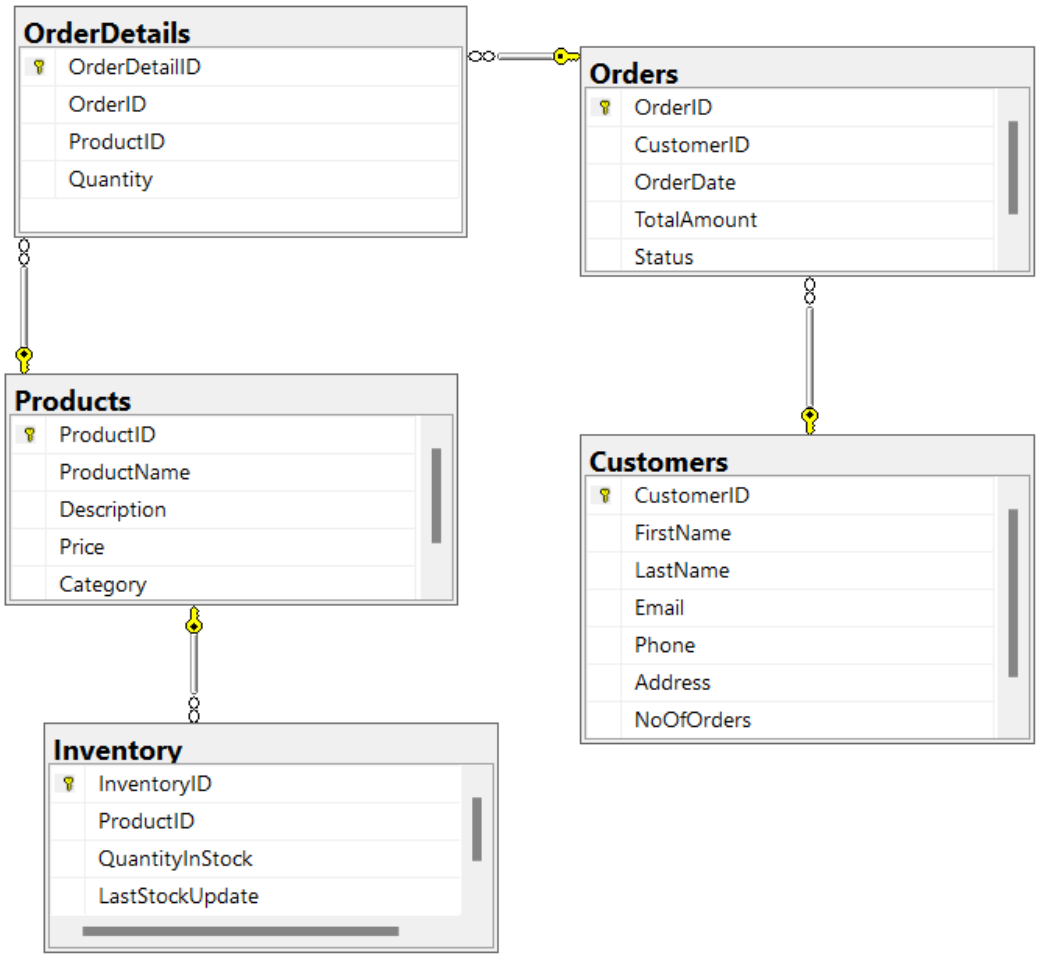
create table Inventory(

InventoryID int PRIMARY KEY NOT NULL,

ProductID int foreign key (ProductID) references Products(ProductID),

QuantityInStock int,

LastStockUpdate int);


OrderDetails
OrderDetailID
OrderID
ProductID
Quantity
Orders
OrderID
CustomerID
OrderDate
TotalAmount
Status
Products
ProductID
ProductName
Description
Price
Category
Customers
CustomerID
FirstName
LastName
Email
Phone
Address
NoOfOrders
Inventory
InventoryID
ProductID
QuantityInStock
LastStockUpdate

