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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 Desctription text,
15 Price int
16 );
```

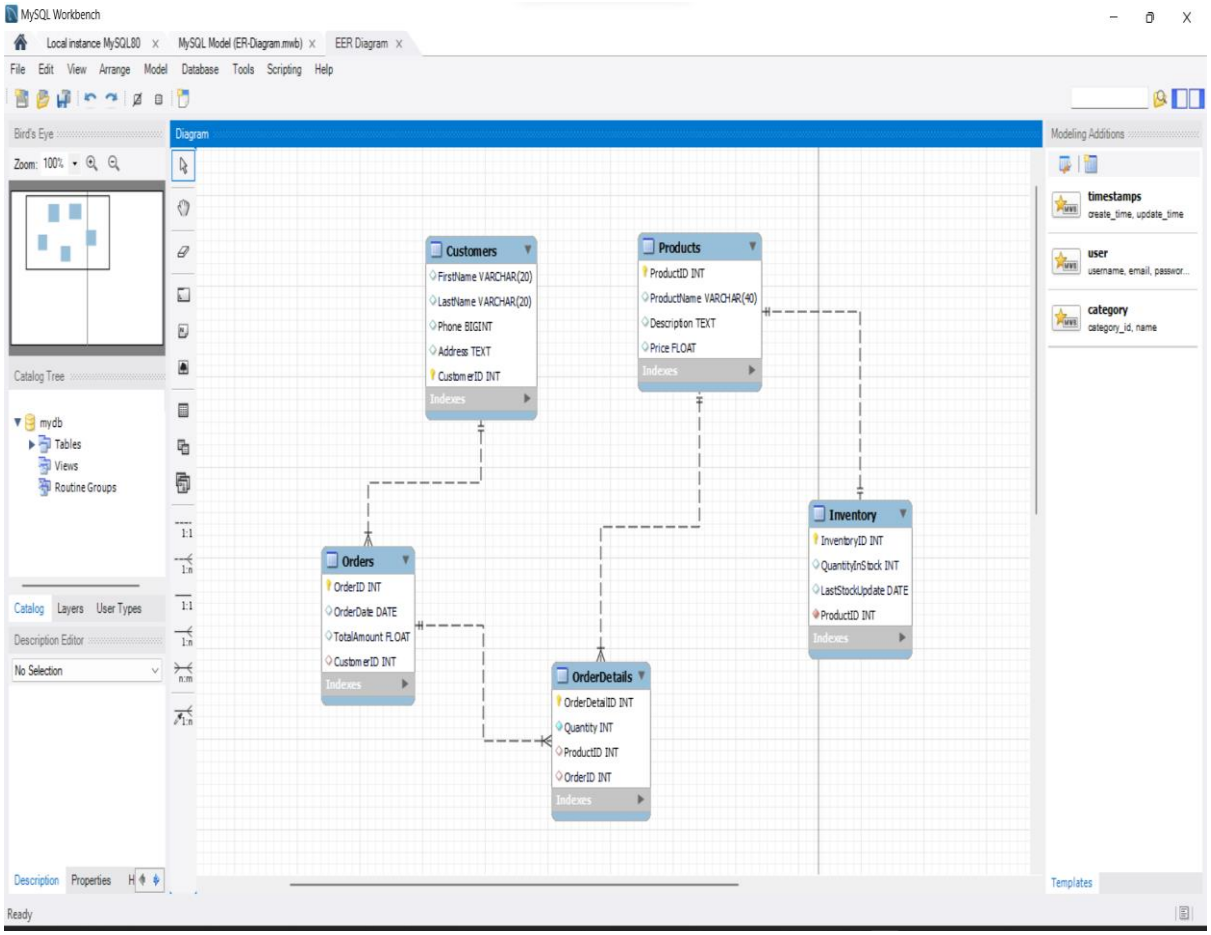
```sql
create table Orders(
OrderId int primary key,
CustomerID int,
OrderDate date,
TotalAmount int,
foreign key (CustomerID) references Customers(CustomerID)
);

create table OrderDetails(
OrderDetailID int primary key,
OrderID int,
ProductID int,
Quantity int,
foreign key (OrderID) references Orders(OrderID),
foreign key (ProductID) references Products(ProductID)
);

create table Inventory(
InventoryID int primary key,
ProductID int,
QuantityInStock int,
LastStockUpdate date,
foreign key (ProductID) references Products(ProductID)
);
```

```
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    |       |
| Desctription | 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 | Desctription                | 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 | Desctription                | 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 | Desctription                | 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 | Desctription                | 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 | Desctription                | 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 orderdetai
ls 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 NoOfOrde
rs 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)
```