Name – Yash Agrawal
Topic – TechShop, an Electronic Gadgets Shop

Assignment 1 – SQL & OOPS

TechShop, an electronic gadgets shop

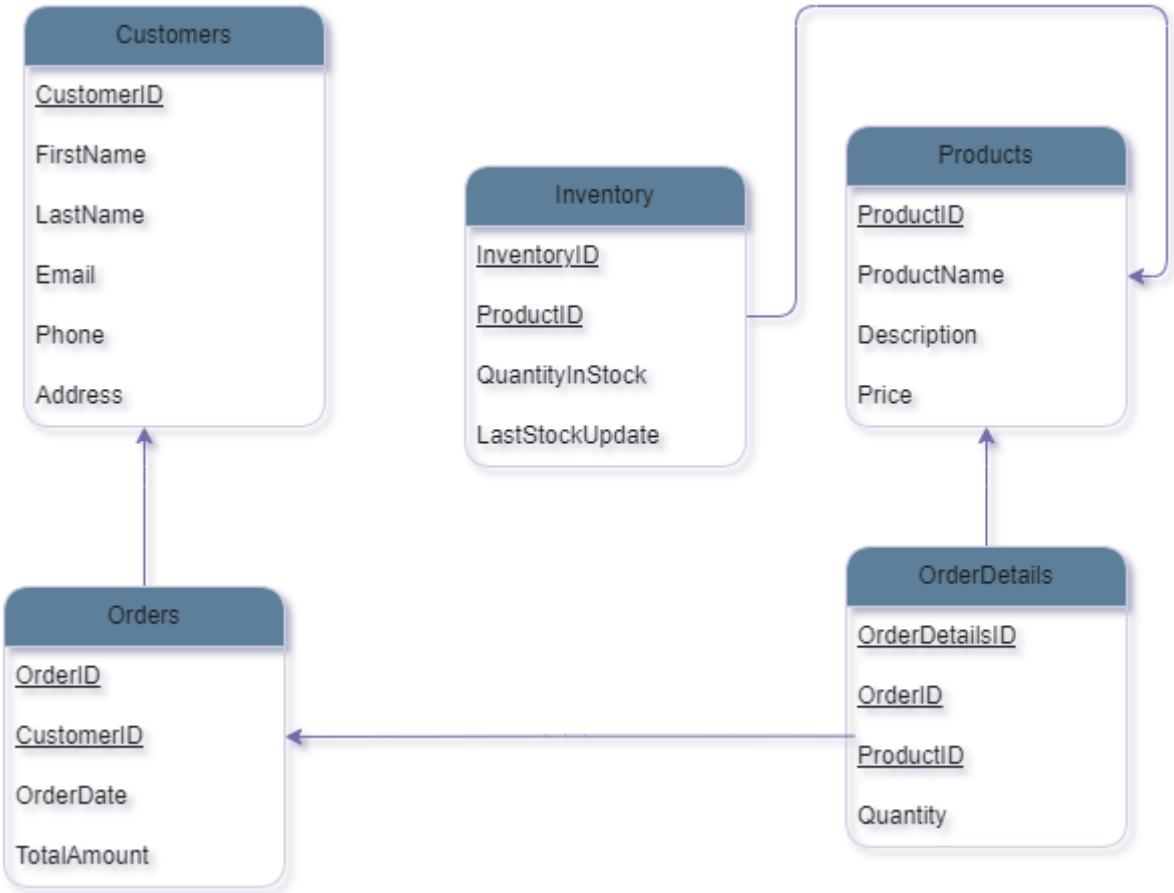
Task:1. Database Design:

1. Create the database named "TechShop"

Ans) `Create Database TechShop;`

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

Ans)



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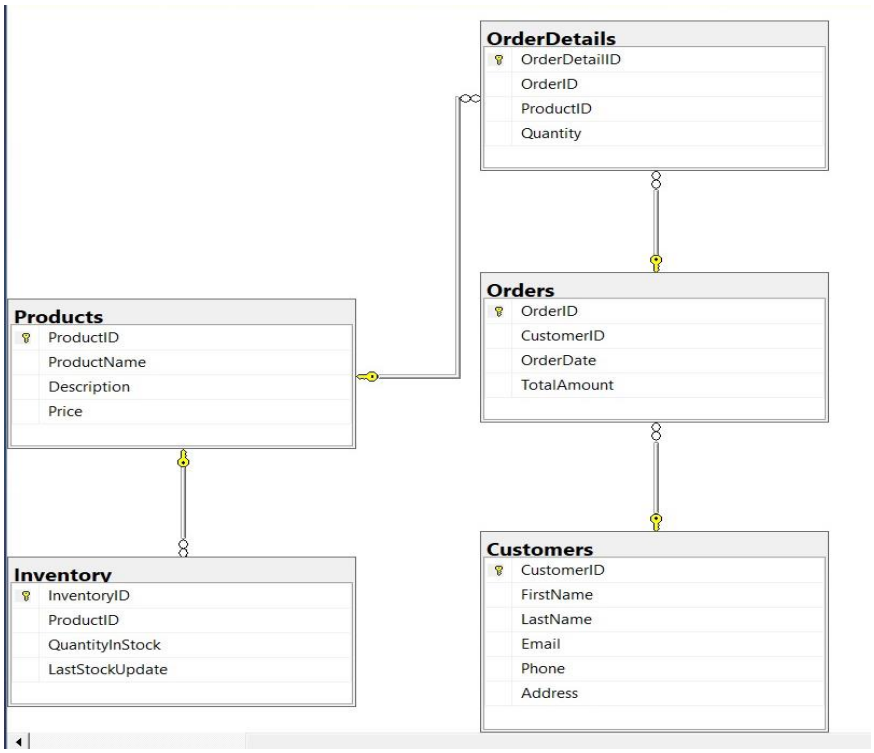
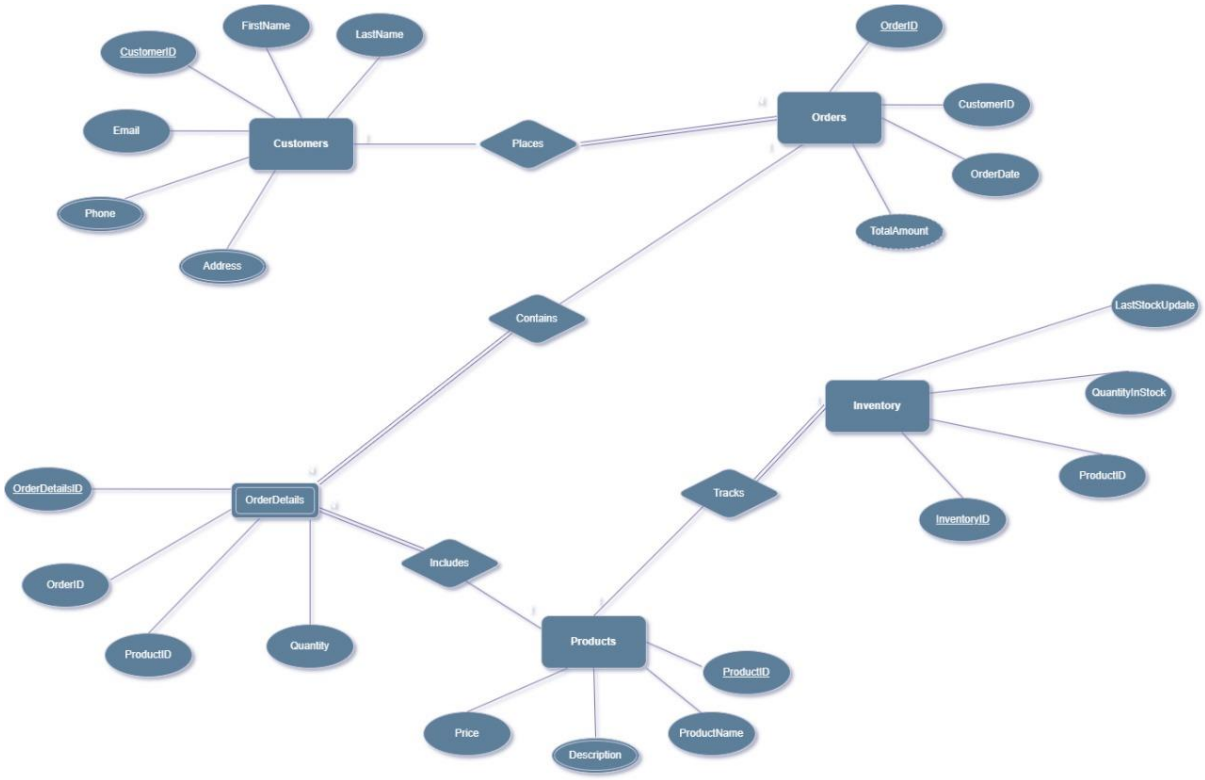
3. Create an ERD (Entity Relationship Diagram) for the database.