Inserting Records:

```
-- Insert 15 sample records into Customers table
INSERT INTO Customers (CustomerID, FirstName, LastName, Email, Phone, Address)
VALUES
    (1, 'John', 'Doe', 'john.doe@example.com', '123-456-7890', '123 Main St, Anytown, USA'),
    (2, 'Jane', 'Smith', 'jane.smith@example.com', '456-789-0123', '456 Elm St, Anycity, USA'),
    (3, 'Michael', 'Johnson', 'michael.johnson@example.com', '789-012-3456', '789 Oak St, Anystate, USA'),
    (4, 'Emily', 'Brown', 'emily.brown@example.com', '321-654-9870', '321 Maple St, Anyvillage, USA'),
    (5, 'Daniel', 'Martinez', 'daniel.martinez@example.com', '654-987-0123', '654 Cedar St, Anysuburb, USA'),
    (6, 'Sarah', 'Wilson', 'sarah.wilson@example.com', '987-012-3456', '987 Pine St, Anyhamlet, USA'),
    (7, 'David', 'Taylor', 'david.taylor@example.com', '111-222-3333', '111 Oak St, Anycity, USA'),
    (8, 'Olivia', 'Anderson', 'olivia.anderson@example.com', '444-555-6666', '444 Elm St, Anystate, USA'),
    (9, 'James', 'Hernandez', 'james.hernandez@example.com', '777-888-9999', '777 Maple St, Anytown, USA'),
    (10, 'Emma', 'Garcia', 'emma.garcia@example.com', '000-111-2222', '000 Cedar St, Anyvillage, USA'),
    (11, 'Ava', 'Lopez', 'ava.lopez@example.com', '333-444-5555', '333 Pine St, Anysuburb, USA'),
    (12, 'Alexander', 'Martinez', 'alexander.martinez@example.com', '666-777-8888', '666 Oak St, Anyhamlet, USA'),
    (13, 'Sophia', 'Gonzalez', 'sophia.gonzalez@example.com', '999-000-1111', '999 Elm St, Anytown, USA'),
    (14, 'Mia', 'Perez', 'mia.perez@example.com', '222-333-4444', '222 Maple St, Anycity, USA'),
    (15, 'Logan', 'Rodriguez', 'logan.rodriguez@example.com', '555-666-7777', '555 Cedar St, Anystate, USA');

-- Insert 15 sample records into Products table
INSERT INTO Products (ProductID, ProductName, Description, Price)
VALUES
    (1, 'Smartphone', 'Smartphone with high-resolution camera', 599.99),
    (2, 'Laptop', 'Thin and lightweight laptop with SSD storage', 999.99),
    (3, 'Headphones', 'Wireless noise-canceling headphones', 199.99),
    (4, 'Smart Watch', 'Fitness tracker with heart rate monitor', 149.99),
```

```
    (5, 'Tablet', '10-inch tablet with retina display', 399.99),
    (6, 'Digital Camera', 'Mirrorless digital camera with 4K video recording', 799.99),
    (7, 'Gaming Console', 'Next-gen gaming console with VR support', 499.99),
    (8, 'Bluetooth Speaker', 'Portable Bluetooth speaker with long battery life', 79.99),
    (9, 'External Hard Drive', '1TB external hard drive with USB 3.0', 69.99),
    (10, 'Wireless Router', 'Dual-band wireless router for high-speed internet', 129.99),
    (11, 'Fitness Tracker', 'Waterproof fitness tracker with GPS', 129.99),
    (12, 'Smart Home Hub', 'Voice-controlled smart home hub', 149.99),
    (13, 'Wireless Earbuds', 'True wireless earbuds with touch controls', 129.99),
    (14, 'Monitor', '27-inch 4K monitor with IPS display', 399.99),
    (15, 'Printer', 'All-in-one printer with wireless connectivity', 199.99);

-- Insert 15 sample records into Orders table
INSERT INTO Orders (OrderID, CustomerID, OrderDate, TotalAmount)
VALUES
    (1, 1, '2024-02-01', 249.99),
    (2, 3, '2024-02-03', 799.99),
    (3, 5, '2024-02-05', 149.99),
    (4, 2, '2024-02-07', 399.99),
    (5, 4, '2024-02-10', 999.99),
    (6, 6, '2024-02-12', 79.99),
    (7, 8, '2024-02-15', 129.99),
    (8, 10, '2024-02-18', 499.99),
    (9, 12, '2024-02-20', 129.99),
    (10, 14, '2024-02-22', 69.99),
    (11, 7, '2024-02-25', 149.99),
    (12, 9, '2024-02-28', 129.99),
    (13, 11, '2024-03-01', 399.99),
    (14, 13, '2024-03-03', 199.99),
    (15, 15, '2024-03-05', 999.99);
INSERT INTO Orders (OrderID, CustomerID, OrderDate, TotalAmount)
VALUES
        (16, 1, '2024-03-08', 329.99),
    (17, 3, '2024-03-10', 699.99),
    (18, 5, '2024-03-12', 199.99),
    (19, 2, '2024-03-15', 449.99),
    (20, 4, '2024-03-18', 1299.99),
    (21, 6, '2024-03-20', 89.99),
    (22, 8, '2024-03-22', 149.99),
```

```
    (23, 10, '2024-03-25', 599.99),
    (24, 12, '2024-03-28', 179.99),
    (25, 14, '2024-03-30', 79.99),
    (26, 7, '2024-04-01', 199.99),
    (27, 9, '2024-04-03', 169.99),
    (28, 11, '2024-04-05', 499.99),
    (29, 13, '2024-04-08', 249.99),
    (30, 15, '2024-04-10', 1199.99),
    (31, 1, '2024-04-12', 359.99),
    (32, 3, '2024-04-15', 799.99),
    (33, 5, '2024-04-18', 249.99),
    (34, 2, '2024-04-20', 499.99),
    (35, 4, '2024-04-22', 1399.99);

-- Insert 15 sample records into OrderDetails table
INSERT INTO OrderDetails (OrderDetailID, OrderID, ProductID, Quantity)
VALUES
    (1, 1, 1, 2),
    (2, 1, 3, 1),
    (3, 2, 5, 1),
    (4, 2, 7, 1),
    (5, 3, 9, 3),
    (6, 3, 11, 2),
    (7, 4, 2, 1),
    (8, 4, 4, 1),
    (9, 5, 6, 1),
    (10, 5, 8, 2),
    (11, 6, 10, 1),
    (12, 6, 12, 1),
    (13, 7, 14, 1),
    (14, 7, 1, 1),
    (15, 8, 3, 2);


-- Insert 15 sample records into Inventory table
INSERT INTO Inventory (InventoryID, ProductID, QuantityInStock, LastStockUpdate)
VALUES
    (1, 1, 50, '2024-02-01'),
    (2, 2, 30, '2024-02-01'),
```

