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Assignment 1 (SQL)

Task:1. Database Design:

1. Create the database named "TechShop" .

```
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 8.0.35 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database if not exists TechShop;
Query OK, 1 row affected, 1 warning (0.04 sec)
```

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

```
4 • ○ create table Customers(CustomerID int primary key,
5     FirstName varchar(20),
6     LastName varchar(20),
7     Email text,
8     Phone long,
9     Address text);
10
11 • ○ create table Products(
12     ProductID int primary key,
13     ProductName varchar(40),
14     Description text,
15     Price int
16 );
```

```

18 • ○ create table Orders(
19     OrderID int primary key,
20     CustomerID int,
21     OrderDate date,
22     TotalAmount int,
23     foreign key (CustomerID) references Customers(CustomerID)
24 );
25
26 • ○ create table OrderDetails(
27     OrderDetailID int primary key,
28     OrderID int,
29     ProductID int,
30     Quantity int,
31     foreign key (OrderID) references Orders(OrderID),
32     foreign key (ProductID) references Products(ProductID)
33 );
34
35 • ○ create table Inventory(
36     InventoryID int primary key,
37     ProductID int,
38     QuantityInStock int,
39     LastStockUpdate date,
40     foreign key (ProductID) references Products(ProductID)
41 );

```

```
mysql> desc Customers;
```

Field	Type	Null	Key	Default	Extra
CustomerID	int	NO	PRI	NULL	
FirstName	varchar(20)	YES		NULL	
LastName	varchar(20)	YES		NULL	
Email	varchar(30)	YES		NULL	
Phone	mediumtext	YES		NULL	
Address	text	YES		NULL	

```
6 rows in set (0.00 sec)
```

```
mysql> desc Products;
```

Field	Type	Null	Key	Default	Extra
ProductID	int	NO	PRI	NULL	
ProductName	varchar(40)	YES		NULL	
Description	text	YES		NULL	
Price	float	YES		NULL	

```
mysql> desc orders;
```

Field	Type	Null	Key	Default	Extra
OrderId	int	NO	PRI	NULL	
CustomerID	int	YES	MUL	NULL	
OrderDate	date	YES		NULL	
TotalAmount	float	YES		NULL	

```
4 rows in set (0.00 sec)
```

```
mysql> desc orderdetails;
```

Field	Type	Null	Key	Default	Extra
OrderDetailID	int	NO	PRI	NULL	
OrderID	int	YES	MUL	NULL	
ProductID	int	YES	MUL	NULL	
Quantity	int	YES		NULL	

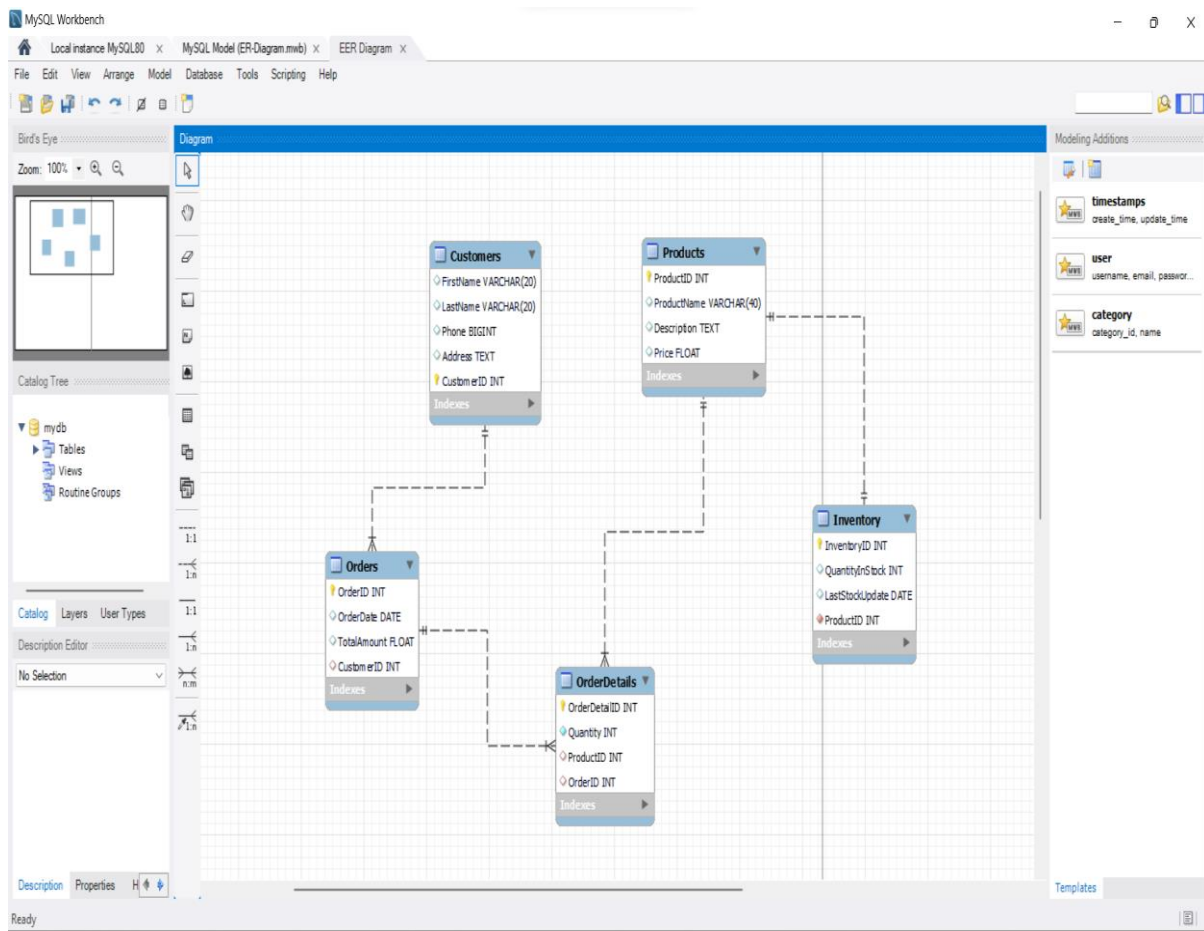
```
4 rows in set (0.00 sec)
```

```
mysql> desc Inventory;
```

