```sql
create database litmus7;
use litmus7;

CREATE TABLE Cutomer(
CustomerID INT PRIMARY KEY,
Name VARCHAR(100),
Email VARCHAR(100),
City VARCHAR(100),
SignupDate DATE );

RENAME TABLE Cutomer TO Customers;

CREATE TABLE Orders(
OrderID INT PRIMARY KEY,
CustomerID INT,
OrderDate DATE,
TotalAmount DECIMAL(10,2),
FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID));

CREATE TABLE Products(
ProductID INT PRIMARY KEY,
ProductName VARCHAR(100),
Category VARCHAR(50),
Price DECIMAL(10,2));

```

```sql

CREATE TABLE OrderDetails(
OrderDetailID INT PRIMARY KEY,
OrderID INT,
ProductID INT,
Quantity INT,
Price DECIMAL(10,2),
FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),
FOREIGN KEY (ProductID) REFERENCES Products(ProductID));


INSERT INTO Customers (CustomerID, Name, Email, City, SignupDate) VALUES
(1, 'Alan', 'alan@ex.com', 'Kochi', '2024-01-15'),
(2, 'Bob', 'bob@ex.com', 'Mumbai', '2023-02-20'),
(3, 'Donna', 'donna@ex.com', 'Mumbai', '2024-03-10'),
(4, 'Sharath', 'sharath@ex.com', 'Delhi', '2023-03-10');


INSERT INTO Products (ProductID, ProductName, Category, Price) VALUES
(201, 'Laptop', 'Electronics', 45000.00),
(202, 'Mouse', 'Electronics', 500.00),
(203, 'Notebook', 'Stationary', 100.00),
(204, 'Water Bottle', 'School', 250.00),
(205, 'Desk Lamp', 'Furniture', 1200.00),
(206, 'Smartwatch', 'Electronics', 9999.00);


```

```sql
INSERT INTO Orders (OrderID, CustomerID, OrderDate, TotalAmount) VALUES
(101, 1, '2024-05-15', 800.00),      -- 1 Mouse and 3 Notebook
(102, 2, '2024-06-01', 46000.00),    -- 1 Laptop 4 Water Bottle
(103, 1, '2024-06-05', 1000.00),     -- 2 Mouse
(104, 3, '2024-04-22', 1700.00);     -- 5 Notebook and 1 Desk Lamp


INSERT INTO OrderDetails (OrderDetailID, OrderID, ProductID, Quantity, Price) VALUES
(301, 101, 202, 1, 500.00),      -- Mouse
(302, 101, 203, 3, 100.00),      -- Notebook
(303, 102, 201, 1, 45000.00),    -- Laptop
(304, 102, 204, 4, 250.00),      -- Water Bottle
(305, 103, 202, 2, 500.00),      -- Mouse
(306, 104, 203, 5, 100.00),      -- Notebook
(307, 104, 205, 1, 1200.00);     -- Desk Lamp

```

```sql

CREATE INDEX idx_orders_orderdate ON Orders(OrderDate);

CREATE INDEX idx_customers_city ON Customers(City);

CREATE INDEX idx_customers_signup ON Customers(SignupDate);

CREATE INDEX idx_orders_customerid ON Orders(CustomerID);

CREATE INDEX idx_orderdetails_productid ON OrderDetails(ProductID);

CREATE INDEX idx_orderdetails_orderid_productid ON OrderDetails(OrderID, ProductID);
```

```
68      #product name and prices
69  •   SELECT ProductName , Price from Products;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ProductName	Price
Laptop	45000.00
Mouse	500.00
Notebook	100.00
Water Bottle	250.00
Desk Lamp	1200.00
Smartwatch	9999.00

