Assignments-1

A database administrator for a fictional company named "TechShop," which sells electronic gadgets. TechShop maintains data related to their products, customers, and orders. Task is to design and implement a database for TechShop based on the following requirements.

TASK - 1 DATABASE DESIGN

1) Create a database named “TechShop” .

```
ysql> create DATABASE TECHSHOP;
uery OK, 1 row affected (0.03 sec)
```

2) Create the schema for customers,products,OrderDetails,Inventory tables based on the provided schema.

Customers

```
mysql>  CREATE TABLE Customers(
    ->  CustomerID INTEGER PRIMARY KEY,
    ->  FirstName VARCHAR(15),
    ->  LastName VARCHAR(15),
    -> Email VARCHAR(30),
    -> Phone INTEGER,
    -> Address  VARCHAR(50)
    -> );
```

Products

```
mysql> CREATE TABLE Products(
    ->  productID INTEGER PRIMARY KEY,
    -> productName VARCHAR(15),
    -> Description VARCHAR(50),
    -> Price INTEGER
    -> );
```

Orders

```
mysql> CREATE TABLE Orders(
    -> OrderID INTEGER PRIMARY KEY,
    -> CustomerID INTEGER,
    -> OrderDate DATE,
    -> TotalAmount INTEGER,
    -> FOREIGN KEY(CustomerID) REFERENCES Customers(CustomerID)
    -> );
```

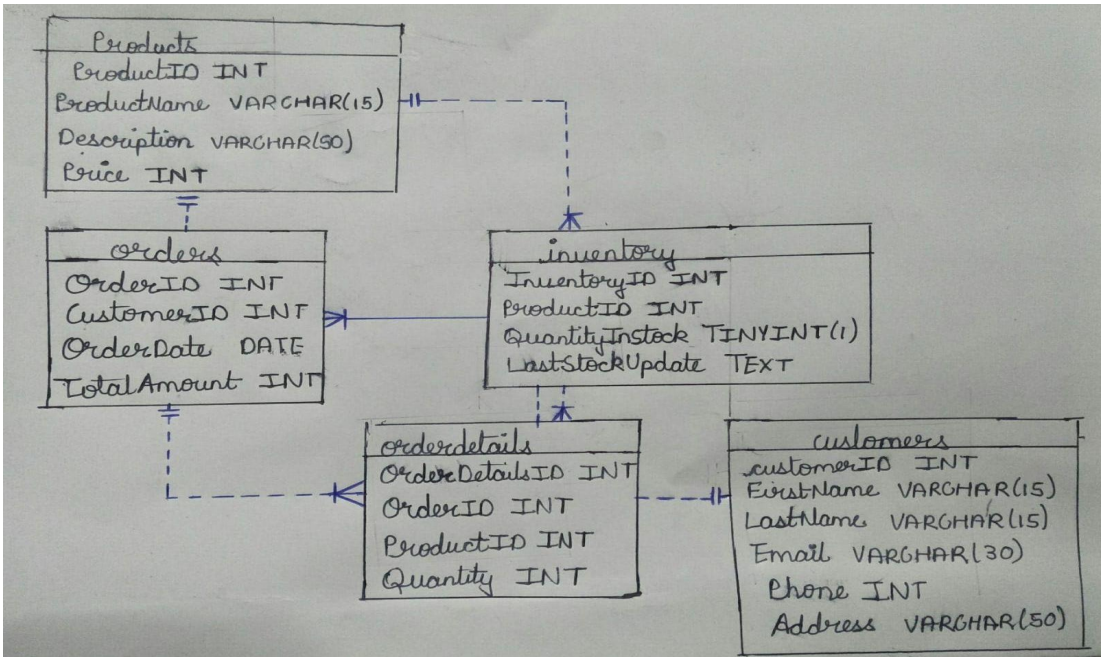
OrderDetails

```
mysql> CREATE TABLE OrderDetails(
    ->  OrderDetailsID INTEGER PRIMARY KEY,
    -> OrderID INTEGER ,
    -> ProductID INTEGER,
    -> Quantity INTEGER,
    -> FOREIGN KEY(OrderID) REFERENCES Orders(OrderID),
    -> FOREIGN KEY(ProductID) REFERENCES Products(ProductID)
    -> );
```