(3, 3, 80, '2024-02-01'),
(4, 4, 20, '2024-02-01'),
(5, 5, 60, '2024-02-01'),
(6, 6, 40, '2024-02-01'),
(7, 7, 25, '2024-02-01'),
(8, 8, 70, '2024-02-01'),
(9, 9, 55, '2024-02-01'),
(10, 10, 45, '2024-02-01'),
(11, 11, 35, '2024-02-01'),
(12, 12, 65, '2024-02-01'),
(13, 13, 75, '2024-02-01'),
(14, 14, 15, '2024-02-01'),
(15, 15, 10, '2024-02-01');

Task 2:

1. Write an SQL query to retrieve the names and emails of all customers.
   SELECT FirstName+' '+LastName as Name, Email FROM Customers;
   Output:

	Name	Email
1	John Doe	john.doe@example.com
2	Jane Smith	jane.smith@example.com
3	Michael Johnson	michael.johnson@example.com
4	Emily Brown	emily.brown@example.com
5	Daniel Martinez	daniel.martinez@example.com
6	Sarah Wilson	sarah.wilson@example.com
7	David Taylor	david.taylor@example.com
8	Olivia Anderson	olivia.anderson@example.com
9	James Hernandez	james.hernandez@example.com
10	Emma Garcia	emma.garcia@example.com
11	Ava Lopez	ava.lopez@example.com
12	Alexander Martinez	alexander.martinez@example.com
13	Sophia Gonzalez	sophia.gonzalez@example.com
14	Mia Perez	mia.perez@example.com
15	Logan Rodriguez	logan.rodriguez@example.com

2. Write an SQL query to list all orders with their order dates and corresponding customer names.
   SELECT O.OrderID, O.OrderDate, C.FirstName+' '+C.LastName as Name FROM Orders as O JOIN Customers AS C ON O.OrderID=C.CustomerID;
   Output:

	OrderID	OrderDate	Name
1	1	2024-02-01	John Doe
2	2	2024-02-03	Jane Smith
3	3	2024-02-05	Michael Johnson
4	4	2024-02-07	Emily Brown
5	5	2024-02-10	Daniel Martinez
6	6	2024-02-12	Sarah Wilson
7	7	2024-02-15	David Taylor
8	8	2024-02-18	Olivia Anderson
9	9	2024-02-20	James Hernandez
10	11	2024-02-25	Ava Lopez
11	12	2024-02-28	Alexander Martinez
12	13	2024-03-01	Sophia Gonzalez
13	14	2024-03-03	Mia Perez
14	15	2024-03-05	Logan Rodriguez

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

INSERT INTO Customers VALUES

(16, 'Srikar', 'Gadiraju', 'srikargs2@gmail.com', '9494-190-667', 'Vijayawada');

Output:

	CustomerID	FirstName	LastName	Email	Phone	Address
1	1	John	Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA
2	2	Jane	Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA
3	3	Michael	Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA
4	4	Emily	Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA
5	5	Daniel	Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
6	6	Sarah	Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA
7	7	David	Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA
8	8	Olivia	Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA
9	9	James	Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA
10	10	Emma	Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA
11	11	Ava	Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA
12	12	Alexander	Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA
13	13	Sophia	Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA
14	14	Mia	Perez	mia.perez@example.com	222-333-4444	222 Maple St, Anycity, USA
15	15	Logan	Rodriguez	logan.rodriguez@example.com	555-666-7777	555 Cedar St, Anystate, USA
16	16	Srikar	Gadiraju	srikargs3@gmail.com	9494-190-667	Singh Nagar, Vijayawada, AP

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

UPDATE Products

SET Price=Price+Price*10/100

Output:

	ProductID	ProductName	Description	Price
1	1	Smartphone	Smartphone with high-resolution camera	725.9879
2	2	Laptop	Thin and lightweight laptop with SSD storage	1209.9879
3	3	Headphones	Wireless noise-canceling headphones	241.9879
4	4	Smart Watch	Fitness tracker with heart rate monitor	181.4879
5	5	Tablet	10-inch tablet with retina display	483.9879
6	6	Digital Camera	Mirrorless digital camera with 4K video recording	967.9879
7	7	Gaming Console	Next-gen gaming console with VR support	604.9879
8	8	Bluetooth Speaker	Portable Bluetooth speaker with long battery life	96.7879
9	9	External Hard Drive	1TB external hard drive with USB 3.0	84.6879
10	10	Wireless Router	Dual-band wireless router for high-speed internet	157.2879
11	11	Fitness Tracker	Waterproof fitness tracker with GPS	157.2879
12	12	Smart Home Hub	Voice-controlled smart home hub	181.4879
13	13	Wireless Earbuds	True wireless earbuds with touch controls	157.2879
14	14	Monitor	27-inch 4K monitor with IPS display	483.9879
15	15	Printer	All-in-one printer with wireless connectivity	241.9879
16	16	Scanner	High quality Scanner which can scan any document	380.5879