Ans)





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

Ans)

```
CREATE TABLE Customers(
CustomerID INT Identity(1,1) PRIMARY KEY,
FirstName VARCHAR(50) NOT NULL,
LastName VARCHAR(50) NOT NULL,
Email VARCHAR(100)NOT NULL,
Phone VARCHAR(10),
Address VARCHAR(255) NOT NULL
);


CREATE TABLE Products(
ProductID INT PRIMARY KEY Identity(101, 1),
ProductName Varchar(100) NOT NULL,
Description Varchar(MAX), --(MAX) value is used to provide maximum limit!
Price DECIMAL(10, 2) NOT NULL);

CREATE TABLE Orders(
OrderID int identity(301, 1) Primary key,
CustomerID int FOREIGN KEY REFERENCES Customers(CustomerID),
OrderDate date NOT NULL,
TotalAmount Decimal(15, 2) Not null
);

CREATE TABLE OrderDetails(
OrderDetailID int identity(501, 1) Primary key,
OrderID int Foreign Key References Orders(OrderID),
ProductID int Foreign Key References Products(ProductId),
Quantity int Not Null
);

CREATE TABLE Inventory(
InventoryID int identity(1001, 1) Primary Key,
ProductID int Foreign Key References Products(ProductID),
QuantityInStock int Not null,
LastStockUpdate date not null
);
```

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

Ans)

```
INSERT INTO Customers (FirstName, LastName, Email, Phone, Address) VALUES
('Yash', 'Agrawal', 'sde.yash.agrawal@gmail.com', '6263605498', '106, Gupta Colony,
Mhow, Madhya Pradesh'),
('Khushi', 'Joshi', 'khushijoshi0129@gmail.com', '8765432109', '456, Collectorate,
Indore, Madhya Pradesh'),
('Suresh', 'Patel', 'sureshpatel@gmail.com', '7654321098', '789, Old City, Jaipur,
Rajasthan'),
('Dinesh', 'Verma', 'dineshverma@gmail.com', '6543210987', '1011, New Colony, Delhi,
Delhi'),
```

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```
('Rajesh', 'Singh', 'rajeshsingh@gmail.com', '5432109876', '1234, Model Town, Mumbai,
Maharashtra'),
('Ganesh', 'Kumar', 'ganeshkumar@ gmail.com', '4321098765', '5678, Banjara Hills,
Hyderabad, Telangana'),
('Mahesh', 'Tiwari', 'maheshtiwari@ gmail.com', '3210987654', '9012, Indiranagar,
Bengaluru, Karnataka'),
('Narendra', 'Mishra', 'narendramishra@ gmail.com', '2109876543', '1314, Salt Lake
City, Kolkata, West Bengal'),
('Pradeep', 'Chauhan', 'pradeepchauhan@ gmail.com', '1098765432', '1516, Beach Road,
Chennai, Tamil Nadu'),
('Sanjeev', 'Bhatt', 'sanjeevbhatt@ gmail.com', '9876543210', '1718, MG Road, Kochi,
Kerala');

INSERT INTO Products (ProductName, Description, Price) VALUES
('iPhone 16 Pro', '6.1-inch Super Retina XDR display, A16 Bionic chip, 12MP dual
camera system', 139999.00),
('Samsung Galaxy S24 Ultra', '6.8-inch Dynamic AMOLED 2X display, Snapdragon 8 Gen 2,
200MP camera', 89999.00),
('OnePlus 11', '6.7-inch Fluid AMOLED display, Snapdragon 8 Gen 2, 50MP camera',
59999.00),
('Xiaomi 13 Pro', '6.7-inch AMOLED display, Snapdragon 8 Gen 2, 50MP camera',
49999.00),
('Google Pixel 7 Pro', '6.7-inch LTPO OLED display, Google Tensor G2, 50MP camera',
84999.00),
('MacBook Pro M2', '13.3-inch Liquid Retina XDR display, M2 chip, 8GB RAM, 256GB SSD',
149999.00),
('Dell XPS 13', '13.4-inch InfinityEdge display, Intel Core i7-13700H, 16GB RAM, 512GB
SSD', 119999.00),
('Lenovo ThinkPad X1 Carbon', '14-inch OLED display, Intel Core i7-13600H, 16GB RAM,
512GB SSD', 109999.00),
('HP Spectre x360', '13.3-inch AMOLED display, Intel Core i7-13600H, 16GB RAM, 512GB
SSD', 129999.00),
('Acer Predator Helios 16', '16-inch IPS display, Intel Core i9-13900HX, 32GB RAM, 2TB
SSD', 179999.00);

INSERT INTO Orders (CustomerID, OrderDate, TotalAmount) VALUES
(1, '2023-11-25', 139999.00),
(2, '2023-12-01', 89999.00),
(3, '2023-12-10', 59999.00),
(4, '2023-12-15', 49999.00),
(5, '2023-12-20', 149999.00),
(6, '2023-12-25', 84999.00),
(7, '2024-01-01', 119999.00),
(8, '2024-01-05', 109999.00),
(9, '2024-01-10', 179999.00),
(10, '2024-01-15', 129999.00),
(2, '2024-01-25', 84999.00),
(9, '2024-02-01', 129999.00),
(3, '2024-02-05', 139999.00),
(7, '2024-02-10', 179999.00),
(10, '2024-02-15', 59999.00);


INSERT INTO OrderDetails (OrderID, ProductID, Quantity) VALUES
(301, 101, 1),
(302, 102, 1),
(303, 103, 1),
(304, 104, 1),
(305, 106, 1),
(306, 105, 1),
(307, 107, 1),
(308, 108, 1),
```

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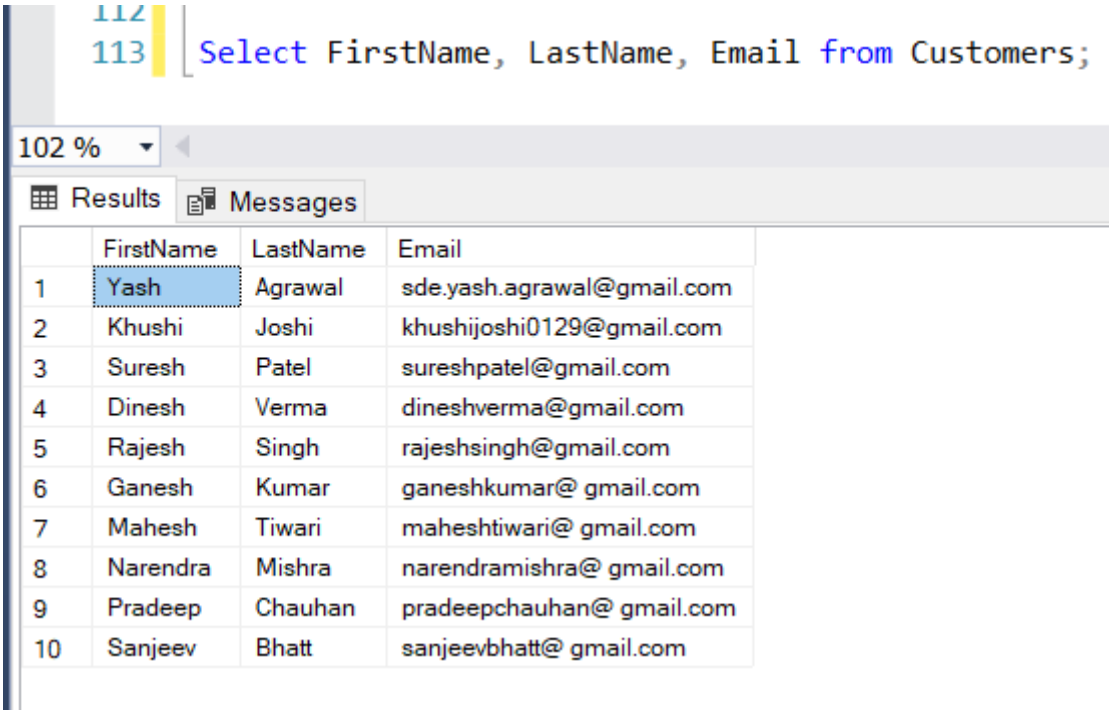
```
(309, 110, 1),
(310, 109, 1),
(311, 105, 1),
(312, 109, 1),
(313, 101, 1),
(314, 110, 1),
(315, 103, 1);