Field	Type	Null	Key	Default	Extra
InventoryID	int	NO	PRI	NULL	
ProductID	int	YES	MUL	NULL	
QuantityInStock	int	YES		NULL	
LastStockUpdate	date	YES		NULL	

```
4 rows in set (0.00 sec)
```

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



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

a. Customers

```
43 • insert into Customers values
44 (1,"John","Doe","john.doe@email.com",1234567890,"123 Main Street, City"),
45 (2,"Jane","Smith","jane.smith@email.com",9876543210,"456 Oak Avenue, Town"),
46 (3,"Bob","Johnson","bob.johnson@email.com",5551234567,"789 Pine Road, Village"),
47 (4,"Alice","Brown","alice.brown@email.com",1112223333,"321 Elm Lane, Countryside"),
48 (5,"Charlie","Davis","charlie.davis@email.com",4445556666,"567 Maple Street, Suburb"),
49 (6,"Emily","White","emily.white@email.com",7778889999,"876 Cedar Road, Hamlet"),
50 (7,"David","Miller","david.miller@email.com",9990001111,"234 Birch Court, Riverside"),
51 (8,"Grace","Wilson","grace.wilson@email.com",3334445555,"432 Pine Avenue, Metropolis"),
52 (9,"Henry","Lee","henry.lee@email.com", 6667778888,"789 Oak Drive, City"),
53 (10,"Olivia","Turner","olivia.turner@email.com",2223334444, "987 Maple Lane, Suburb");
54 |
55
```

```
mysql> select * from customers;
+-----+-----+-----+-----+-----+-----+
| CustomerID | FirstName | LastName | Email | Phone | Address |
+-----+-----+-----+-----+-----+-----+
| 1 | John | Doe | john.doe@email.com | 1234567890 | 123 Main Street, City |
| 2 | Jane | Smith | jane.smith@email.com | 9876543210 | 456 Oak Avenue, Town |
| 3 | Bob | Johnson | bob.johnson@email.com | 5551234567 | 789 Pine Road, Village |
| 4 | Alice | Brown | alice.brown@email.com | 1112223333 | 321 Elm Lane, Countryside |
| 5 | Charlie | Davis | charlie.davis@email.com | 4445556666 | 567 Maple Street, Suburb |
| 6 | Emily | White | emily.white@email.com | 7778889999 | 876 Cedar Road, Hamlet |
| 7 | David | Miller | david.miller@email.com | 9990001111 | 234 Birch Court, Riverside |
| 8 | Grace | Wilson | grace.wilson@email.com | 3334445555 | 432 Pine Avenue, Metropolis |
| 9 | Henry | Lee | henry.lee@email.com | 6667778888 | 789 Oak Drive, City |
| 10 | Olivia | Turner | olivia.turner@email.com | 2223334444 | 987 Maple Lane, Suburb |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

b. Products

```
56 • insert into Products values
57 (101,"Laptop","High-performance laptop",1200.00),
58 (102,"Smartphone","Latest smartphone model",699.99),
59 (103,"Headphones","Noise-canceling headphones",99.95),
60 (104,"Tablet","Lightweight tablet",499.99),
61 (105,"Smartwatch","Fitness and health tracker",199.99),
62 (106,"Camera","DSLR camera with HD lens",899.95),
63 (107,"Printer","Wireless all-in-one printer",129.99),
64 (108,"Speaker","Bluetooth portable speaker",79.99),
65 (109,"Mouse","Ergonomic wireless mouse",29.99),
66 (110,"Keyboard","Mechanical gaming keyboard",149.99);
```

```
mysql> select * from products;
```

ProductID	ProductName	Description	Price
101	Laptop	High-performance laptop	1200
102	Smartphone	Latest smartphone model	699.99
103	Headphones	Noise-canceling headphones	99.95
104	Tablet	Lightweight tablet	499.99
105	Smartwatch	Fitness and health tracker	199.99
106	Camera	DSLR camera with HD lens	899.95
107	Printer	Wireless all-in-one printer	129.99
108	Speaker	Bluetooth portable speaker	79.99
109	Mouse	Ergonomic wireless mouse	29.99
110	Keyboard	Mechanical gaming keyboard	149.99