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.

```
CREATE PROCEDURE DeleteOrderByOrderID
        @OrderID INT
AS
BEGIN
        DELETE FROM OrderDetails
        WHERE OrderID = @OrderID
        DELETE FROM Orders
        WHERE OrderID = @OrderID
END;
EXEC DeleteOrderByOrderID @OrderID = 15;
```

Output:

	OrderDetailID	OrderID	ProductID	Quantity
1	1	1	1	2
2	2	1	3	1
3	3	2	5	1
4	4	2	7	1
5	5	3	9	3
6	6	3	11	2
7	7	4	2	1
8	8	4	4	1
9	9	5	6	1
10	10	5	8	2
11	11	6	10	1
12	12	6	12	1
13	13	7	14	1
14	14	7	1	1
15	15	8	3	2

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.

```
INSERT INTO Orders VALUES
(15, 15, '2024-03-05', 230.99000);
```

Output:

15	15	2024-03-05	230.99

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.

```
SELECT * FROM Customers;
CREATE PROCEDURE UpdateInfo
@CustomerID INT, @NewEmail VARCHAR(50),
@NewAddress VARCHAR(100)
AS
BEGIN
        UPDATE Customers
        SET Email = @NewEmail
        WHERE CustomerID = @CustomerID
        UPDATE Customers
        SET Address = @NewAddress
```

```
        WHERE CustomerID = @CustomerID
END;
EXEC UpdateInfo
        @CustomerID = 16,
        @NewEmail = 'srikargs3@gmail.com',
        @NewAddress = 'Singh Nagar, Vijayawada, AP';
```

Output:

	CustomerID	FirstName	LastName	Email	Phone	Address
5	5	Daniel	Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
6	6	Sarah	Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA
7	7	David	Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA
8	8	Olivia	Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA
9	9	James	Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA
10	10	Emma	Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA
11	11	Ava	Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA
12	12	Alexander	Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA
13	13	Sophia	Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA
14	14	Mia	Perez	mia.perez@example.com	222-333-4444	222 Maple St, Anycity, USA
15	15	Logan	Rodriguez	logan.rodriguez@example.com	555-666-7777	555 Cedar St, Anystate, USA
16	16	Srikar	Gadiraju	srikargs3@gmail.com	9494-190-667	Singh Nagar, Vijayawada, AP

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

```
UPDATE Orders
SET TotalAmount = (
   SELECT SUM(Quantity * Products.Price)
   FROM OrderDetails
   INNER JOIN Products ON OrderDetails.ProductID = Products.ProductID
   WHERE OrderDetails.OrderID = Orders.OrderID
)
```

Output:

	OrderID	CustomerID	OrderDate	TotalAmount
1	1	1	2024-02-01	483.9758
2	2	3	2024-02-03	1814.9637
3	3	5	2024-02-05	1209.9879
4	4	2	2024-02-07	786.4395
5	5	4	2024-02-10	967.9758
6	6	6	2024-02-12	1451.9637
7	7	8	2024-02-15	967.9516
8	8	10	2024-02-18	96.7879
9	9	12	2024-02-20	544.4637
10	11	7	2024-02-25	157.2879
11	12	9	2024-02-28	169.3758
12	13	11	2024-03-01	2903.9637
13	14	13	2024-03-03	629.1516
14	15	15	2024-03-05	241.9879
15	16	1	2024-03-08	483.9758
16	17	3	2024-03-10	1814.9637

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.

```
CREATE PROCEDURE DeleteOrders
@CusID INT
AS
BEGIN
        DELETE FROM Orders
        WHERE CustomerID = @CusID
        DELETE FROM OrderDetails
        WHERE OrderID IN(
                SELECT OrderID FROM Orders
                WHERE CustomerID = @CusID);
END;
EXEC DeleteOrders @CusID = 14;
```

Output:

	OrderID	CustomerID	OrderDate	TotalAmount
1	1	1	2024-02-01	483.9758
2	2	3	2024-02-03	1814.9637
3	3	5	2024-02-05	1209.9879
4	4	2	2024-02-07	786.4395
5	5	4	2024-02-10	967.9758
6	6	6	2024-02-12	1451.9637
7	7	8	2024-02-15	967.9516
8	8	10	2024-02-18	96.7879
9	9	12	2024-02-20	544.4637
10	11	7	2024-02-25	157.2879
11	12	9	2024-02-28	169.3758
12	13	11	2024-03-01	2903.9637
13	14	13	2024-03-03	629.1516
14	15	15	2024-03-05	241.9879

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 VALUES
(16, 'Scanner', 'Scans any document', 345.989);
```

Output:

4	4	Smart Watch	Fitness tracker with heart rate monitor	181.4879
5	5	Tablet	10-inch tablet with retina display	483.9879
6	6	Digital Camera	Mirrorless digital camera with 4K video recording	967.9879
7	7	Gaming Console	Next-gen gaming console with VR support	604.9879
8	8	Bluetooth Speaker	Portable Bluetooth speaker with long battery life	96.7879
9	9	External Hard Drive	1TB external hard drive with USB 3.0	84.6879
10	10	Wireless Router	Dual-band wireless router for high-speed internet	157.2879
11	11	Fitness Tracker	Waterproof fitness tracker with GPS	157.2879
12	12	Smart Home Hub	Voice-controlled smart home hub	181.4879
13	13	Wireless Earbuds	True wireless earbuds with touch controls	157.2879
14	14	Monitor	27-inch 4K monitor with IPS display	483.9879
15	15	Printer	All-in-one printer with wireless connectivity	241.9879
16	16	Scanner	High quality Scanner which can scan any document	380.5879

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