INSERT INTO Inventory (ProductID, QuantityInStock, LastStockUpdate) VALUES
(101, 10, '2023-12-31'),
(102, 15, '2023-12-31'),
(103, 20, '2023-12-31'),
(104, 5, '2023-12-31'),
(105, 8, '2023-12-31'),
(106, 12, '2023-12-31'),
(107, 7, '2023-12-31'),
(108, 11, '2023-12-31'),
(109, 6, '2023-12-31'),
(110, 9, '2023-12-31');
```

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

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

Ans) `Select FirstName, LastName, Email from Customers;`



	FirstName	LastName	Email
1	Yash	Agrawal	sde.yash.agrawal@gmail.com
2	Khushi	Joshi	khushijoshi0129@gmail.com
3	Suresh	Patel	sureshpatel@gmail.com
4	Dinesh	Verma	dineshverma@gmail.com
5	Rajesh	Singh	rajeshsingh@gmail.com
6	Ganesh	Kumar	ganeshkumar@ gmail.com
7	Mahesh	Tiwari	maheshtiwari@ gmail.com
8	Narendra	Mishra	narendramishra@ gmail.com
9	Pradeep	Chauhan	pradeepchauhan@ gmail.com
10	Sanjeev	Bhatt	sanjeevbhatt@ gmail.com

2. Write an SQL query to list all orders with their order dates and corresponding customer names.

Ans)

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```
Select OrderDate, FirstName, LastName from Orders, Customers Where Orders.CustomerID =
Customers.CustomerID;
```

```
118 Select OrderDate, FirstName, LastName from
119 Orders, Customers Where
120 Orders.CustomerID = Customers.CustomerID;
```

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Results | Messages

	OrderDate	FirstName	LastName
1	2023-11-25	Yash	Agrawal
2	2023-12-01	Khushi	Joshi
3	2023-12-10	Suresh	Patel
4	2023-12-15	Dinesh	Verma
5	2023-12-20	Rajesh	Singh
6	2023-12-25	Ganesh	Kumar
7	2024-01-01	Mahesh	Tiwari
8	2024-01-05	Narendra	Mishra
9	2024-01-10	Pradeep	Chauhan
10	2024-01-15	Sanjeev	Bhatt
11	2024-01-25	Khushi	Joshi
12	2024-02-01	Pradeep	Chauhan
13	2024-02-05	Suresh	Patel
14	2024-02-10	Mahesh	Tiwari
15	2024-02-15	Sanjeev	Bhatt

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

Ans)

```
Insert Into Customers Values ('Rajarshi', 'Pathak', 'rajarshipathak@gmail.com',
'9926900646', 'Photi Koti, Indore, Madhya Pradesh');
```

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```
Insert Into Customers Values
('Rajarshi', 'Pathak', 'rajarshipathak@gmail.com',
'9926900646', 'Photi Koti, Indore, Madhya Pradesh');
```

102 %

Results | Messages

	CustomerID	FirstName	LastName	Email	Phone	Address
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498	106, Gupta Colony, Mhow, Madhya Pradesh
2	2	Khushi	Joshi	khushijoshi0129@gmail.com	8765432109	456, Collectorate, Indore, Madhya Pradesh
3	3	Suresh	Patel	sureshpatel@gmail.com	7654321098	789, Old City, Jaipur, Rajasthan
4	4	Dinesh	Verma	dineshverma@gmail.com	6543210987	1011, New Colony, Delhi, Delhi
5	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876	1234, Model Town, Mumbai, Maharashtra
6	6	Ganesh	Kumar	ganeshkumar@ gmail.com	4321098765	5678, Banjara Hills, Hyderabad, Telangana
7	7	Mahesh	Tiwari	maheshtiwari@ gmail.com	3210987654	9012, Indiranagar, Bengaluru, Karnataka
8	8	Narendra	Mishra	narendramishra@ gmail.com	2109876543	1314, Salt Lake City, Kolkata, West Bengal
9	9	Pradeep	Chauhan	pradeepchauhan@ gmail.com	1098765432	1516, Beach Road, Chennai, Tamil Nadu
10	10	Sanjeev	Bhatt	sanjeevbhatt@ gmail.com	9876543210	1718, MG Road, Kochi, Kerala
11	11	Rajarshi	Pathak	rajarshipathak@gmail.com	9926900646	Photi Koti, Indore, Madhya Pradesh

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

Ans)

```
Update Products SET Price = Price * 1.10;
```

```
Update Products SET Price = Price * 1.10;
```

102 %

Results | Messages

	ProductID	ProductName	Description	Price
1	101	iPhone 16 Pro	6.1-inch Super Retina XDR display, A16 Bionic chip, 1...	153998.90
2	102	Samsung Galaxy S24 Ultra	6.8-inch Dynamic AMOLED 2X display, Snapdragon 8 ...	98998.90
3	103	OnePlus 11	6.7-inch Fluid AMOLED display, Snapdragon 8 Gen 2, ...	65998.90
4	104	Xiaomi 13 Pro	6.7-inch AMOLED display, Snapdragon 8 Gen 2, 50M...	54998.90
5	105	Google Pixel 7 Pro	6.7-inch LTPO OLED display, Google Tensor G2, 50M...	93498.90
6	106	MacBook Pro M2	13.3-inch Liquid Retina XDR display, M2 chip, 8GB RA...	164998.90
7	107	Dell XPS 13	13.4-inch InfinityEdge display, Intel Core i7-13700H, 1...	131998.90
8	108	Lenovo ThinkPad X1 Carbon	14-inch OLED display, Intel Core i7-13600H, 16GB RA...	120998.90
9	109	HP Spectre x360	13.3-inch AMOLED display, Intel Core i7-13600H, 16G...	142998.90
10	110	Acer Predator Helios 16	16-inch IPS display, Intel Core i9-13900HX, 32GB RA...	197998.90

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.

Ans)

```
Declare @OID int = 304;
Delete From OrderDetails Where OrderID = @OID;
Delete From Orders Where OrderID = @OID;
```

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```
Declare @OID int = 304;
Delete From OrderDetails Where OrderID = @OID;
Delete From Orders Where OrderID = @OID;
```

102 %

Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount
1	301	1	2023-11-25	139999.00
2	302	2	2023-12-01	89999.00
3	303	3	2023-12-10	59999.00
4	305	5	2023-12-20	149999.00
5	306	6	2023-12-25	84999.00
6	307	7	2024-01-01	119999.00
7	308	8	2024-01-05	109999.00
8	309	9	2024-01-10	179999.00
9	310	10	2024-01-15	129999.00
10	311	2	2024-01-25	84999.00
11	312	9	2024-02-01	129999.00
12	313	3	2024-02-05	139999.00

	OrderDetailID	OrderID	ProductID	Quantity
1	501	301	101	1
2	502	302	102	1
3	503	303	103	1
4	505	305	106	1
5	506	306	105	1
6	507	307	107	1
7	508	308	108	1
8	509	309	110	1
9	510	310	109	1
10	511	311	105	1
11	512	312	109	1
12	513	313	101	1
13	514	314	110	1
14	515	315	103	1

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.