```
69 •    SELECT count(Category),Category FROM Products GROUP BY Category;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

count(Category)	Category
3	Electronics
1	Stationary
1	School
1	Furniture

```sql
#orders with customer names
SELECT o.CustomerID, o.OrderID, c.Name
from Orders o
join Customers c on c.CustomerID = o.CustomerID;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerID	OrderID	Name
1	101	Alan
1	103	Alan
2	102	Bob
3	104	Donna

```sql
#products bought in order (assuming date)
SELECT od.OrderID, o.OrderDate, p.ProductName, od.Quantity, od.Price
FROM OrderDetails od
JOIN Orders o ON od.OrderID = o.OrderID
JOIN Products p ON od.ProductID = p.ProductID
ORDER BY o.OrderDate;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

OrderID	OrderDate	ProductName	Quantity	Price
104	2024-04-22	Notebook	5	100.00
104	2024-04-22	Desk Lamp	1	1200.00
101	2024-05-15	Mouse	1	500.00
101	2024-05-15	Notebook	3	100.00
102	2024-06-01	Laptop	1	45000.00
102	2024-06-01	Water Bottle	4	250.00
103	2024-06-05	Mouse	2	500.00

```sql
#customers who didnt place order
SELECT c.Name , c.CustomerID
FROM Customers c
LEFT JOIN Orders o on o.CustomerID = c.CustomerID
WHERE o.OrderID is NULL;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	CustomerID
Sharath	4

```sql
#total amt spent by customer
SELECT c.Name , sum(o.TotalAmount) as Expenditure
FROM Customers c
JOIN Orders o on o.CustomerID = c.CustomerID
GROUP BY c.Name;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	Expenditure
Alan	1800.00
Bob	46000.00
Donna	1700.00

```sql
#product sold the most
SELECT p.ProductName, sum(od.Quantity) as MostSold
FROM OrderDetails od
JOIN Products p ON p.ProductID = od.ProductID
GROUP BY p.ProductID, p.ProductName
ORDER BY MostSold DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ProductName	MostSold
Notebook	8

```sql
#average order value
SELECT c.Name, avg(o.TotalAmount) as AverageOrderExpense
FROM Customers c
JOIN Orders o ON o.CustomerID = c.CustomerID
GROUP BY  c.Name;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	AverageOrderExpense
Alan	900.000000
Bob	46000.000000
Donna	1700.000000

```sql
SELECT SUM(od.Price * od.Quantity) , p.Category
FROM OrderDetails od
JOIN Products p ON p.ProductID = od.ProductID
group by p.Category;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

SUM(od.Price * od.Quantity)	Category
46500.00	Electronics
800.00	Stationary
1000.00	School
1200.00	Furniture

```sql
#customers with spending > avg spending
SELECT c.CustomerID, c.Name, SUM(od.Quantity * od.Price) AS Expense
FROM Customers c
JOIN Orders o ON o.CustomerID = c.CustomerID
JOIN OrderDetails od ON od.OrderID = o.OrderID
GROUP BY c.Name , c.CustomerID
having Expense > (
    SELECT avg(CustomerTotal)
    FROM (
        SELECT SUM(od.Quantity * od.Price) as CustomerTotal
        FROM Orders o
        JOIN OrderDetails od on od.OrderID = o.OrderID
        GROUP BY o.CustomerID
          )as CustomerTotals
    );
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerID	Name	Expense
2	Bob	46000.00

```sql
#products not ordered
SELECT ProductID, ProductName
FROM Products
WHERE ProductID NOT IN (
    SELECT ProductID
    FROM OrderDetails
);

```

Result Grid | Filter Rows: | Edit:

ProductID	ProductName
206	Smartwatch
NULL	NULL

```sql
#most recent order for each customer
SELECT  o.CustomerID , o.OrderDate , o.OrderID
from Orders o
where o.OrderDate = (
    select max(o1.OrderDate)
    from Orders o1
    where o1.CustomerID = o.CustomerID);
```

Result Grid | Filter Rows: | Edit:

CustomerID	OrderDate	OrderID
2	2024-06-01	102
1	2024-06-05	103
3	2024-04-22	104
NULL	NULL	NULL

```sql
#customer spending rank
SELECT
    c.CustomerID,
    c.Name,
    SUM(od.Quantity * od.Price) AS TotalSpent,
    RANK() OVER (ORDER BY SUM(od.Quantity * od.Price) DESC) as SpendRank
FROM Customers c
JOIN Orders o ON o.CustomerID = c.CustomerID
JOIN OrderDetails od ON od.OrderID = o.OrderID
GROUP BY c.CustomerID, c.Name;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerID	Name	TotalSpent	SpendingRank
2	Bob	46000.00	1
1	Alan	1800.00	2
3	Donna	1700.00	3

```sql
#customer spending rank
SELECT c.CustomerID, c.Name, SUM(od.Quantity * od.Price) as Spent, RANK() OVER (ORDER BY SUM(od.Quantity * od.Price) DESC) as SpendRank
FROM Customers c
JOIN Orders o ON o.CustomerID = c.CustomerID
JOIN OrderDetails od ON od.OrderID = o.OrderID
GROUP BY c.CustomerID, c.Name;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerID	Name	Spent	SpendRank
2	Bob	46000.00	1
1	Alan	1800.00	2
3	Donna	1700.00	3

```sql
#top 3 customers based on no of orders placed
SELECT *
FROM (
    SELECT c.Name , count(o.OrderID) ,RANK() OVER (ORDER BY count(o.CustomerID) DESC ) as OrderRank
    FROM Orders o
    JOIN Customers c on c.CustomerID = o.CustomerID
    GROUP BY c.Name)
ranked where  OrderRank <= 3;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	count(o.OrderID)	OrderRank
Alan	2	1
Bob	1	2
Donna	1	2

```sql
#unique customers for unique product
SELECT p.ProductID, p.ProductName, count(distinct o.CustomerID) as UniqueCustomers
FROM OrderDetails od
JOIN Orders o ON od.OrderID = o.OrderID
JOIN Products p ON od.ProductID = p.ProductID
GROUP BY p.ProductID, p.ProductName;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

ProductID	ProductName	UniqueCustomers
201	Laptop	1
202	Mouse	1
203	Notebook	2
204	Water Bottle	1
205	Desk Lamp	1

Result 9

```
69      #list of all customers
70 •    SELECT CustomerID,Name,City
71      FROM Customers;
72
```

Result Grid | Filter Rows: | Edit:

CustomerID	Name	City
1	Alan	Kochi
2	Bob	Mumbai
3	Donna	Mumbai
4	Sharath	Delhi
NULL	NULL	NULL

```
68
69      #orders within the last 30 days.
70 •    SELECT OrderID, CustomerID , OrderDate
71      FROM Orders
72      WHERE OrderDate <= 2025-05-09;
```

Result Grid | Filter Rows: | Edit:

	OrderID	CustomerID	OrderDate
*	NULL	NULL	NULL

```
69      #customers from mumbai
70 •    SELECT CustomerID , Name , City
71      FROM Customers
72      WHERE City = 'Mumbai';
```

Result Grid | Filter Rows:

CustomerID	Name	City
2	Bob	Mumbai
3	Donna	Mumbai
NULL	NULL	NULL

```sql
#customers who signed up after 2024-01-01
SELECT CustomerID , Name , SignupDate
FROM Customers
WHERE SignupDate > '2024-01-01';
```

Result Grid | Filter Rows: | Edit:

CustomerID	Name	SignupDate
1	Alan	2024-01-15
3	Donna	2024-03-10
NULL	NULL	NULL

```sql
#orders with amount > 5000
SELECT OrderID , CustomerID , TotalAmount
FROM Orders
WHERE TotalAmount > 5000;
```

Result Grid | Filter Rows: | Edit:

OrderID	CustomerID	TotalAmount
102	2	46000.00
NULL	NULL	NULL