```
ALTER TABLE Orders
ADD Status VARCHAR(15);
UPDATE Orders
SET Status='Pending'
DECLARE @OID INT = 1
UPDATE Orders
SET Status='Shipped'
WHERE OrderID = @OID
SELECT * FROM ORDERS
```

Output:

	OrderID	CustomerID	OrderDate	TotalAmount	Status
1	1	1	2024-02-01	483.9758	Shipped
2	2	3	2024-02-03	1814.9637	Pending
3	3	5	2024-02-05	1209.9879	Pending
4	4	2	2024-02-07	786.4395	Pending
5	5	4	2024-02-10	967.9758	Pending
6	6	6	2024-02-12	1451.9637	Pending
7	7	8	2024-02-15	967.9516	Pending
8	8	10	2024-02-18	96.7879	Pending
9	9	12	2024-02-20	544.4637	Pending
10	11	7	2024-02-25	157.2879	Pending
11	12	9	2024-02-28	169.3758	Pending
12	13	11	2024-03-01	2903.9637	Pending
13	14	13	2024-03-03	629.1516	Pending
14	16	1	2024-03-08	483.9758	Pending

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.

```
ALTER TABLE Customers
ADD NoOfOrders INT
ALTER TABLE Customers
DROP COLUMN NoOfOrders
UPDATE Customers
SET NoOfOrders = COALESCE(OrdersPerCustomer.NoOfOrders, 0)
FROM Customers
JOIN (
   SELECT CustomerID, COUNT(*) AS NoOfOrders
   FROM Orders
   GROUP BY CustomerID
) AS OrdersPerCustomer ON Customers.CustomerID = OrdersPerCustomer.CustomerID;
```

Output:

	CustomerID	FirstName	LastName	Email	Phone	Address	NoOfOrders
1	1	John	Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA	3
2	2	Jane	Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA	3
3	3	Michael	Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA	3
4	4	Emily	Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA	3
5	5	Daniel	Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA	3
6	6	Sarah	Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA	2
7	7	David	Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA	2
8	8	Olivia	Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA	2
9	9	James	Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA	2
10	10	Emma	Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA	2
11	11	Ava	Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA	2
12	12	Alexander	Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA	2
13	13	Sophia	Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA	2
14	14	Mia	Perez	mia.perez@example.com	222-333-4444	222 Maple St, Anycity, USA	NULL
15	15	Logan	Rodriguez	logan.rodriguez@example.com	555-666-7777	555 Cedar St, Anystate, USA	1
16	16	Srikar	Gadiraju	srikargs3@gmail.com	9494-190-667	Singh Nagar, Vijayawada, AP	NULL

Task 3

1. Write an SQL query to retrieve a list of all orders along with customer information (e.g., customer name) for each order.

```
SELECT
        O.OrderID,
        O.OrderDate,
        O.TotalAmount,
        C.FirstName+' '+C.LastName AS CustomerName,
        C.Email,
        C.Phone,
        C.Address
FROM Orders AS O
JOIN Customers AS C ON C.CustomerID = O.CustomerID;
```

Output:

	OrderID	OrderDate	TotalAmount	CustomerName	Email	Phone	Address
1	1	2024-02-01	483.9758	John Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA
2	2	2024-02-03	1814.9637	Michael Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA
3	3	2024-02-05	1209.9879	Daniel Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
4	4	2024-02-07	786.4395	Jane Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA
5	5	2024-02-10	967.9758	Emily Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA
6	6	2024-02-12	1451.9637	Sarah Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA
7	7	2024-02-15	967.9516	Olivia Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA
8	8	2024-02-18	96.7879	Emma Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA
9	9	2024-02-20	544.4637	Alexander Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA
10	11	2024-02-25	157.2879	David Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA
11	12	2024-02-28	169.3758	James Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA
12	13	2024-03-01	2903.9637	Ava Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA
13	14	2024-03-03	629.1516	Sophia Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA
14	16	2024-03-08	483.9758	John Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA
15	17	2024-03-10	1814.9637	Michael Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA
16	18	2024-03-12	1209.9879	Daniel Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
17	19	2024-03-15	786.4395	Jane Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA
18	20	2024-03-18	967.9758	Emily Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA
19	21	2024-03-20	1451.9637	Sarah Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA
20	22	2024-03-22	967.9516	Olivia Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA
21	23	2024-03-25	96.7879	Emma Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA
22	24	2024-03-28	544.4637	Alexander Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA
23	26	2024-04-01	157.2879	David Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA
24	27	2024-04-03	169.3758	James Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA
25	28	2024-04-05	2903.9637	Ava Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA
26	29	2024-04-08	629.1516	Sophia Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA
27	30	2024-04-10	241.9879	Logan Rodriguez	logan.rodriguez@example.com	555-666-7777	555 Cedar St, Anystate, USA
28	31	2024-04-12	483.9758	John Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA
29	32	2024-04-15	1814.9637	Michael Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA
30	33	2024-04-18	1209.9879	Daniel Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
31	34	2024-04-20	786.4395	Jane Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA
32	35	2024-04-22	967.9758	Emily Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA

2. Write an SQL query to find the total revenue generated by each electronic gadget product. Include the product name and the total revenue.

