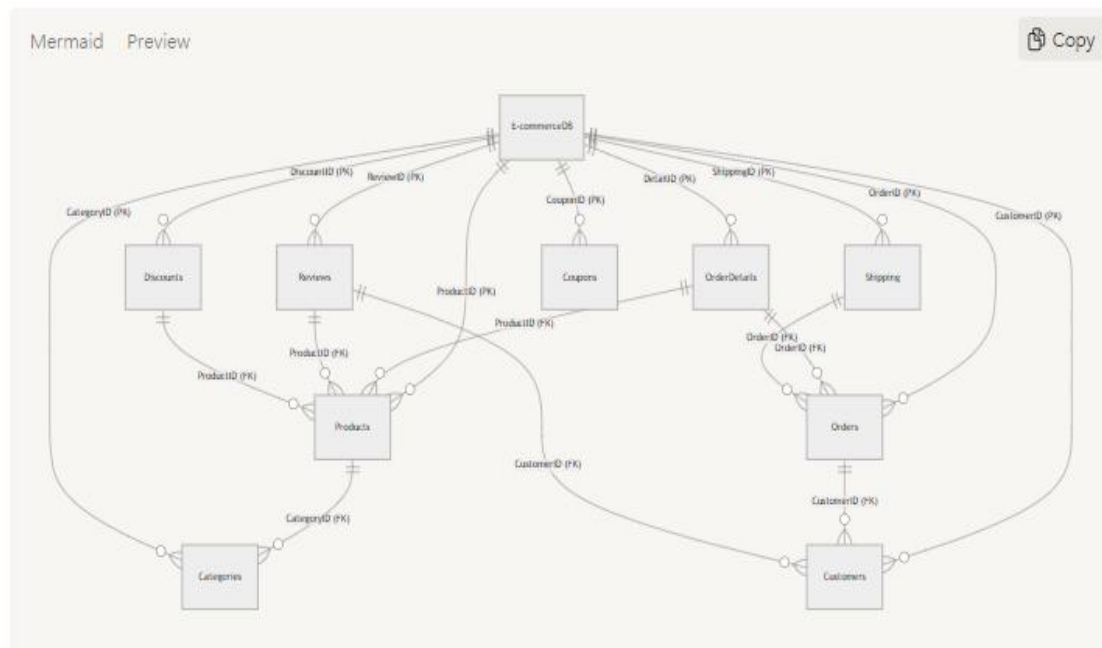Name : Vishal Sanjay Shinde

# E-Commerce Sales Analysis

Begin by providing a brief background of an e-commerce website that led to the need for the SQL based solution. This could be an overview of the business environment, the challenges the organization was facing, or the specific needs that prompted the analysis.



## Creating database :

CREATE DATABASE project_db;

USE project_db;


CREATE TABLE Categories

(

        CategoryID INT PRIMARY KEY AUTO_INCREMENT,

         CategoryName VARCHAR(100)

);

DESC Categories;

```sql
CREATE TABLE Customer
(
        CustomerID INT PRIMARY KEY AUTO_INCREMENT,
        Name VARCHAR(100),
        Email VARCHAR(100)
);
DESC Customer;




CREATE TABLE Products
(
        ProductID INT PRIMARY KEY,
        Name VARCHAR(50),
        Price Decimal (10,2),
        StockQuantity INT,
        CategoryID INT,
        FOREIGN KEY (CategoryID) REFERENCES Categories (CategoryID)
);


CREATE TABLE Orders
(
        OrderID INT PRIMARY KEY AUTO_INCREMENT,
        OrderDate DATE,
        CustomerID INT,
        FOREIGN KEY (CustomerID) REFERENCES Customer (CustomerID)
);


CREATE TABLE OrderDetails
(
        DetailID INT PRIMARY KEY AUTO_INCREMENT,
        OrderID INT,
```

```sql
        FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),

        ProductID INT,

        FOREIGN KEY (ProductID) REFERENCES Products(ProductID),

        Quantity INT

);

CREATE TABLE Reviews

(

        ReviewID INT PRIMARY KEY AUTO_INCREMENT,

        ProductID INT,

        FOREIGN KEY (ProductID) REFERENCES Products (ProductID),

        CustomerID INT,

        FOREIGN KEY (CustomerID) REFERENCES Customer (CustomerID),

        Rating INT,

        Comment VARCHAR(50)

);

DESC Reviews;


CREATE TABLE Shipping

(

        ShippinhID INT PRIMARY KEY AUTO_INCREMENT,

        OrderID INT,

        FOREIGN KEY (OrderID) REFERENCES Orders (OrderID),

        ShipDate DATE,

        DeliveryDate DATE

);
```