Ans)

```
Insert Into Orders Values('4', '2024-02-20', 139999.00);
Insert Into OrderDetails Values(316, 101, 1);
```

```
Insert Into Orders Values('4', '2024-02-20', 139999.00);
Insert Into OrderDetails Values(316, 101, 1);
```

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Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount
1	301	1	2023-11-25	139999.00
2	302	2	2023-12-01	89999.00
3	303	3	2023-12-10	59999.00
4	305	5	2023-12-20	149999.00
5	306	6	2023-12-25	84999.00
6	307	7	2024-01-01	119999.00
7	308	8	2024-01-05	109999.00
8	309	9	2024-01-10	179999.00
9	310	10	2024-01-15	129999.00
10	311	2	2024-01-25	84999.00
11	312	9	2024-02-01	129999.00
12	313	3	2024-02-05	139999.00
13	314	7	2024-02-10	179999.00
14	315	10	2024-02-15	59999.00
15	316	4	2024-02-20	139999.00

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.

Ans)

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```
Declare @Cid int = 6, @Email varchar(100) = 'ganeshkumar10@gmail.com';
Update Customers SET Email = @Email Where CustomerID = @Cid;
```

```
134 Declare @Cid int = 6, @Email varchar(100) = 'ganeshkumar10@gmail.com';
135 Update Customers SET Email = @Email Where CustomerID = @Cid;
```

102 %

Results | Messages

	CustomerID	FirstName	LastName	Email	Phone	Address
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498	106, Gupta Colony, Mhow, Madhya Pradesh
2	2	Khushi	Joshi	khushijoshi0129@gmail.com	8765432109	456, Collectorate, Indore, Madhya Pradesh
3	3	Suresh	Patel	sureshpatel@gmail.com	7654321098	789, Old City, Jaipur, Rajasthan
4	4	Dinesh	Verma	dineshverma@gmail.com	6543210987	1011, New Colony, Delhi, Delhi
5	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876	1234, Model Town, Mumbai, Maharashtra
6	6	Ganesh	Kumar	ganeshkumar10@gmail.com	4321098765	5678, Banjara Hills, Hyderabad, Telangana
7	7	Mahesh	Tiwari	maheshtiwari@ gmail.com	3210987654	9012, Indiranagar, Bengaluru, Karnataka
8	8	Narendra	Mishra	narendramishra@ gmail.com	2109876543	1314, Salt Lake City, Kolkata, West Bengal
9	9	Pradeep	Chauhan	pradeepchauhan@ gmail.com	1098765432	1516, Beach Road, Chennai, Tamil Nadu
10	10	Sanjeev	Bhatt	sanjeevbhatt@ gmail.com	9876543210	1718, MG Road, Kochi, Kerala
11	11	Rajarshi	Pathak	rajarshipathak@gmail.com	9926900646	Photi Koti, Indore, Madhya Pradesh

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.

Ans)

```
Update Orders Set TotalAmount = (Select (od.Quantity * p.Price) From OrderDetails od
join Products p on p.ProductID = od.ProductID Where Orders.OrderID = od.OrderID);
```

```
138 Update Orders Set TotalAmount = (Select (od.Quantity * p.Price)
139 From OrderDetails od join Products p on p.ProductID = od.ProductID
140 Where Orders.OrderID = od.OrderID);
141
```

102 %

Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount
1	301	1	2023-11-25	153998.90
2	302	2	2023-12-01	98998.90
3	303	3	2023-12-10	65998.90
4	305	5	2023-12-20	164998.90
5	306	6	2023-12-25	93498.90
6	307	7	2024-01-01	131998.90
7	308	8	2024-01-05	120998.90
8	309	9	2024-01-10	197998.90
9	310	10	2024-01-15	142998.90
10	311	2	2024-01-25	93498.90
11	312	9	2024-02-01	142998.90
12	313	3	2024-02-05	153998.90
13	314	7	2024-02-10	197998.90
14	315	10	2024-02-15	65998.90
15	316	4	2024-02-20	153998.90

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.

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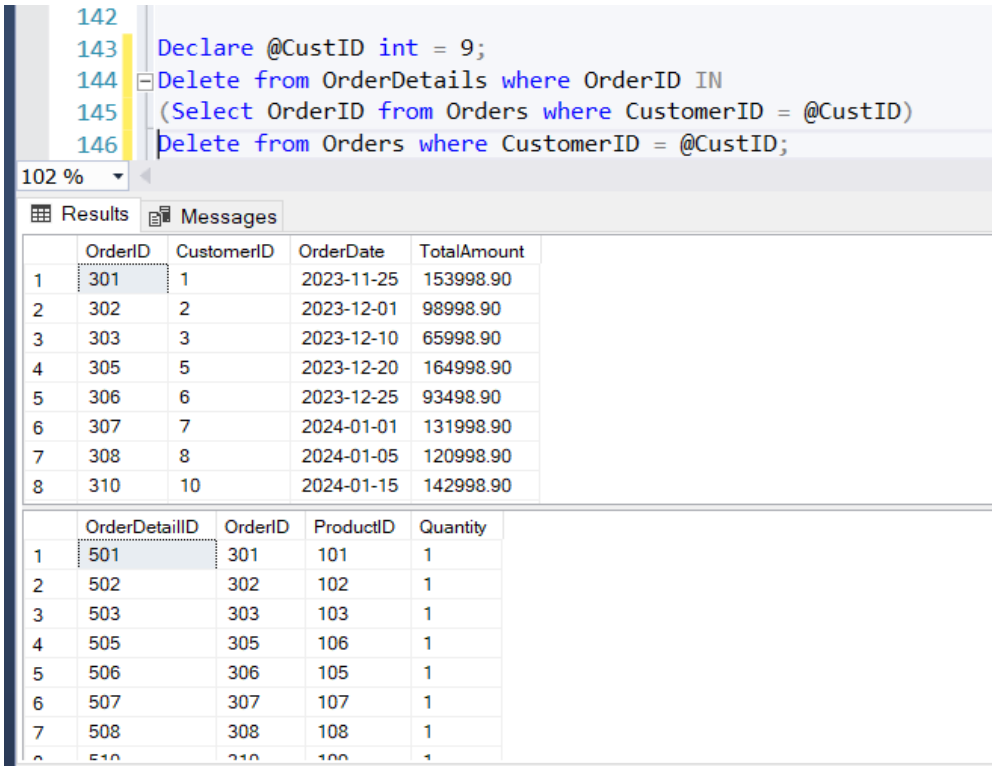
Ans)

```
Declare @CustID int = 9;
Delete from OrderDetails where OrderID IN (Select OrderID from Orders where CustomerID
= @CustID)
Delete from Orders where CustomerID = @CustID;
```



```
Declare @CustID int = 9;
Delete from OrderDetails where OrderID IN
(Select OrderID from Orders where CustomerID = @CustID)
Delete from Orders where CustomerID = @CustID;
```

102 %

Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount
1	301	1	2023-11-25	153998.90
2	302	2	2023-12-01	98998.90
3	303	3	2023-12-10	65998.90
4	305	5	2023-12-20	164998.90
5	306	6	2023-12-25	93498.90
6	307	7	2024-01-01	131998.90
7	308	8	2024-01-05	120998.90
8	310	10	2024-01-15	142998.90

	OrderDetailID	OrderID	ProductID	Quantity
1	501	301	101	1
2	502	302	102	1
3	503	303	103	1
4	505	305	106	1
5	506	306	105	1
6	507	307	107	1
7	508	308	108	1

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.

Ans)