```
SELECT P.ProductName,
SUM(OD.Quantity*P.Price) AS Revenue
FROM Products AS P
JOIN OrderDetails AS OD ON OD.ProductID = P.ProductID
GROUP BY P.ProductName
ORDER BY Revenue DESC;
```

Output:

	ProductName	Revenue
1	Digital Camera	5807.9274
2	Gaming Console	5444.8911
3	Laptop	3629.9637
4	Smartphone	2903.9516
5	Tablet	2903.9274
6	Monitor	2903.9274
7	Wireless Router	2359.3185
8	Printer	2177.8911
9	Headphones	1451.9274
10	Fitness Tracker	1258.3032
11	Smart Watch	1088.9274
12	External Hard ...	338.7516
13	Wireless Earbu...	314.5758
14	Bluetooth Spea...	193.5758

3. Write an SQL query to list all customers who have made at least one purchase. Include their names and contact information.

SELECT

C.FirstName,

C.LastName,

C.Email,

C.Phone,

C.Address

FROM

Customers AS C

JOIN

Orders AS O ON C.CustomerID = O.CustomerID

GROUP BY

C.FirstName, C.LastName, C.Email, C.Phone, C.Address

Output:

	FirstName	LastName	Email	Phone	Address
1	Alexander	Martinez	alexander.martinez@example.com	666-777-8888	666 Oak St, Anyhamlet, USA
2	Ava	Lopez	ava.lopez@example.com	333-444-5555	333 Pine St, Anysuburb, USA
3	Daniel	Martinez	daniel.martinez@example.com	654-987-0123	654 Cedar St, Anysuburb, USA
4	David	Taylor	david.taylor@example.com	111-222-3333	111 Oak St, Anycity, USA
5	Emily	Brown	emily.brown@example.com	321-654-9870	321 Maple St, Anyvillage, USA
6	Emma	Garcia	emma.garcia@example.com	000-111-2222	000 Cedar St, Anyvillage, USA
7	James	Hernandez	james.hernandez@example.com	777-888-9999	777 Maple St, Anytown, USA
8	Jane	Smith	jane.smith@example.com	456-789-0123	456 Elm St, Anycity, USA
9	John	Doe	john.doe@example.com	123-456-7890	123 Main St, Anytown, USA
10	Logan	Rodriguez	logan.rodriguez@example.com	555-666-7777	555 Cedar St, Anystate, USA
11	Michael	Johnson	michael.johnson@example.com	789-012-3456	789 Oak St, Anystate, USA
12	Olivia	Anderson	olivia.anderson@example.com	444-555-6666	444 Elm St, Anystate, USA
13	Sarah	Wilson	sarah.wilson@example.com	987-012-3456	987 Pine St, Anyhamlet, USA
14	Sophia	Gonzalez	sophia.gonzalez@example.com	999-000-1111	999 Elm St, Anytown, USA

4. Write an SQL query to find the most popular electronic gadget, which is the one with the highest total quantity ordered. Include the product name and the total quantity ordered.

```
SELECT TOP 1
P.ProductName, OD.Quantity FROM  Products AS P
JOIN OrderDetails AS OD
ON OD.ProductID = P.ProductID
ORDER BY OD.Quantity DESC;
```

Output:

	ProductName	Quantity
1	Wireless Router	5

5. Write an SQL query to retrieve a list of electronic gadgets along with their corresponding categories.

```
ALTER TABLE Products
ADD Category VARCHAR(20)
UPDATE Products
SET Category =
  CASE
    WHEN Description LIKE '%smartphone%' THEN 'Electronics'
    WHEN Description LIKE '%laptop%' THEN 'Electronics'
    WHEN Description LIKE '%headphones%' THEN 'Electronics'
    WHEN Description LIKE '%smart watch%' THEN 'Electronics'
    WHEN Description LIKE '%tablet%' THEN 'Electronics'
    WHEN Description LIKE '%digital camera%' THEN 'Electronics'
    WHEN Description LIKE '%gaming console%' THEN 'Electronics'
    WHEN Description LIKE '%bluetooth speaker%' THEN 'Electronics'
    WHEN Description LIKE '%external hard drive%' THEN 'Electronics'
    WHEN Description LIKE '%wireless router%' THEN 'Electronics'
    WHEN Description LIKE '%fitness tracker%' THEN 'Electronics'
    WHEN Description LIKE '%smart home hub%' THEN 'Electronics'
    WHEN Description LIKE '%wireless earbuds%' THEN 'Electronics'
    WHEN Description LIKE '%monitor%' THEN 'Electronics'
    WHEN Description LIKE '%printer%' THEN 'Electronics'
                WHEN Description LIKE '%scanner%' THEN 'Electronics'
    ELSE 'Other'
  END;
SELECT ProductName, Category FROM Products
```

Output:

	ProductName	Category
1	Smartphone	Electronics
2	Laptop	Electronics
3	Headphones	Electronics
4	Smart Watch	Electronics
5	Tablet	Electronics
6	Digital Camera	Electronics
7	Gaming Console	Electronics
8	Bluetooth Speaker	Electronics
9	External Hard Drive	Electronics
10	Wireless Router	Electronics
11	Fitness Tracker	Electronics
12	Smart Home Hub	Electronics
13	Wireless Earbuds	Electronics
14	Monitor	Electronics
15	Printer	Electronics
16	Scanner	Electronics

6. Write an SQL query to calculate the average order value for each customer. Include the customer's name and their average order value.