Inventory

```
mysql> CREATE TABLE Inventory(
    ->  InventoryID INTEGER PRIMARY KEY,
    ->  ProductID INTEGER ,
    -> QuantityInStock BOOLEAN,
    -> LastStockUpdate text,
    -> FOREIGN KEY(ProductID) references Products(productID)
    -> );
```

3) Create E-R(entity relationship diagram) for the database.



4) Create and appropriate primary key and foreign key constraints for referential integrity

Primary key

TABLE_NAME	CONSTRAINT_NAME
customers	PRIMARY
products	PRIMARY
orders	PRIMARY
orderdetails	PRIMARY
inventory	PRIMARY

Foreign key

TABLE_NAME	CONSTRAINT_NAME
orders	orders_ibfk_1
orderdetails	orderdetails_ibfk_1
orderdetails	orderdetails_ibfk_2
inventory	inventory_ibfk_1

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

Customers

CustomerID	FirstName	LastName	Email	Phone	Address
1	John	Doe	john@example.com	1234567890	123 Main St
2	Alice	Smith	alice@example.com	1876543210	456 Elm St
3	Bob	Johnson	bob@example.com	1551234567	789 Oak St
4	Emily	Brown	emily@example.com	1779998888	101 Pine St
5	Michael	Davis	michael@example.com	1445556666	246 Maple St
6	Sarah	Wilson	sarah@example.com	1223334444	369 Cedar St
7	David	Miller	david@example.com	1887776666	482 Birch St
8	Olivia	Garcia	olivia@example.com	1661112222	573 Spruce St
9	Sophia	Martinez	sophia@example.com	1334445555	798 Walnut St
10	James	Thompson	james@example.com	1990001111	854 Cherry St

Products

ProductID	ProductName	Description	Price
200	Smart TV	smart features, and seamless connectivity. Stream your favorite content, and experience a new level f home entertainment.	79900
202	Washing Machine	Simplify laundry days with our advanced washing machine. Choose from various settings, enjoy energy d let its smart technology take care of your clothes.	6990
203	Refrigerator	Keep your food fresh and organized with our modern refrigerator. Innovative features, ample storage, d efficient cooling make it a perfect addition to your kitchen.	8990
204	Microwave Oven	Effortlessly prepare meals with our versatile microwave oven. It offers quick and convenient cooking ptions	1290
205	Air Conditioner	Stay cool and comfortable with our powerful air conditioner. Enjoy adjustable settings, energy effici ncy, and a refreshing atmosphere, even on the hottest days.	4990
206	Blender	Create delicious smoothies and culinary delights with our high-performance blender. Its durable desig and multiple speed settings make blending a joy.	790
207	Vacuum Cleaner	Keep your home spotless with our efficient vacuum cleaner. Featuring powerful suction and versatile a tachments, it makes cleaning effortless.	1990
208	Electric Kettle	Boil water quickly and efficiently with our electric kettle. Enjoy safety features, sleek design, and convenience for your daily hot beverages.	4900
209	Toaster	Start your mornings right with our reliable toaster. Whether it's crispy toast or warm bagels, enjoy ven toasting and easy operation every time.	3900
300	Hair Dryer	Achieve salon-quality hair drying with our powerful hair dryer. Fast drying, multiple heat settings, d ergonomic design for effortless styling.	5900

Orders

OrderID	CustomerID	OrderDate	TotalAmount
300	1	2023-12-01	89900
301	2	2023-12-02	7990
302	3	2023-12-03	9990
303	4	2023-12-04	2290
304	5	2023-12-05	5990
305	6	2023-12-06	890
306	7	2023-12-07	2990
307	8	2023-12-08	5900
308	9	2023-12-09	4900
309	10	2023-12-10	6900