```
Insert into Products Values ('Apple Watch Series 9', 'Apple Watch Series 9 is a
cutting-edge smartwatch designed to seamlessly integrate with the Apple ecosystem. It
features a sleek and durable design with an always-on Retina display that offers vivid
colors and exceptional brightness.', 25000.00);
```

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```sql
Insert into Products Values ('Apple Watch Series 9',
'Apple Watch Series 9 is a cutting-edge smartwatch designed
to seamlessly integrate with the Apple ecosystem. It features
a sleek and durable design with an always-on Retina display
that offers vivid colors and exceptional brightness.', 25000.00);
```

102 %

Results | Messages

	ProductID	ProductName	Description	Price
1	101	iPhone 16 Pro	6.1-inch Super Retina XDR display, A16 Bionic chip, 1...	153998.90
2	102	Samsung Galaxy S24 Ultra	6.8-inch Dynamic AMOLED 2X display, Snapdragon 8 ...	98998.90
3	103	OnePlus 11	6.7-inch Fluid AMOLED display, Snapdragon 8 Gen 2, ...	65998.90
4	104	Xiaomi 13 Pro	6.7-inch AMOLED display, Snapdragon 8 Gen 2, 50M...	54998.90
5	105	Google Pixel 7 Pro	6.7-inch LTPO OLED display, Google Tensor G2, 50M...	93498.90
6	106	MacBook Pro M2	13.3-inch Liquid Retina XDR display, M2 chip, 8GB RA...	164998.90
7	107	Dell XPS 13	13.4-inch InfinityEdge display, Intel Core i7-13700H, 1...	131998.90
8	108	Lenovo ThinkPad X1 Carbon	14-inch OLED display, Intel Core i7-13600H, 16GB RA...	120998.90
9	109	HP Spectre x360	13.3-inch AMOLED display, Intel Core i7-13600H, 16G...	142998.90
10	110	Acer Predator Helios 16	16-inch IPS display, Intel Core i9-13900HX, 32GB RA...	197998.90
11	111	Apple Watch Series 9	Apple Watch Series 9 is a cutting-edge smartwatch de...	25000.00

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.

Ans)

```sql
Alter Table Orders ADD Status varchar(50);
Update Orders Set Status = 'Pending' where OrderId = 301;
Update Orders Set Status = 'Shipped' where OrderId = 302;
Update Orders Set Status = 'Pending' where OrderId = 303;
Update Orders Set Status = 'Delivered' where OrderId = 305;
Update Orders Set Status = 'Shipped' where OrderId = 306;
Update Orders Set Status = 'Shipped' where OrderId = 307;
Update Orders Set Status = 'Delivered' where OrderId = 308;
Update Orders Set Status = 'Pending' where OrderId = 310;
Update Orders Set Status = 'Cancelled' where OrderId = 311;
Update Orders Set Status = 'Shipped' where OrderId = 313;
Update Orders Set Status = 'Pending' where OrderId = 314;
Update Orders Set Status = 'Shipped' where OrderId = 315;
Update Orders Set Status = 'Cancelled' where OrderId = 316;
```

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Topic – TechShop, an Electronic Gadgets Shop

```sql
Alter Table Orders ADD Status varchar(50);
Update Orders Set Status = 'Pending' where OrderId = 301;
Update Orders Set Status = 'Shipped' where OrderId = 302;
Update Orders Set Status = 'Pending' where OrderId = 303;
Update Orders Set Status = 'Delivered' where OrderId = 305;
Update Orders Set Status = 'Shipped' where OrderId = 306;
Update Orders Set Status = 'Shipped' where OrderId = 307;
Update Orders Set Status = 'Delivered' where OrderId = 308;
Update Orders Set Status = 'Pending' where OrderId = 310;
Update Orders Set Status = 'Cancelled' where OrderId = 311;
Update Orders Set Status = 'Shipped' where OrderId = 313;
Update Orders Set Status = 'Pending' where OrderId = 314;
Update Orders Set Status = 'Shipped' where OrderId = 315;
Update Orders Set Status = 'Cancelled' where OrderId = 316;
```

102 %

Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount	Status
1	301	1	2023-11-25	153998.90	Pending
2	302	2	2023-12-01	98998.90	Shipped
3	303	3	2023-12-10	65998.90	Pending
4	305	5	2023-12-20	164998.90	Delivered
5	306	6	2023-12-25	93498.90	Shipped
6	307	7	2024-01-01	131998.90	Shipped
7	308	8	2024-01-05	120998.90	Delivered
8	310	10	2024-01-15	142998.90	Pending
9	311	2	2024-01-25	93498.90	Cancelled
10	313	3	2024-02-05	153998.90	Shipped
11	314	7	2024-02-10	197998.90	Pending
12	315	10	2024-02-15	65998.90	Shipped
13	316	4	2024-02-20	153998.90	Cancelled

```sql
Declare @Orderid int = 303;
Update Orders Set Status = 'Shipped' where OrderID = Orderid;
```


```sql
Declare @Orderid int = 303;
Update Orders Set Status = 'Shipped' where OrderID = Orderid;
```

102 %

Results | Messages

	OrderID	CustomerID	OrderDate	TotalAmount	Status
1	301	1	2023-11-25	153998.90	Pending
2	302	2	2023-12-01	98998.90	Shipped
3	303	3	2023-12-10	65998.90	Shipped
4	305	5	2023-12-20	164998.90	Delivered
5	306	6	2023-12-25	93498.90	Shipped
6	307	7	2024-01-01	131998.90	Shipped
7	308	8	2024-01-05	120998.90	Delivered
8	310	10	2024-01-15	142998.90	Pending
9	311	2	2024-01-25	93498.90	Cancelled
10	313	3	2024-02-05	153998.90	Shipped
11	314	7	2024-02-10	197998.90	Pending
12	315	10	2024-02-15	65998.90	Shipped
13	316	4	2024-02-20	153998.90	Cancelled

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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.

Ans)

```
Alter Table Customers ADD OrderCount INT Default 0;
Update Customers Set OrderCount = (Select Count(*) from Orders where Orders.CustomerID
= Customers.CustomerID);
```

```
174 Alter Table Customers ADD OrderCount INT Default 0;
175 Update Customers Set OrderCount = (
176 Select Count(*) from Orders where Orders.CustomerID = Customers.CustomerID);
177
178
```

102 %

Results | Messages

	CustomerID	FirstName	LastName	Email	Phone	Address	OrderCount
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498	106, Gupta Colony, Mhow, Madhya Pradesh	1
2	2	Khushi	Joshi	khushijoshi0129@gmail.com	8765432109	456, Collectorate, Indore, Madhya Pradesh	2
3	3	Suresh	Patel	sureshpatel@gmail.com	7654321098	789, Old City, Jaipur, Rajasthan	2
4	4	Dinesh	Verma	dineshverma@gmail.com	6543210987	1011, New Colony, Delhi, Delhi	1
5	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876	1234, Model Town, Mumbai, Maharashtra	1
6	6	Ganesh	Kumar	ganeshkumar10@gmail.com	4321098765	5678, Banjara Hills, Hyderabad, Telangana	1
7	7	Mahesh	Tiwari	maheshtiwari@ gmail.com	3210987654	9012, Indiranagar, Bengaluru, Karnataka	2
8	8	Narendra	Mishra	narendramishra@ gmail.com	2109876543	1314, Salt Lake City, Kolkata, West Bengal	1
9	9	Pradeep	Chauhan	pradeepchauhan@ gmail.com	1098765432	1516, Beach Road, Chennai, Tamil Nadu	0
10	10	Sanjeev	Bhatt	sanjeevbhatt@ gmail.com	9876543210	1718, MG Road, Kochi, Kerala	2
11	11	Rajarshi	Pathak	rajarshipathak@gmail.com	9926900646	Photi Koti, Indore, Madhya Pradesh	0