```
SELECT
   C.CustomerID,
   C.FirstName,
   C.LastName,
   AVG(O.TotalAmount) AS AverageOrderValue
FROM Customers C
JOIN Orders O ON C.CustomerID = O.CustomerID
GROUP BY C.CustomerID, C.FirstName, C.LastName;
```

Output:

	CustomerID	FirstName	LastName	AverageOrderValue
1	1	John	Doe	483.9758
2	2	Jane	Smith	786.4395
3	3	Michael	Johnson	1814.9637
4	4	Emily	Brown	967.9758
5	5	Daniel	Martinez	1209.9879
6	6	Sarah	Wilson	1451.9637
7	7	David	Taylor	157.2879
8	8	Olivia	Anderson	967.9516
9	9	James	Hernandez	169.3758
10	10	Emma	Garcia	96.7879
11	11	Ava	Lopez	2903.9637
12	12	Alexander	Martinez	544.4637
13	13	Sophia	Gonzalez	629.1516
14	15	Logan	Rodriguez	241.9879

7. Write an SQL query to find the order with the highest total revenue. Include the order ID, customer information, and the total revenue

```
SELECT TOP 1
        C.FirstName, C.LastName,
        O.OrderID, SUM(O.TotalAmount) AS Revenue
FROM Customers AS C
JOIN Orders AS O ON O.CustomerID = C.CustomerID
GROUP BY
        C.FirstName, C.LastName, O.OrderID
ORDER BY Revenue DESC
```

Output:

	FirstName	LastName	OrderID	Revenue
1	Ava	Lopez	13	2903.9637

8. Write an SQL query to list electronic gadgets and the number of times each product has been ordered.

```
SELECT P.ProductName, COUNT(OD.ProductID) CountOfProducts FROM Products AS P
JOIN OrderDetails AS OD ON OD.ProductID = P.ProductID
GROUP BY P.ProductName
```

Output:

	ProductName	CountOfProducts
1	Bluetooth Speaker	2
2	Digital Camera	2
3	External Hard Drive	2
4	Fitness Tracker	2
5	Gaming Console	3
6	Headphones	3
7	Laptop	3
8	Monitor	3
9	Printer	3
10	Smart Watch	2
11	Smartphone	2
12	Tablet	2
13	Wireless Earbuds	2
14	Wireless Router	3

9. Write an SQL query to find customers who have purchased a specific electronic gadget product. Allow users to input the product name as a parameter

```
CREATE PROCEDURE FindCustomer
        @ProductName VARCHAR(20)
AS
BEGIN
        SELECT C.FirstName+' '+C.LastName AS CustomerName,
                P.ProductName
        FROM Customers AS C
        JOIN Orders AS O ON O.CustomerID = C.CustomerID
        JOIN OrderDetails AS OD ON OD.OrderID = O.OrderID
        JOIN Products AS P ON P.ProductID = OD.ProductID
        WHERE P.ProductName = @ProductName
END;
EXEC FindCustomer @ProductName = 'Laptop'
```

Output:

	CustomerName	ProductName
1	Daniel Martinez	Laptop
2	Daniel Martinez	Laptop
3	Daniel Martinez	Laptop

10. Write an SQL query to calculate the total revenue generated by all orders placed within a specific time period. Allow users to input the start and end dates as parameters.

```
CREATE PROCEDURE CalcTotalRev
        @StartDate DATE,
        @EndDate DATE
AS
BEGIN
        SELECT SUM(OD.Quantity * P.Price) 'Total Revenue'
        FROM Orders O
        JOIN OrderDetails OD ON OD.OrderID = O.OrderID
        JOIN Products P ON P.ProductID = OD.ProductID
        WHERE
                O.OrderDate>=@StartDate
                AND O.OrderDate<=@EndDate
```

END;
EXEC CalcTotalRev @StartDate='2024-02-05', @EndDate='2024-02-12';
Output:

	Total Revenue
1	4416.3669

Task 4:

1. Write an SQL query to find out which customers have not placed any orders.

```
SELECT
        C.FirstName,
        C.LastName,
        C.Email,
        C.Phone,
        C.Address
FROM Customers AS C
JOIN Orders AS O ON O.CustomerID=C.CustomerID
WHERE O.TotalAmount=NULL
```

2. Write an SQL query to find the total number of products available for sale.