```
10 rows in set (0.01 sec)
```

c. Orders

```
68 • insert into Orders values
69 (501,1,'2024-01-10',1500.00),
70 (502,2,'2024-01-11',799.99),
71 (503,3,'2024-01-12',219.95),
72 (504,4,'2024-01-13',499.99),
73 (505,5,'2024-01-14',199.99),
74 (506,6,'2024-01-15',899.95),
75 (507,7,'2024-01-16',129.99),
76 (508,8,'2024-01-17',79.99),
77 (509,9,'2024-01-18',29.99),
78 (510,10,'2024-01-19',149.99);
79
```

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

OrderId	CustomerID	OrderDate	TotalAmount
501	1	2024-01-10	1500
502	2	2024-01-11	799.99
503	3	2024-01-12	219.95
504	4	2024-01-13	499.99
505	5	2024-01-14	199.99
506	6	2024-01-15	899.95
507	7	2024-01-16	129.99
508	8	2024-01-17	79.99
509	9	2024-01-18	29.99
510	10	2024-01-19	149.99

```
10 rows in set (0.01 sec)
```

d. OrderDetails

```
80 • insert into OrderDetails values
81     (1001,501,101,1),
82     (1002,502,102,2),
83     (1003,503,103,3),
84     (1004,504,104,1),
85     (1005,505,105,2),
86     (1006,506,106,1),
87     (1007,507,107,1),
88     (1008,508,108,2),
89     (1009,509,109,3),
90     (1010,510,110,1);
```

```
mysql> select * from orderdetails;
```

OrderDetailID	OrderID	ProductID	Quantity
1001	501	101	1
1002	502	102	2
1003	503	103	3
1004	504	104	1
1005	505	105	2
1006	506	106	1
1007	507	107	1
1008	508	108	2
1009	509	109	3
1010	510	110	1

```
10 rows in set (0.00 sec)
```

e. Inventory

```
92 • insert into Inventory values
93     (201,101,20,'2024-01-10'),
94     (202,102,50,'2024-01-11'),
95     (203,103,10,'2024-01-12'),
96     (204,104,15,'2024-01-13'),
97     (205,105,30,'2024-01-14'),
98     (206,106,8,'2024-01-15'),
99     (207,107,25,'2024-01-16'),
100     (208,108,12,'2024-01-17'),
101     (209,109,40,'2024-01-18'),
102     (210,110,18,'2024-01-19');
103
```

```
mysql> select * from inventory;
```

InventoryID	ProductID	QuantityInStock	LastStockUpdate
201	101	20	2024-01-10
202	102	50	2024-01-11
203	103	10	2024-01-12
204	104	15	2024-01-13
205	105	30	2024-01-14
206	106	8	2024-01-15
207	107	25	2024-01-16
208	108	12	2024-01-17
209	109	40	2024-01-18
210	110	18	2024-01-19

```
10 rows in set (0.00 sec)
```


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

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

```
mysql> select concat(firstname, ' ', lastname) as Names, email from customers;
```

Names	email
John Doe	john.doe@email.com
Jane Smith	jane.smith@email.com
Bob Johnson	bob.johnson@email.com
Alice Brown	alice.brown@email.com
Charlie Davis	charlie.davis@email.com
Emily White	emily.white@email.com
David Miller	david.miller@email.com
Grace Wilson	grace.wilson@email.com
Henry Lee	henry.lee@email.com
Olivia Turner	olivia.turner@email.com

```
10 rows in set (0.00 sec)
```

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

```
mysql> select orders.orderid as OrderID, Orders.OrderDate as OrderDate, concat(Customers.firstname, ' ', Customers.lastname) as CustomerName
-> from Orders Join Customers
-> on Orders.CustomerID=Customers.CustomerID;
```

OrderID	OrderDate	CustomerName
501	2024-01-10	John Doe
502	2024-01-11	Jane Smith
503	2024-01-12	Bob Johnson
504	2024-01-13	Alice Brown
505	2024-01-14	Charlie Davis
506	2024-01-15	Emily White
507	2024-01-16	David Miller
508	2024-01-17	Grace Wilson
509	2024-01-18	Henry Lee
510	2024-01-19	Olivia Turner

```
10 rows in set (0.00 sec)
```

Question 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> select * from customers;
```

CustomerID	FirstName	LastName	Email	Phone	Address
1	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
5	Charlie	Davis	charlie.davis@email.com	4445556666	567 Maple Street, Suburb
6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
10	Olivia	Turner	olivia.turner@email.com	2223334444	987 Maple Lane, Suburb

```
10 rows in set (0.00 sec)
```

```
mysql> insert into customers values(11,"Sarthak","Shandilya","sarthaksandilyakm@gmail.com",7320047161,"H no 11,RDS college campus,Bihar");
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from customers where CustomerID=11;
```

CustomerID	FirstName	LastName	Email	Phone	Address
11	Sarthak	Shandilya	sarthaksandilyakm@gmail.com	7320047161	H no 11,RDS college campus,Bihar

```
1 row in set (0.00 sec)
```