Task 3. Aggregate functions, Having, Order By, GroupBy and Joins:

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

Ans)

```
Select C.CustomerID, concat(C.FirstName,' ',C.LastName) as Name, C.Phone, O.OrderID,
O.OrderDate, O.TotalAmount, O.Status from Customers C, Orders O Where C.CustomerID =
O.CustomerID order by C.CustomerID;
```

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```sql
Select C.CustomerID, concat(C.FirstName,' ',C.LastName) as Name,
C.Phone, O.OrderID, O.OrderDate, O.TotalAmount, O.Status from
Customers C, Orders O Where C.CustomerID = O.CustomerID order by C.CustomerID;
```

102 %

Results | Messages

	CustomerID	Name	Phone	OrderID	OrderDate	TotalAmount	Status
1	1	Yash Agrawal	6263605498	301	2023-11-25	153998.90	Pending
2	2	Khushi Joshi	8765432109	302	2023-12-01	98998.90	Shipped
3	2	Khushi Joshi	8765432109	311	2024-01-25	93498.90	Cancelled
4	3	Suresh Patel	7654321098	313	2024-02-05	153998.90	Shipped
5	3	Suresh Patel	7654321098	303	2023-12-10	65998.90	Shipped
6	4	Dinesh Verma	6543210987	316	2024-02-20	153998.90	Cancelled
7	5	Rajesh Singh	5432109876	305	2023-12-20	164998.90	Delivered
8	6	Ganesh Kumar	4321098765	306	2023-12-25	93498.90	Shipped
9	7	Mahesh Tiwari	3210987654	307	2024-01-01	131998.90	Shipped
10	7	Mahesh Tiwari	3210987654	314	2024-02-10	197998.90	Pending
11	8	Narendra Mishra	2109876543	308	2024-01-05	120998.90	Delivered
12	10	Sanjeev Bhatt	9876543210	310	2024-01-15	142998.90	Pending
13	10	Sanjeev Bhatt	9876543210	315	2024-02-15	65998.90	Shipped

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

Include the product name and the total revenue.

Ans)

```sql
Select Products.ProductName, Sum(OrderDetails.Quantity * Products.Price) As
TotalRevenue From Products, OrderDetails Where Products.ProductID =
OrderDetails.ProductID Group by Products.ProductName;
```

```sql
Select Products.ProductName, Sum(OrderDetails.Quantity * Products.Price)
As TotalRevenue From Products, OrderDetails Where
Products.ProductID = OrderDetails.ProductID Group by Products.ProductName;
```

102 %

Results | Messages

	ProductName	TotalRevenue
1	Acer Predator Helios 16	197998.90
2	Dell XPS 13	131998.90
3	Google Pixel 7 Pro	186997.80
4	HP Spectre x360	142998.90
5	iPhone 16 Pro	461996.70
6	Lenovo ThinkPad X1 Carbon	120998.90
7	MacBook Pro M2	164998.90
8	OnePlus 11	131997.80
9	Samsung Galaxy S24 Ultra	98998.90

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

Ans)

```sql
Select concat(C.FirstName,' ',C.LastName) as Name, C.Phone, C.Email from Customers C,
Orders O Where C.CustomerID = O.CustomerID Group by C.FirstName, C.LastName, C.Phone,
C.Email;
```

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```
Select concat(C.FirstName,' ',C.LastName) as Name,
C.Phone, C.Email from Customers C, Orders O Where C.CustomerID =
O.CustomerID Group by C.FirstName, C.LastName, C.Phone, C.Email;
```

102 %

Results | Messages

	Name	Phone	Email
1	Dinesh Verma	6543210987	dineshverma@gmail.com
2	Ganesh Kumar	4321098765	ganeshkumar10@gmail.com
3	Khushi Joshi	8765432109	khushijoshi0129@gmail.com
4	Mahesh Tiwari	3210987654	maheshtiwari@ gmail.com
5	Narendra Mishra	2109876543	narendramishra@ gmail.com
6	Rajesh Singh	5432109876	rajeshsingh@gmail.com
7	Sanjeev Bhatt	9876543210	sanjeevbhatt@ gmail.com
8	Suresh Patel	7654321098	sureshpatel@gmail.com
9	Yash Agrawal	6263605498	sde.yash.agrawal@gmail.com

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.

Ans)

```
Select TOP 1 Products.ProductName, Count(*) As HighestQuantity from Products,
OrderDetails Where OrderDetails.ProductID = Products.ProductID Group by
Products.ProductName Order By HighestQuantity Desc;
```

```
Select TOP 1 Products.ProductName, Count(*) As HighestQuantity from Products,
OrderDetails Where OrderDetails.ProductID = Products.ProductID Group by
Products.ProductName Order By HighestQuantity Desc;
```

102 %

Results | Messages

	ProductName	HighestQuantity
1	iPhone 16 Pro	3

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

Ans)

```
Alter Table Products ADD Category Varchar(100);
Update Products Set Category = 'Smartphones' Where ProductID IN (101, 102,104, 105,
103);
Update Products Set Category = 'Laptops' Where ProductID IN (106, 107, 108, 109, 110);
Update Products Set Category = 'Smartwatches' Where ProductID = 111;
```

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```sql
Alter Table Products ADD Category Varchar(100);
Update Products Set Category = 'Smartphones' Where ProductID IN (101, 102,104, 105, 103);
Update Products Set Category = 'Laptops' Where ProductID IN (106, 107, 108, 109, 110);
Update Products Set Category = 'Smartwatches' Where ProductID = 111;
```

102 %

Results | Messages

	ProductID	ProductName	Description	Price	Category
1	101	iPhone 16 Pro	6.1-inch Super Retina XDR display, A16 Bionic chip, 1...	153998.90	Smartphones
2	102	Samsung Galaxy S24 Ultra	6.8-inch Dynamic AMOLED 2X display, Snapdragon 8 ...	98998.90	Smartphones
3	103	OnePlus 11	6.7-inch Fluid AMOLED display, Snapdragon 8 Gen 2, ...	65998.90	Smartphones
4	104	Xiaomi 13 Pro	6.7-inch AMOLED display, Snapdragon 8 Gen 2, 50M...	54998.90	Smartphones
5	105	Google Pixel 7 Pro	6.7-inch LTPO OLED display, Google Tensor G2, 50M...	93498.90	Smartphones
6	106	MacBook Pro M2	13.3-inch Liquid Retina XDR display, M2 chip, 8GB RA...	164998.90	Laptops
7	107	Dell XPS 13	13.4-inch InfinityEdge display, Intel Core i7-13700H, 1...	131998.90	Laptops
8	108	Lenovo ThinkPad X1 Carbon	14-inch OLED display, Intel Core i7-13600H, 16GB RA...	120998.90	Laptops
9	109	HP Spectre x360	13.3-inch AMOLED display, Intel Core i7-13600H, 16G...	142998.90	Laptops
10	110	Acer Predator Helios 16	16-inch IPS display, Intel Core i9-13900HX, 32GB RA...	197998.90	Laptops
11	111	Apple Watch Series 9	Apple Watch Series 9 is a cutting-edge smartwatch de...	25000.00	Smartwatches

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

Ans)

```sql
Select Concat(Customers.FirstName, ' ', Customers.LastName) As Name,
AVG(Orders.TotalAmount) As AverageOfTotalAmount From Orders, Customers Where
Customers.CustomerID = Orders.CustomerID Group By Customers.FirstName,
Customers.LastName;
```