# Tables:

SELECT * FROM categories;

| CategoryID | CategoryName |
|---|---|
| 1 | Fashion |
| 2 | Electronics & Mobile |
| 3 | Furnitures |
| 4 | Groceries |
| 5 | Shoes |
| 6 | Jewellery |
| 7 | Home and Kitchen accessories |

categories 57 ×

SELECT * FROM customer;

| CustomerID | Name | Email |
|---|---|---|
| 1 | Kartik Naik | kartik.naik@example.com |
| 2 | Avinash Patil | avinash.patil@example.com |
| 3 | Sunita Deshmukh | sunita.deshmukh@example.com |
| 4 | Vijay Naik | vijay.naik@example.com |
| 5 | Priya Sharma | priya.sharma@example.com |
| 6 | Sonu Kade | sonu.kade@example.com |
| 7 | Anjali Chowdhury | anjali.chowdhury@example.com |

Customer 58 ×

SELECT * FROM Products;

| ProductID | Name | Price | StockQuantity | CategoryID |
|---|---|---|---|---|
| 101 | Cotton Shirt | 599.00 | 277 | 1 |
| 102 | Linen Shirt | 899.00 | 220 | 1 |
| 103 | SONY Camera | 69990.00 | 37 | 1 |
| 104 | Samsung S23 | 54999.00 | 59 | 2 |
| 105 | GoPro | 45000.00 | 52 | 2 |
| 106 | Dell Laptop | 61599.00 | 66 | 2 |
| 107 | ASUS TUF Laptop | 56000.00 | 43 | 2 |

SELECT * FROM Orders;

| OrderID | OrderDate | CustomerID |
|---|---|---|
| 1 | 2022-01-12 | 1 |
| 2 | 2022-01-25 | 2 |
| 3 | 2022-02-07 | 3 |
| 4 | 2022-03-02 | 4 |
| 5 | 2022-03-16 | 5 |
| 6 | 2022-04-01 | 6 |
| 7 | 2022-04-21 | 7 |

orders 60 ×

SELECT * FROM OrderDetails;

| DetailID | OrderID | ProductID | Quantity |
|---|---|---|---|
| 1 | 1 | 101 | 4 |
| 2 | 2 | 102 | 4 |
| 3 | 3 | 103 | 7 |
| 4 | 4 | 104 | 3 |
| 5 | 5 | 105 | 8 |
| 6 | 6 | 106 | 1 |
| 7 | 7 | 107 | 5 |

OrderDetails 61 ×

SELECT * FROM Reviews;

| ReviewID | ProductID | CustomerID | Rating | Comment |
|---|---|---|---|---|
| 1 | 101 | 1 | 4 | Good |
| 2 | 102 | 2 | 4 | Good |
| 3 | 103 | 3 | 5 | Best |
| 4 | 104 | 4 | 3 | Average |
| 5 | 105 | 5 | 5 | Best |
| 6 | 106 | 6 | 3 | Average |
| 7 | 107 | 7 | 5 | Best |

reviews 62 ×

SELECT * FROM Shipping;

| ShippinhID | OrderID | ShipDate | DeliveryDate |
|---|---|---|---|
| 1 | 1 | 2022-01-14 | 2022-01-17 |
| 2 | 2 | 2022-01-27 | 2022-01-30 |
| 3 | 3 | 2022-02-09 | 2022-02-12 |
| 4 | 4 | 2022-03-04 | 2022-03-07 |
| 5 | 5 | 2022-03-18 | 2022-03-21 |
| 6 | 6 | 2022-04-03 | 2022-04-05 |
| 7 | 7 | 2022-04-23 | 2022-04-26 |

shipping 63 ×

# SQL queries and Business Insights

**Total Sales :**

SELECT SUM(Products.Price * OrderDetails.Quantity) AS TotalSales

FROM OrderDetails

JOIN Products ON OrderDetails.ProductID = Products.ProductID;

| | TotalSales |
|---|---|
| ▶ | 3162937.00 |

**Total Orders:**

SELECT COUNT(OrderID) AS TotalOrders

FROM Orders;

| | TotalOrders |
|---|---|
| ▶ | 70 |

**Total Quantity:**

SELECT sum(Quantity) AS TotalOrders

FROM OrderDetails;

| | TotalOrders |
|---|---|
| ▶ | 396 |

**Top 5 Selling Products:**

SELECT OrderDetails.ProductID, Products.Name, SUM(OrderDetails.Quantity) AS TotalQuantitySold