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

CustomerID	FirstName	LastName	Email	Phone	Address
1	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
5	Charlie	Davis	charlie.davis@email.com	4445556666	567 Maple Street, Suburb
6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
10	Olivia	Turner	olivia.turner@email.com	2223334444	987 Maple Lane, Suburb
11	Sarthak	Shandilya	sarthaksandilyakm@gmail.com	7320047161	H no 11,RDS college campus,Bihar

```
11 rows in set (0.00 sec)
```

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

Prices before updation:-

```
mysql> select * from products;
```

ProductID	ProductName	Description	Price
101	Laptop	High-performance laptop	1200
102	Smartphone	Latest smartphone model	699.99
103	Headphones	Noise-canceling headphones	99.95
104	Tablet	Lightweight tablet	499.99
105	Smartwatch	Fitness and health tracker	199.99
106	Camera	DSLR camera with HD lens	899.95
107	Printer	Wireless all-in-one printer	129.99
108	Speaker	Bluetooth portable speaker	79.99
109	Mouse	Ergonomic wireless mouse	29.99
110	Keyboard	Mechanical gaming keyboard	149.99

10 rows in set (0.01 sec)

Prices after updation:-

```
mysql> select * from products;
```

ProductID	ProductName	Description	Price
101	Laptop	High-performance laptop	1320
102	Smartphone	Latest smartphone model	769.989
103	Headphones	Noise-canceling headphones	109.945
104	Tablet	Lightweight tablet	549.989
105	Smartwatch	Fitness and health tracker	219.989
106	Camera	DSLR camera with HD lens	989.945
107	Printer	Wireless all-in-one printer	142.989
108	Speaker	Bluetooth portable speaker	87.989
109	Mouse	Ergonomic wireless mouse	32.989
110	Keyboard	Mechanical gaming keyboard	164.989

10 rows in set (0.00 sec)

Question 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> delimiter @@
mysql> create procedure deleteOrderDetails(in var int)
  -> begin
  -> delete from orderdetails where orderid=var;
  -> delete from orders where orderid=var;
  -> end@@
Query OK, 0 rows affected (0.03 sec)

mysql> delimiter ;
```

Delete OrderId 501 before learning procedure so didn't deleted any record further

```
mysql> set OrderToDelete = 501;
ERROR 1193 (HY000): Unknown system variable 'OrderToDelete'
mysql> set @OrderToDelete = 501;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> delete from orderdetails where orderid=@OrderToDelete;
Query OK, 1 row affected (0.02 sec)
```

```
mysql> delete from orders where orderid=@OrderToDelete;
Query OK, 1 row affected (0.01 sec)
```

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

OrderId	CustomerID	OrderDate	TotalAmount
502	2	2024-01-11	799.99
503	3	2024-01-12	219.95
504	4	2024-01-13	499.99
505	5	2024-01-14	199.99
506	6	2024-01-15	899.95
507	7	2024-01-16	129.99
508	8	2024-01-17	79.99
509	9	2024-01-18	29.99
510	10	2024-01-19	149.99

```
9 rows in set (0.00 sec)
```

```
mysql> select * from orderdetails;
```

OrderDetailID	OrderID	ProductID	Quantity
1002	502	102	2
1003	503	103	3
1004	504	104	1
1005	505	105	2
1006	506	106	1
1007	507	107	1

Question 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.

In previous question I deleted the order with orderID 501 and I reinserted same order id in this question.

```
mysql> set OrderToDelete = 501;
ERROR 1193 (HY000): Unknown system variable 'OrderToDelete'
mysql> set @OrderToDelete = 501;
Query OK, 0 rows affected (0.00 sec)

mysql> delete from orderdetails where orderid=@OrderToDelete;
Query OK, 1 row affected (0.02 sec)

mysql> delete from orders where orderid=@OrderToDelete;
Query OK, 1 row affected (0.01 sec)

mysql> select * from orders;
+-----+-----+-----+-----+
| OrderId | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 502 | 2 | 2024-01-11 | 799.99 |
| 503 | 3 | 2024-01-12 | 219.95 |
| 504 | 4 | 2024-01-13 | 499.99 |
| 505 | 5 | 2024-01-14 | 199.99 |
| 506 | 6 | 2024-01-15 | 899.95 |
| 507 | 7 | 2024-01-16 | 129.99 |
| 508 | 8 | 2024-01-17 | 79.99 |
| 509 | 9 | 2024-01-18 | 29.99 |
| 510 | 10 | 2024-01-19 | 149.99 |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> select * from orderdetails;
+-----+-----+-----+-----+
| OrderDetailID | OrderID | ProductID | Quantity |
+-----+-----+-----+-----+
| 1002 | 502 | 102 | 2 |
| 1003 | 503 | 103 | 3 |
| 1004 | 504 | 104 | 1 |
| 1005 | 505 | 105 | 2 |
| 1006 | 506 | 106 | 1 |
| 1007 | 507 | 107 | 1 |
+-----+-----+-----+-----+
```

```
mysql> insert into orders values(501,1,'2024-01-12',1250.99);
Query OK, 1 row affected (0.01 sec)

mysql> select * from orders;
+-----+-----+-----+-----+
| OrderId | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 501 | 1 | 2024-01-12 | 1250.99 |
| 502 | 2 | 2024-01-11 | 799.99 |
| 503 | 3 | 2024-01-12 | 219.95 |
| 504 | 4 | 2024-01-13 | 499.99 |
| 505 | 5 | 2024-01-14 | 199.99 |
| 506 | 6 | 2024-01-15 | 899.95 |
| 507 | 7 | 2024-01-16 | 129.99 |
| 508 | 8 | 2024-01-17 | 79.99 |
| 509 | 9 | 2024-01-18 | 29.99 |
| 510 | 10 | 2024-01-19 | 149.99 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

Question 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.