```sql
Select Concat(Customers.FirstName, ' ', Customers.LastName) As Name,
AVG(Orders.TotalAmount) As AverageOfTotalAmount From Orders, Customers
Where Customers.CustomerID = Orders.CustomerID
Group By Customers.FirstName, Customers.LastName;
```

102 %

Results | Messages

	Name	AverageOfTotalAmount
1	Yash Agrawal	153998.900000
2	Sanjeev Bhatt	104498.900000
3	Khushi Joshi	96248.900000
4	Ganesh Kumar	93498.900000
5	Narendra Mishra	120998.900000
6	Suresh Patel	109998.900000
7	Rajesh Singh	164998.900000
8	Mahesh Tiwari	164998.900000
9	Dinesh Verma	153998.900000

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

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Ans)

```
Select TOP 1 C.CustomerID, C.FirstName, C.LastName, C.Phone, C.Address, O.TotalAmount
As TotalRevenue from Customers C, Orders O Where C.CustomerID = O.CustomerID order by
TotalRevenue desc;
```

```
211 Select TOP 1 C.CustomerID, C.FirstName, C.LastName, C.Phone, C.Address, O.TotalAmount As
212 TotalRevenue from Customers C, Orders O Where C.CustomerID = O.CustomerID order by TotalRevenue desc;
```

102 %

Results | Messages

	CustomerID	FirstName	LastName	Phone	Address	TotalRevenue
1	7	Mahesh	Tiwari	3210987654	9012, Indiranagar, Bengaluru, Karnataka	197998.90

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

Ans)

```
Select Products.ProductName, Count(OrderDetails.ProductID) As ProductCount From
Products Left Join OrderDetails on OrderDetails.ProductID = Products.ProductID
Group By Products.ProductName Order by ProductCount desc;
```

```
215 Select Products.ProductName, Count(OrderDetails.ProductID) As ProductCount
216 From Products Left Join OrderDetails on OrderDetails.ProductID = Products.ProductID
217 Group By Products.ProductName Order by ProductCount desc;
```

102 %

Results | Messages

	ProductName	ProductCount
1	iPhone 16 Pro	3
2	OnePlus 11	2
3	Google Pixel 7 Pro	2
4	HP Spectre x360	1
5	Acer Predator Helios 16	1
6	Samsung Galaxy S24 Ultra	1
7	Lenovo ThinkPad X1 Carbon	1
8	MacBook Pro M2	1
9	Dell XPS 13	1
10	Xiaomi 13 Pro	0
11	Apple Watch Series 9	0

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.

Ans)

```
declare @pname varchar(100) = 'OnePlus 11';
```

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```
Select C.CustomerID, Concat(C.FirstName, ' ', C.LastName) AS Name, C.Email,
C.Phone, P.ProductName from Customers C Join Orders O on C.CustomerID = O.CustomerID
Join OrderDetails Od on O.OrderID = Od.OrderID Join Products P on P.ProductID =
Od.ProductID where P.ProductName = @pname;
```

```
declare @pname varchar(100) = 'OnePlus 11';
Select C.CustomerID, Concat(C.FirstName, ' ', C.LastName) AS Name, C.Email,
C.Phone, P.ProductName from Customers C Join Orders O on C.CustomerID = O.CustomerID
Join OrderDetails Od on O.OrderID = Od.OrderID Join Products P on P.ProductID = Od.ProductID where P.ProductName = @pname;
```

102 %

Results | Messages

	CustomerID	Name	Email	Phone	ProductName
1	3	Suresh Patel	sureshpatel@gmail.com	7654321098	OnePlus 11
2	10	Sanjeev Bhatt	sanjeevbhatt@ gmail.com	9876543210	OnePlus 11

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.

Ans)

```
declare @Start_Date Date = '2024-01-01', @End_Date Date = '2024-01-26';
Select Sum(TotalAmount) as TotalRevenue from Orders Where OrderDate Between
@Start_Date and @End_Date;
```

```
declare @Start_Date Date = '2024-01-01', @End_Date Date = '2024-01-26';
Select Sum(TotalAmount) as TotalRevenue from Orders Where OrderDate Between @Start_Date and @End_Date;
```

102 %

Results | Messages

	TotalRevenue
1	489495.60

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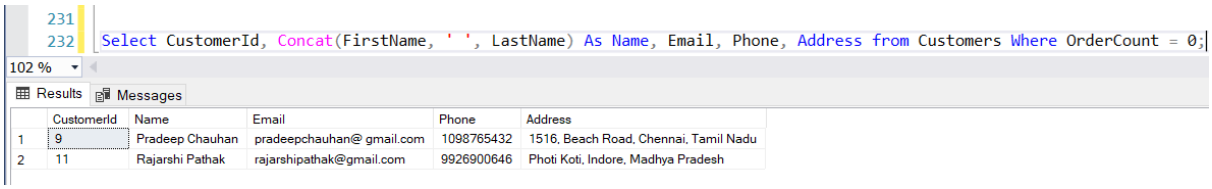
Task 4. Subquery and its type:

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

Ans)

```
Select CustomerId, Concat(FirstName, ' ', LastName) As Name, Email, Phone, Address
from Customers Where OrderCount = 0;
```

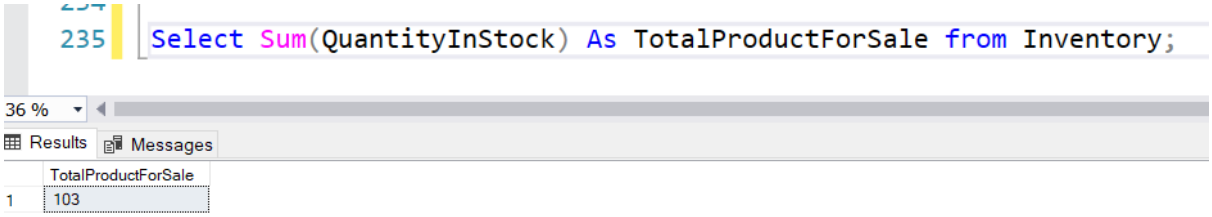


	CustomerId	Name	Email	Phone	Address
1	9	Pradeep Chauhan	pradeepchauhan@ gmail.com	1098765432	1516, Beach Road, Chennai, Tamil Nadu
2	11	Rajarshi Pathak	rajarshipathak@gmail.com	9926900646	Photi Koti, Indore, Madhya Pradesh

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

Ans)

```
Select Sum(QuantityInStock) As TotalProductForSale from Inventory;
```

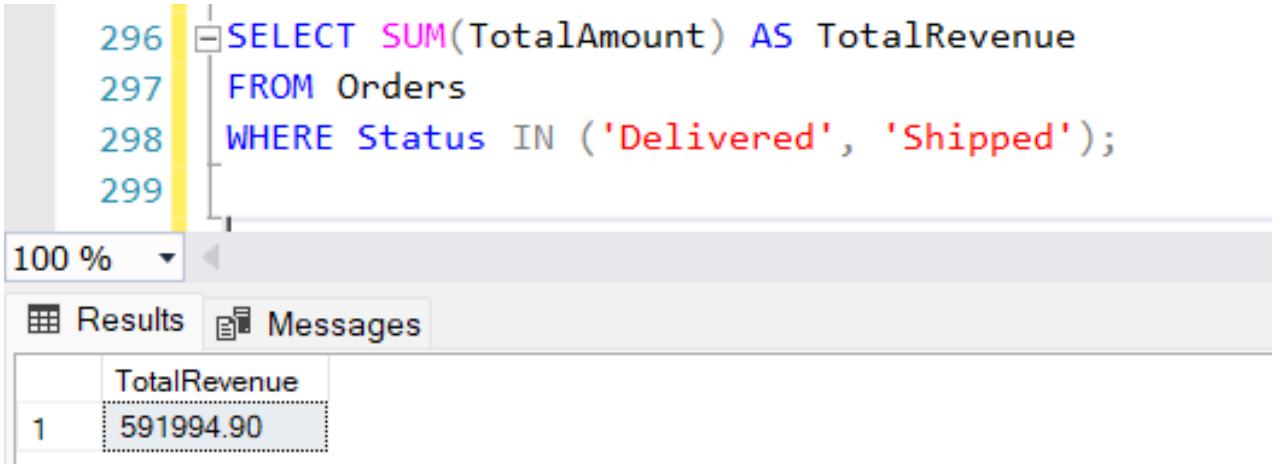


	TotalProductForSale
1	103

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

Ans)

```
Select Sum(TotalAmount) AS TotalRevenue from Orders Where Status IN ('Delivered');
```