OrderDetails

OrderDetailsID	OrderID	ProductID	Quantity
400	300	200	1
401	301	202	5
402	302	203	7
403	303	204	1
404	304	205	2
405	305	206	5
406	306	207	6
407	307	208	1
408	308	209	2
409	309	300	2

Inventory

InventoryID	ProductID	QuantityInStock	LastStockUpdate
500	200	1	2023-12-01
501	202	1	2023-12-02
502	203	1	2023-12-03
503	204	0	2023-12-04
504	205	1	2023-12-05
505	206	0	2023-12-06
506	207	1	2023-12-07
507	208	1	2023-12-08
508	209	0	2023-12-09
509	300	0	2023-12-10

Task - 2 - SELECT , WHERE , AND , LIKE

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

Firstname	LastName	Email
John	Doe	john@example.com
Alice	Smith	alice@example.com
Bob	Johnson	bob@example.com
Emily	Brown	emily@example.com
Michael	Davis	michael@example.com
Sarah	Wilson	sarah@example.com
David	Miller	david@example.com
Olivia	Garcia	olivia@example.com
Sophia	Martinez	sophia@example.com
James	Thompson	james@example.com

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

Name	OrderDate
John Doe	2023-12-01
Alice Smith	2023-12-02
Bob Johnson	2023-12-03
Emily Brown	2023-12-04
Michael Davis	2023-12-05
Sarah Wilson	2023-12-06
David Miller	2023-12-07
Olivia Garcia	2023-12-08
Sophia Martinez	2023-12-09
James Thompson	2023-12-10

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

```
mysql> insert into customers values(11,'sheldon', 'Cooper','bazinga@gmail.com',1734467891,'123 Main St');
Query OK, 1 row affected (0.03 sec)
```

4) Write a SQL query to update the price of all electronic gadgets in the “Products” table By increasing them by 10%.

```
mysql> update products set price=price*1.1;
Query OK, 10 rows affected (0.03 sec)
Rows matched: 10  Changed: 10  Warnings: 0
```

5) Write a SQl query to update the contact information of the specific customer in the “Customers” table .Allow users to input the customer ID and new contact information.

```
mysql> update customers set  Email  = "Doe@example.com", Address = '121 Down street' where CustomerID  = 1;
Query OK, 1 row affected (0.03 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

6) Write a specific query to delete a specific order and its associated order details from the “Orders” and “OrderDetails” table .

```
mysql> alter table orderdetails
    -> add constraint foreign_key
    -> foreign key(OrderID)references orders(orderid) on delete cascade;
Query OK, 9 rows affected (0.17 sec)
Records: 9  Duplicates: 0  Warnings: 0

mysql> delete from orderDetails where OrderID  = 301;
Query OK, 1 row affected (0.01 sec)
```

7) Write a specific query to delete all orders and their associated order details from the “Orders” and “OrderDetails” table for a specific customer .

```
mysql> DELETE orders
    -> FROM orders
    -> JOIN orderdetails  on orders.orderID  = orderDetails.orderID
    -> WHERE orders.CustomerID  = 6;
Query OK, 1 row affected (0.02 sec)
```

8) Write a SQL query to insert a new order into the “Orders”table .Include the Customer ID , order date , and any other necessary information.

```
mysql> insert into Orders values(310,11,'2023-12-10', 1230);
Query OK, 1 row affected (0.03 sec)
```

9) Write a SQL query to recalculate and update the total cost of each order in “Orders” table based on the prices and quantities in the “OrderDetails”table .