Before -

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

CustomerID	FirstName	LastName	Email	Phone	Address
1	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
5	Charlie	Davis	charlie.davis@email.com	4445556666	567 Maple Street, Suburb
6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
10	Olivia	Turner	olivia.turner@email.com	2223334444	987 Maple Lane, Suburb
11	Sarthak	Shandilya	sarthaksandilyakm@gmail.com	7320047161	H no 11,RDS college campus,Bihar

```
11 rows in set (0.00 sec)
```

After –

```
mysql> set @IdToUpdate = 10;
Query OK, 0 rows affected (0.00 sec)

mysql> set @NewEmail = "turner.olivia@email.com";
Query OK, 0 rows affected (0.00 sec)

mysql> set @NewAddress = "954 Maple Road, New York";
Query OK, 0 rows affected (0.00 sec)

mysql> update customers set email=@NewEmail,Address=@NewAddress where CustomerID=@IdToUpdate;
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	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
5	Charlie	Davis	charlie.davis@email.com	4445556666	567 Maple Street, Suburb
6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
10	Olivia	Turner	turner.olivia@email.com	2223334444	954 Maple Road, New York
11	Sarthak	Shandilya	sarthaksandilyakm@gmail.com	7320047161	H no 11,RDS college campus,Bihar

```
11 rows in set (0.00 sec)
```

Question 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.

```
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual
rom orderdetails
join products on orderdetails.productid = products.productid
w' at line 3
mysql> update Orders
-> set totalamount=(select sum(orderdetails.quantity*products.price)
-> from orderdetails
-> join products on orderdetails.productid = products.productid
-> where orderdetails.orderid = orders.orderid)
-> where orderid in(select orderid from orderdetails);
Query OK, 8 rows affected (0.04 sec)
Rows matched: 8  Changed: 8  Warnings: 0

mysql> select * from orders;
+-----+-----+-----+-----+
| OrderId | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 501 | 1 | 2024-01-12 | 1250.99 |
| 502 | 2 | 2024-01-11 | 1539.98 |
| 503 | 3 | 2024-01-12 | 329.835 |
| 504 | 4 | 2024-01-13 | 549.989 |
| 506 | 6 | 2024-01-15 | 989.945 |
| 507 | 7 | 2024-01-16 | 142.989 |
| 508 | 8 | 2024-01-17 | 175.978 |
| 509 | 9 | 2024-01-18 | 98.967 |
| 510 | 10 | 2024-01-19 | 164.989 |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)
```

Question 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> select * from orderdetails;
+-----+-----+-----+-----+
| OrderDetailID | OrderID | ProductID | Quantity |
+-----+-----+-----+-----+
| 1002 | 502 | 102 | 2 |
| 1003 | 503 | 103 | 3 |
| 1004 | 504 | 104 | 1 |
| 1005 | 505 | 105 | 2 |
| 1006 | 506 | 106 | 1 |
| 1007 | 507 | 107 | 1 |
| 1008 | 508 | 108 | 2 |
| 1009 | 509 | 109 | 3 |
| 1010 | 510 | 110 | 1 |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> insert into orders values(501,1,'2024-01-12',1250.99);
Query OK, 1 row affected (0.01 sec)

mysql> select * from orders;
+-----+-----+-----+-----+
| OrderId | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 501 | 1 | 2024-01-12 | 1250.99 |
| 502 | 2 | 2024-01-11 | 799.99 |
| 503 | 3 | 2024-01-12 | 219.95 |
| 504 | 4 | 2024-01-13 | 499.99 |
| 505 | 5 | 2024-01-14 | 199.99 |
| 506 | 6 | 2024-01-15 | 899.95 |
| 507 | 7 | 2024-01-16 | 129.99 |
| 508 | 8 | 2024-01-17 | 79.99 |
| 509 | 9 | 2024-01-18 | 29.99 |
| 510 | 10 | 2024-01-19 | 149.99 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```