	TotalRevenue
1	591994.90

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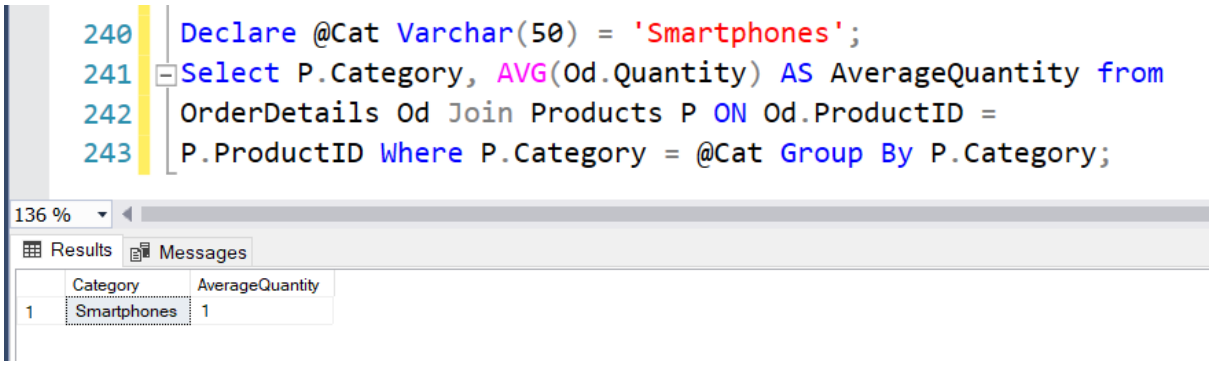
4. Write an SQL query to calculate the average quantity ordered for products in a specific category. Allow users to input the category name as a parameter.

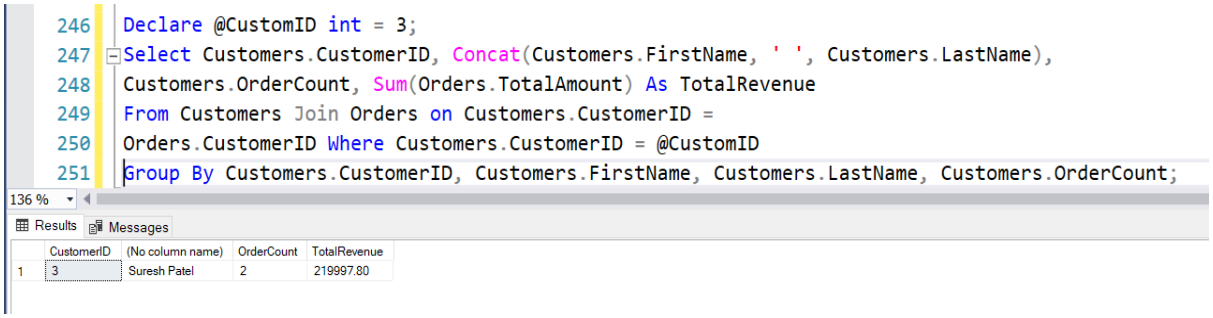
Ans)

```
Declare @Cat Varchar(50) = 'Smartphones';
Select P.Category, AVG(Od.Quantity) AS AverageQuantity from OrderDetails Od Join
Products P ON Od.ProductID = P.ProductID Where P.Category = @Cat Group By P.Category;
```



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 @CustomID int = 3;
Select Customers.CustomerID, Concat(Customers.FirstName, ' ', Customers.LastName),
Customers.OrderCount, Sum(Orders.TotalAmount) As TotalRevenue From Customers Join
Orders on Customers.CustomerID = Orders.CustomerID Where Customers.CustomerID =
@CustomID Group By Customers.CustomerID, Customers.FirstName, Customers.LastName,
Customers.OrderCount;
```



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.

Ans)

```
Select Concat(FirstName, ' ', LastName) As Name, OrderCount As Number_of_Orders_Placed
from Customers Where OrderCount = (Select Max(OrderCount) From Customers);
```

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```
Select Concat(FirstName, ' ', LastName) As Name,
OrderCount As Number_of_Orders_Placed from Customers
Where OrderCount = (Select Max(OrderCount) From Customers);
```

136 %

Results | Messages

	Name	Number_of_Orders_Placed
1	Khushi Joshi	2
2	Suresh Patel	2
3	Mahesh Tiwari	2
4	Sanjeev Bhatt	2

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.

Ans)

```
Select TOP 1 Products.Category, Sum(OrderDetails.Quantity) As TotalQuantity From
Products, OrderDetails Where Products.ProductID = OrderDetails.ProductID Group by
Products.Category Order by TotalQuantity Desc;
```

```
select TOP 1 Products.Category, Sum(OrderDetails.Quantity)
As TotalQuantity From Products, OrderDetails Where
Products.ProductID = OrderDetails.ProductID Group by
Products.Category Order by TotalQuantity Desc;
```

135 %

Results | Messages

	Category	TotalQuantity
1	Smartphones	8

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.

Ans)

```
Select TOP 1 Concat(Customers.FirstName, ' ', Customers.LastName) AS Name,
Sum(Orders.TotalAmount) AS Total_Revenue From Customers, Orders Where
Customers.CustomerID = Orders.CustomerID Group By Customers.FirstName,
Customers.LastName Order By Total_Revenue Desc;
```

```
Select TOP 1 Concat(Customers.FirstName, ' ', Customers.LastName)
AS Name, Sum(Orders.TotalAmount) AS Total_Revenue From Customers,
Orders Where Customers.CustomerID = Orders.CustomerID Group By
Customers.FirstName, Customers.LastName Order By Total_Revenue Desc;
```

135 %

Results | Messages

	Name	Total_Revenue
1	Mahesh Tiwari	329997.80

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

Ans)

```
Select Concat(Customers.FirstName, ' ', Customers.LastName) AS Name,
AVG(Orders.TotalAmount) AS Average_Revenue From Customers, Orders Where
Customers.CustomerID = Orders.CustomerID Group By Customers.FirstName,
Customers.LastName Order By Average_Revenue Desc;
```

```
271 Select Concat(Customers.FirstName, ' ', Customers.LastName)
272 AS Name, AVG(Orders.TotalAmount) AS Average_Revenue
273 From Customers, Orders Where Customers.CustomerID =
274 Orders.CustomerID Group By Customers.FirstName,
275 Customers.LastName Order By Average_Revenue Desc;
```

135 %

Results | Messages

	Name	Average_Revenue
1	Rajesh Singh	164998.900000
2	Mahesh Tiwari	164998.900000
3	Dinesh Verma	153998.900000
4	Yash Agrawal	153998.900000
5	Narendra Mishra	120998.900000
6	Suresh Patel	109998.900000
7	Sanjeev Bhatt	104498.900000
8	Khushi Joshi	96248.900000
9	Ganesh Kumar	93498.900000

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.

Ans)

```
Select Concat(FirstName, ' ', LastName) AS Name, OrderCount From Customers Order By
OrderCount Desc;
```

```
278 Select Concat(FirstName, ' ', LastName) AS Name,
279 OrderCount From Customers Order By OrderCount Desc;
```

135 %

Results | Messages

	Name	OrderCount
1	Khushi Joshi	2
2	Suresh Patel	2
3	Mahesh Tiwari	2
4	Sanjeev Bhatt	2
5	Narendra Mishra	1
6	Dinesh Verma	1
7	Rajesh Singh	1
8	Ganesh Kumar	1
9	Yash Agrawal	1
10	Pradeep Chauhan	0
11	Rajarshi Pathak	0