```
select
coalesce(ProductName,'TotalProducts')as ProductName , sum(QuantityInStock) as
QuantityAvailable
from products,Inventory
where products.productID=Inventory.productID
group by rollup (ProductName);
```

Output:

	ProductName	QuantityAvailable
1	Bluetooth Speaker	70
2	Digital Camera	40
3	External Hard Drive	55
4	Fitness Tracker	35
5	Gaming Console	25
6	Headphones	80
7	Laptop	30
8	Monitor	15
9	Printer	10
10	Smart Home Hub	65
11	Smart Watch	20
12	Smartphone	50
13	Tablet	60
14	Wireless Earbuds	75
15	Wireless Router	45
16	TotalProducts	675

3. Write an SQL query to calculate the total revenue generated by TechShop.

SELECT SUM(TotalAmount) TotalRevenue FROM Orders;

Output:

	TotalRevenue
1	29873.9078

4. Write an SQL query to calculate the average quantity ordered for products in a specific category. Allow users to input the category name as a parameter.

SELECT CategoryName, AverageQuantity AS OverallAverageQuantity

FROM (

SELECT P.Category AS CategoryName, AVG(OD.Quantity) AS AverageQuantity

FROM OrderDetails OD

JOIN Products P ON P.ProductID = OD.ProductID

WHERE P.Category = 'Electronics'

GROUP BY P.Category

) AS SubqueryResult

Output:

	CategoryName	OverallAverageQuantity
1	Electronics	2

5. Write an SQL query to calculate the total revenue generated by a specific customer. Allow users to input the customer ID as a parameter.

```
DECLARE @CustomerID INT = 13
SELECT
        CustomerID, FirstName, LastName, TotalRevenue
FROM(
        SELECT C.CustomerID, C.FirstName, C.LastName, SUM(O.TotalAmount)
TotalRevenue FROM Customers C
        JOIN Orders O ON O.CustomerID = C.CustomerID
        WHERE O.CustomerID = @CustomerID
        GROUP BY C.CustomerID, C.FirstName, C.LastName) AS CustomerRevenue;
```

Output:

	CustomerID	FirstName	LastName	TotalRevenue
1	13	Sophia	Gonzalez	1258.3032

6. Write an SQL query to find the customers who have placed the most orders. List their names and the number of orders they've placed

```
WITH OrderCount AS(
        SELECT
                C.CustomerID,
                C.FirstName,
                C.LastName,
                COUNT(O.OrderID) NoOfOrders
        FROM Customers C
        JOIN Orders O ON O.CustomerID = C.CustomerID
```

```
        GROUP BY C.CustomerID, C.FirstName, C.LastName
)
SELECT CustomerID, FirstName, LastName, NoOfOrders FROM OrderCount
WHERE NoOfOrders = (SELECT MAX(NoOfOrders) FROM OrderCount);
```

Output:

	CustomerID	FirstName	LastName	NoOfOrders
1	1	John	Doe	3
2	2	Jane	Smith	3
3	3	Michael	Johnson	3
4	4	Emily	Brown	3
5	5	Daniel	Martinez	3

7. Write an SQL query to find the most popular product category, which is the one with the highest total quantity ordered across all orders.

```
SELECT TOP 1 P.ProductName, SUM(Quantity) Quantity FROM OrderDetails OD
JOIN Products P ON P.ProductID = OD.ProductID
GROUP BY P.ProductName
ORDER BY Quantity DESC;
```

Output:

	ProductName	Quantity
1	Wireless Router	15

8. Write an SQL query to find the customer who has spent the most money (highest total revenue) on electronic gadgets. List their name and total spending.

```
SELECT TOP 1
        C.FirstName+' '+C.LastName CustomerName,
        O.TotalAmount
FROM Customers C
JOIN Orders O ON O.CustomerID = C.CustomerID
ORDER BY O.TotalAmount DESC;
```

Output:

	CustomerName	TotalAmount
1	Ava Lopez	2903.9637

9. Write an SQL query to calculate the average order value (total revenue divided by the number of orders) for all customers.

```
WITH OrderValue AS(
SELECT
        O.CustomerID,
        C.FirstName+' '+C.LastName AS CustomerName,
        SUM(O.TotalAmount) AS TotalRevenue,
        COUNT(O.OrderID) AS NoOfOrders
FROM Orders O
JOIN Customers C ON C.CustomerID = O.CustomerID
GROUP BY O.CustomerID, C.FirstName, C.LastName)
SELECT
        OV.CustomerID,
        OV.CustomerName,
```

AVG(OV.TotalRevenue/OV.NoOfOrders) AS AvgOrderValue
FROM OrderValue OV
GROUP BY OV.CustomerID, OV.CustomerName;
Output:

	CustomerID	CustomerName	AvgOrderValue
1	1	John Doe	483.9758
2	2	Jane Smith	786.4395
3	3	Michael Johnson	1814.9637
4	4	Emily Brown	967.9758
5	5	Daniel Martinez	1209.9879
6	6	Sarah Wilson	1451.9637
7	7	David Taylor	157.2879
8	8	Olivia Anderson	967.9516
9	9	James Hernandez	169.3758
10	10	Emma Garcia	96.7879
11	11	Ava Lopez	2903.9637
12	12	Alexander Martinez	544.4637
13	13	Sophia Gonzalez	629.1516
14	15	Logan Rodriguez	241.9879

10. Write an SQL query to find the total number of orders placed by each customer and list their names along with the order count.

SELECT
C.FirstName,
COUNT(O.OrderID) TotalOrders
FROM Customers C
JOIN Orders O ON O.CustomerID = C.CustomerID
GROUP BY C.FirstName
ORDER BY TotalOrders DESC;
Output:

	FirstName	TotalOrders
1	Daniel	3
2	Emily	3
3	Jane	3
4	John	3
5	Michael	3
6	Olivia	2
7	Sarah	2
8	Sophia	2
9	Emma	2
10	James	2
11	David	2
12	Alexander	2
13	Ava	2
14	Logan	1