```
mysql> set @CidToDelete = 5;
Query OK, 0 rows affected (0.00 sec)

mysql> delete from OrderDetails where orderid in (Select orderid from orders where customerid=@CidToDelete);
Query OK, 1 row affected (0.03 sec)

mysql> delete from orders where customerid=@CidToDelete;
Query OK, 1 row affected (0.02 sec)

mysql> select * from orders;
+-----+-----+-----+-----+
| OrderID | CustomerID | OrderDate | TotalAmount |
+-----+-----+-----+-----+
| 501 | 1 | 2024-01-12 | 1250.99 |
| 502 | 2 | 2024-01-11 | 799.99 |
| 503 | 3 | 2024-01-12 | 219.95 |
| 504 | 4 | 2024-01-13 | 499.99 |
| 506 | 6 | 2024-01-15 | 899.95 |
| 507 | 7 | 2024-01-16 | 129.99 |
| 508 | 8 | 2024-01-17 | 79.99 |
| 509 | 9 | 2024-01-18 | 29.99 |
| 510 | 10 | 2024-01-19 | 149.99 |
+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> select * from orderdetails;
+-----+-----+-----+-----+
| OrderDetailID | OrderID | ProductID | Quantity |
+-----+-----+-----+-----+
| 1002 | 502 | 102 | 2 |
| 1003 | 503 | 103 | 3 |
| 1004 | 504 | 104 | 1 |
| 1006 | 506 | 106 | 1 |
| 1007 | 507 | 107 | 1 |
| 1008 | 508 | 108 | 2 |
| 1009 | 509 | 109 | 3 |
| 1010 | 510 | 110 | 1 |
+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

Question 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.

Inserted new product

```

+-----+-----+-----+-----+
| ProductID | ProductName | Description | Price |
+-----+-----+-----+-----+
| 101 | Laptop | High-performance laptop | 1320 |
| 102 | Smartphone | Latest smartphone model | 769.989 |
| 103 | Headphones | Noise-canceling headphones | 109.945 |
| 104 | Tablet | Lightweight tablet | 549.989 |
| 105 | Smartwatch | Fitness and health tracker | 219.989 |
| 106 | Camera | DSLR camera with HD lens | 989.945 |
| 107 | Printer | Wireless all-in-one printer | 142.989 |
| 108 | Speaker | Bluetooth portable speaker | 87.989 |
| 109 | Mouse | Ergonomic wireless mouse | 32.989 |
| 110 | Keyboard | Mechanical gaming keyboard | 164.989 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)

mysql> insert into products values (111,"EarBuds","Bluetooth complete wireless",2200.00);
Query OK, 1 row affected (0.01 sec)

mysql> select * from products;
+-----+-----+-----+-----+
| ProductID | ProductName | Description | Price |
+-----+-----+-----+-----+
| 101 | Laptop | High-performance laptop | 1320 |
| 102 | Smartphone | Latest smartphone model | 769.989 |
| 103 | Headphones | Noise-canceling headphones | 109.945 |
| 104 | Tablet | Lightweight tablet | 549.989 |
| 105 | Smartwatch | Fitness and health tracker | 219.989 |
| 106 | Camera | DSLR camera with HD lens | 989.945 |
| 107 | Printer | Wireless all-in-one printer | 142.989 |
| 108 | Speaker | Bluetooth portable speaker | 87.989 |
| 109 | Mouse | Ergonomic wireless mouse | 32.989 |
| 110 | Keyboard | Mechanical gaming keyboard | 164.989 |
| 111 | EarBuds | Bluetooth complete wireless | 2200 |
+-----+-----+-----+-----+
11 rows in set (0.00 sec)

```

Question 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> select orderid,orderdate,if(orderdate>'2024-01-15',"Pending","Shipped") from orders;
```

orderid	orderdate	if(orderdate>'2024-01-15',"Pending","Shipped")
501	2024-01-12	Shipped
502	2024-01-11	Shipped
503	2024-01-12	Shipped
504	2024-01-13	Shipped
506	2024-01-15	Shipped
507	2024-01-16	Pending
508	2024-01-17	Pending
509	2024-01-18	Pending
510	2024-01-19	Pending

```
9 rows in set (0.01 sec)
```

Question 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> select customerid,firstname,lastname,(select count(orderid) from orders where customers.customerid=orders.customerid) as NumberOfOrders
-> from customers;
```

customerid	firstname	lastname	NumberOfOrders
1	John	Doe	1
2	Jane	Smith	1
3	Bob	Johnson	1
4	Alice	Brown	1
5	Charlie	Davis	0
6	Emily	White	1
7	David	Miller	1
8	Grace	Wilson	1
9	Henry	Lee	1
10	Olivia	Turner	1
11	Sarthak	Shandilya	0

```
11 rows in set (0.01 sec)
```

Task 3:- Aggregate functions, Having, OrderBy, GroupBy and Joins:-

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

```
mysql> select * from orders join customers on customers.customerid=orders.customerid;
```

OrderId	CustomerID	OrderDate	TotalAmount	CustomerID	FirstName	LastName	Email	Phone	Address
501	1	2024-01-12	1250.99	1	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
502	2	2024-01-11	1539.98	2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
503	3	2024-01-12	329.835	3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
504	4	2024-01-13	549.989	4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
506	6	2024-01-15	989.945	6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
507	7	2024-01-16	142.989	7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
508	8	2024-01-17	175.978	8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
509	9	2024-01-18	98.967	9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
510	10	2024-01-19	164.989	10	Olivia	Turner	turner.olivia@email.com	2223334444	954 Maple Road, New York

9 rows in set (0.00 sec)