```
mysql>  UPDATE Orders INNER JOIN OrderDetails
    -> ON Orders.OrderID = OrderDetails.OrderID
    -> SET Orders.TotalAmount = OrderDetails.Quantity*Orders.TotalAmount;
Query OK, 7 rows affected (0.02 sec)
```

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

```
mysql> INSERT INTO Products (ProductID, ProductName, Description, Price) VALUES
   -> (24, 'Smartwatch', 'Enhance your lifestyle with our smartwatch. Stay connected, track fitness, and manage your day with style a
nd convenience.', 199);
Query OK, 1 row affected (0.02 sec)
```

11) Write a SQL query to update the status of a specific order in the “Orders” table (e.g., from pending to shipped).

```
mysql> update orders set status  = 'shipped' where orderID  = 305;
Query OK, 0 rows affected (0.00 sec)
Rows matched: 0  Changed: 0  Warnings: 0
```

Task - 3 AGGREGATE FUNCTIONS , HAVING,ORDER BY , GROUP BY

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

OrderID	OrderDate	TotalAmount	FirstName	LastName
301	2023-12-02	24968750	Alice	Smith
302	2023-12-03	167901930	Bob	Johnson
303	2023-12-04	2290	Emily	Brown
304	2023-12-05	191680	Michael	Davis
306	2023-12-07	23250240	David	Miller
307	2023-12-08	5900	Olivia	Garcia
308	2023-12-09	156800	Sophia	Martinez
309	2023-12-10	220800	James	Thompson
310	2023-12-10	1230	sheldon	Cooper

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

TotalAmount	product_Name
167901930	Refrigerator
2290	Microwave Oven
191680	Air Conditioner
23250240	Vacuum Cleaner
5900	Electric Kettle
156800	Toaster
220800	Hair Dryer

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

FirstName	LastName	Email	phone
Alice	Smith	alice@example.com	1876543210
Bob	Johnson	bob@example.com	1551234567
Emily	Brown	emily@example.com	1779998888
Michael	Davis	michael@example.com	1445556666
David	Miller	david@example.com	1887776666
Olivia	Garcia	olivia@example.com	1661112222
Sophia	Martinez	sophia@example.com	1334445555
James	Thompson	james@example.com	1990001111
sheldon	Cooper	bazinga@gmail.com	1734467891

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

productName	quantity
Refrigerator	7

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

Customer_name	average
Bob Johnson	23985990.00
Emily Brown	2290.00
Michael Davis	95840.00
David Miller	3875040.00
Olivia Garcia	5900.00
Sophia Martinez	78400.00
James Thompson	110400.00

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

OrderID	TotalAmount	Customer_name	Email	Phone
302	167901930	Bob Johnson	bob@example.com	1551234567

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

Product Name	Quantity Ordered
Refrigerator	7
Microwave Oven	1
Air Conditioner	2
Vacuum Cleaner	6
Electric Kettle	1
Toaster	2
Hair Dryer	2

8) 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.

product_name	Customer name
Refrigerator	Bob Johnson
Microwave Oven	Emily Brown
Air Conditioner	Michael Davis
Vacuum Cleaner	David Miller
Electric Kettle	Olivia Garcia
Toaster	Sophia Martinez
Hair Dryer	James Thompson

9) 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.
(2023-12-04 to 2023-12-09)

Total revenue
23444210

TASK 4. SUBQUERY AND IT'S TYPE

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

CustomerID	FirstName	LastName
1	John	Doe
6	Sarah	Wilson

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

TotalRevenue
216699620

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

TotalProducts
11

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.

Product Name	average
Microwave Oven	1419.00

5) Write an SQL query to calculate the total revenue generated by a specific customer.

TotalRevenue
13134

6) Write an SQL query to find the customers who have placed the most orders.

max quantity	Customer name
7	Bob Johnson

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.

ProductID	ProductName	TotalQuantityOrdered
203	Refrigerator	7

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.

FirstName	LastName	TotalSpending
Alice	Smith	24968750

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

AverageOrderValue
2787964.8889

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

customer name	Quantity ordered
Bob Johnson	7
Emily Brown	1
Michael Davis	2
David Miller	6
Olivia Garcia	1
Sophia Martinez	2
James Thompson	2