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

Here are the prices of the products and it's total revenue

```
mysql> select productname,price,(select sum(quantity*price) from orderdetails
-> where orderdetails.productid=products.productid) as TotalRevenue
-> from products where description="Electronic Gadget";
```

productname	price	TotalRevenue
Laptop	1320	NULL
Smartphone	769.989	1539.97802734375
Tablet	549.989	549.989013671875
Smartwatch	219.989	NULL

4 rows in set (0.01 sec)

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

```
mysql> select customerid,concat(firstname,' ',lastname) as Name,concat(phone,' ',address) as ContactDetails
-> from customers
-> where customerid in(select customerid from orders);
```

customerid	Name	ContactDetails
1	John Doe	1234567890 123 Main Street, City
2	Jane Smith	9876543210 456 Oak Avenue, Town
3	Bob Johnson	5551234567 789 Pine Road, Village
4	Alice Brown	1112223333 321 Elm Lane, Countryside
6	Emily White	7778889999 876 Cedar Road, Hamlet
7	David Miller	9990001111 234 Birch Court, Riverside
8	Grace Wilson	3334445555 432 Pine Avenue, Metropolis
9	Henry Lee	6667778888 789 Oak Drive, City
10	Olivia Turner	2223334444 954 Maple Road, New York

```
9 rows in set (0.00 sec)
```

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

OrderId	CustomerID	OrderDate	TotalAmount
501	1	2024-01-12	1250.99
502	2	2024-01-11	1539.98
503	3	2024-01-12	329.835
504	4	2024-01-13	549.989
506	6	2024-01-15	989.945
507	7	2024-01-16	142.989
508	8	2024-01-17	175.978
509	9	2024-01-18	98.967
510	10	2024-01-19	164.989

```
9 rows in set (0.00 sec)
```

Question 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.

```
mysql> select productname,quantity from products join orderdetails on products.productid=orderdetails.productid order by quantity desc;
```

productname	quantity
Headphones	3
Mouse	3
Smartphone	2
Speaker	2
Tablet	1
Camera	1
Printer	1
Keyboard	1

```
8 rows in set (0.00 sec)
```

```
mysql> |
```

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

```
mysql> select productname,description as category from products;
```

productname	category
Laptop	Electronic Gadget
Smartphone	Electronic Gadget
Headphones	Audio
Tablet	Electronic Gadget
Smartwatch	Electronic Gadget
Camera	Camera
Printer	Input Output Devices
Speaker	Audio
Mouse	Input Output Devices
Keyboard	Input Output Devices
EarBuds	Audio

```
11 rows in set (0.00 sec)
```

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

```
mysql> select concat(firstname,' ',lastname) as Name, avg(totalamount) as AverageOrderValue
-> from customers join orders on customers.customerid=orders.customerid
-> group by customers.customerid,customers.firstname,customers.lastname;
```

Name	AverageOrderValue
John Doe	1250.989990234375
Jane Smith	1539.97802734375
Bob Johnson	329.8349914550781
Alice Brown	549.989013671875
Emily White	989.9450073242188
David Miller	142.989013671875
Grace Wilson	175.97799682617188
Henry Lee	98.96699523925781
Olivia Turner	164.989013671875

```
9 rows in set (0.01 sec)
```

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

```
mysql> select orders.orderid,customers.customerid,concat(customers.firstname,' ',customers.lastname) as Name,orders.totalamount as TotalRevenue
-> from orders join customers on orders.customerid=customers.customerid
-> order by TotalRevenue desc limit 1;
```

orderid	customerid	Name	TotalRevenue
502	2	Jane Smith	1539.98

1 row in set (0.00 sec)

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

```
mysql> select p.productid,p.productname,p.description,count(od.orderid) as OrderCount
-> from products p join orderdetails od on p.productid=od.productid
-> group by p.productid,p.productname,p.description;
```

productid	productname	description	OrderCount
102	Smartphone	Electronic Gadget	1
103	Headphones	Audio	1
104	Tablet	Electronic Gadget	1
106	Camera	Camera	1
107	Printer	Input Output Devices	1
108	Speaker	Audio	1
109	Mouse	Input Output Devices	1
110	Keyboard	Input Output Devices	1

8 rows in set (0.00 sec)

Question9:- 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.

```
mysql> select customerid,firstname,lastname from customers where customerid in(select customerid from orders where orderid in(select orderid from orderdetails where productid in(select productid from products where productname="Smartphone")));
```

customerid	firstname	lastname
2	Jane	Smith

```
1 row in set (0.00 sec)
```

Question 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.

```
mysql> select sum(totalamount) as totalrevenue from orders where orderdate between '2024-01-13' and '2024-01-16';
```

totalrevenue
1682.9230346679688

```
1 row in set (0.00 sec)
```


Task 4 : Subquery and it's types

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

```
mysql> select customerid,firstname,lastname from customers where customerid in(select customerid from orders);
```

customerid	firstname	lastname
2	Jane	Smith
3	Bob	Johnson
4	Alice	Brown
6	Emily	White
7	David	Miller
8	Grace	Wilson
9	Henry	Lee
10	Olivia	Turner

8 rows in set (0.00 sec)

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

CustomerID	FirstName	LastName	Email	Phone	Address
1	John	Doe	john.doe@email.com	1234567890	123 Main Street, City
2	Jane	Smith	jane.smith@email.com	9876543210	456 Oak Avenue, Town
3	Bob	Johnson	bob.johnson@email.com	5551234567	789 Pine Road, Village
4	Alice	Brown	alice.brown@email.com	1112223333	321 Elm Lane, Countryside
5	Charlie	Davis	charlie.davis@email.com	4445556666	567 Maple Street, Suburb
6	Emily	White	emily.white@email.com	7778889999	876 Cedar Road, Hamlet
7	David	Miller	david.miller@email.com	9990001111	234 Birch Court, Riverside
8	Grace	Wilson	grace.wilson@email.com	3334445555	432 Pine Avenue, Metropolis
9	Henry	Lee	henry.lee@email.com	6667778888	789 Oak Drive, City
10	Olivia	Turner	turner.olivia@email.com	2223334444	954 Maple Road, New York
11	Sarthak	Shandilya	sarthaksandilyakm@gmail.com	7320047161	H no 11,RDS college campus,Bihar

11 rows in set (0.00 sec)

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

```
mysql> select count(productid) as productsAvailable from products;
```

productsAvailable
11

1 row in set (0.01 sec)

```
mysql> select * from products;
```

ProductID	ProductName	Description	Price
101	Laptop	Electronic Gadget	1320
102	Smartphone	Electronic Gadget	769.989
103	Headphones	Audio	109.945
104	Tablet	Electronic Gadget	549.989
105	Smartwatch	Electronic Gadget	219.989
106	Camera	Camera	989.945
107	Printer	Input Output Devices	142.989
108	Speaker	Audio	87.989
109	Mouse	Input Output Devices	32.989
110	Keyboard	Input Output Devices	164.989
111	EarBuds	Audio	2200

11 rows in set (0.00 sec)

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

```
mysql> select sum(totalamount) as TotalRevenueOfTechShop from orders;
+-----+
| TotalRevenueOfTechShop |
+-----+
|      3992.6700592041016 |
+-----+
1 row in set (0.00 sec)
```

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.

Note:- here we've imagined product category to be Audio which is inserted by user

```
mysql> select avg(quantity) from orderdetails where productid in(select productid from products where description = "Audio");
+-----+
| avg(quantity) |
+-----+
|          2.5000 |
+-----+
1 row in set (0.00 sec)

mysql> select * from orderdetails;
+-----+-----+-----+-----+
| OrderDetailID | OrderID | ProductID | Quantity |
+-----+-----+-----+-----+
|          1002 |       502 |         102 |         2 |
|          1003 |       503 |         103 |         3 |
|          1004 |       504 |         104 |         1 |
|          1006 |       506 |         106 |         1 |
|          1007 |       507 |         107 |         1 |
|          1008 |       508 |         108 |         2 |
|          1009 |       509 |         109 |         3 |
|          1010 |       510 |         110 |         1 |
+-----+-----+-----+-----+
8 rows in set (0.00 sec)
```

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.

```
mysql> select sum(totalamount) as TotalRevenue from orders where customerid=2;
+-----+
| TotalRevenue |
+-----+
| 1539.97802734375 |
+-----+
1 row in set (0.00 sec)
```

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.

```
mysql> select customerid,concat(firstname,' ',lastname) as Name,(select count(orderid) from orders where orders.customerid=customers.customerid) as NoOfOrders from customers
-> where customerid in(select customerid from orders where orderid in
-> (select orderid from orderdetails where quantity =(select max(quantity) from orderdetails)));
+-----+-----+-----+
| customerid | Name          | NoOfOrders |
+-----+-----+-----+
| 3          | Bob Johnson  | 1          |
| 9          | Henry Lee    | 1          |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

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.

```
mysql> select productid,productname,description from products
-> where productid in(select productid from orderdetails where quantity in(select max(quantity) from orderdetails));
+-----+-----+-----+
| productid | productname | description |
+-----+-----+-----+
| 103       | Headphones  | Audio       |
| 109       | Mouse       | Input Output Devices |
+-----+-----+-----+
2 rows in set (0.01 sec)
```

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.

```
mysql> select customerid,concat(firstname,' ',lastname) as Name,
-> (select totalamount from orders where totalamount=(select max(totalamount) from orders)) as TotalRevenue
-> from customers
-> where customerid in(select customerid from orders where totalamount in(select max(totalamount) from orders));
```

customerid	Name	TotalRevenue
2	Jane Smith	1539.98

```
1 row in set (0.00 sec)
```

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

```
mysql> select customers.customerid,concat(firstname,' ',lastname) as Name,
-> (select sum(orders.orderid)/count(orders.orderid)
-> from orders where orders.customerid=customers.customerid) as AverageValue
-> from customers;
```

customerid	Name	AverageValue
1	John Doe	NULL
2	Jane Smith	502.0000
3	Bob Johnson	503.0000
4	Alice Brown	504.0000
5	Charlie Davis	NULL
6	Emily White	506.0000
7	David Miller	507.0000
8	Grace Wilson	508.0000
9	Henry Lee	509.0000
10	Olivia Turner	510.0000
11	Sarthak Shandilya	NULL

```
11 rows in set (0.00 sec)
```