FROM OrderDetails

JOIN Products ON OrderDetails.ProductID = Products.ProductID

GROUP BY ProductID

ORDER BY TotalQuantitySold DESC

LIMIT 5;

| | ProductID | Name | TotalQuantitySold |
|---|---|---|---|
| ▶ | 122 | Sofa Chair | 10 |
| | 145 | Mochi | 10 |
| | 110 | SONY Speakers | 9 |
| | 119 | Leather Jacket | 9 |
| | 114 | Jeans | 9 |

# Total Orders and Sales Of 2022

**Total Orders:**

SELECT COUNT(OrderID) AS Orders_2022

FROM Orders

WHERE YEAR(OrderDate) = 2022;

| Orders_2022 |
|---|
| ▶ 21 |

**Total Sales:**

SELECT SUM(Products.Price * OrderDetails.Quantity) AS Sales_2022

FROM Orders

JOIN OrderDetails ON Orders.OrderID = OrderDetails.OrderID

JOIN Products ON OrderDetails.ProductID = Products.ProductID

WHERE YEAR(Orders.OrderDate) = 2022;

| Sales_2022 |
|---|
| ▶ 2102854.00 |

**Top 5 products of 2022:**

SELECT OrderDetails.ProductID, Products.Name, SUM(OrderDetails.Quantity) AS TotalQuantitySold

FROM OrderDetails

JOIN Products ON OrderDetails.ProductID = Products.ProductID

JOIN Orders ON Orders.OrderID = OrderDetails.OrderID

WHERE YEAR(Orders.OrderDate) = 2022

GROUP BY ProductID

ORDER BY TotalQuantitySold DESC

LIMIT 5;

| ProductID | Name | TotalQuantitySold |
|---|---|---|
| ▶ 110 | SONY Speakers | 9 |
| 119 | Leather Jacket | 9 |
| 114 | Jeans | 9 |
| 105 | GoPro | 8 |
| 103 | SONY Camera | 7 |

**Total Orders in every month of 2022:**

SELECT MONTHNAME(OrderDate) AS OrderMonth, COUNT(*) AS TotalOrders

FROM Orders

WHERE Year(OrderDate)=2022

GROUP BY MONTHNAME(OrderDate);

| OrderMonth | TotalOrders |
|------------|-------------|
| January | 2 |
| February | 1 |
| March | 2 |
| April | 2 |
| May | 1 |
| June | 2 |
| July | 2 |
| August | 2 |
| September | 1 |
| October | 2 |
| November | 2 |
| December | 2 |

# Total Orders and Sales of 2023

**Total Orders:**

SELECT COUNT(OrderID) AS Order_2023

FROM Orders

WHERE YEAR(OrderDate) = 2023;

| Order_2023 |
|---|
| ▶ 19 |

**Total Sales:**

SELECT SUM(Products.Price * OrderDetails.Quantity) AS Sales_2023

FROM Orders

JOIN OrderDetails ON Orders.OrderID = OrderDetails.OrderID

JOIN Products ON OrderDetails.ProductID = Products.ProductID

WHERE YEAR(Orders.OrderDate) = 2023;

| Sales_2023 |
|---|
| ▶ 710689.00 |

**Top 5 products of 2023:**

SELECT OrderDetails.ProductID, Products.Name, SUM(OrderDetails.Quantity) AS TotalQuantitySold

FROM OrderDetails

JOIN Products ON OrderDetails.ProductID = Products.ProductID

JOIN Orders ON Orders.OrderID = OrderDetails.OrderID

WHERE YEAR(Orders.OrderDate) = 2023

GROUP BY ProductID

ORDER BY TotalQuantitySold DESC

LIMIT 5;

| | ProductID | Name | TotalQuantitySold |
|---|---|---|---|
| ▶ | 122 | Sofa Chair | 10 |
| | 123 | Wooden Table | 9 |
| | 127 | Cupboard | 9 |
| | 124 | Wooden Chair | 8 |
| | 128 | Wardrobe | 8 |

**Total Orders in every month of 2023:**

SELECT MONTHNAME(OrderDate) AS OrderMonth, COUNT(*) AS TotalOrders

FROM Orders

WHERE Year(OrderDate)=2023

GROUP BY MONTHNAME(OrderDate);

| OrderMonth | TotalOrders |
|---|---|
| January | 1 |
| February | 2 |
| March | 1 |
| April | 2 |
| May | 2 |
| June | 1 |
| July | 2 |
| August | 1 |
| September | 2 |
| October | 1 |
| November | 2 |
| December | 2 |

# Total Orders and Sales of 2024

**Total Orders:**

SELECT COUNT(OrderID) AS Order_2024

FROM Orders

WHERE YEAR(OrderDate) = 2024;

| Order_2024 |
|---|
| 30 |

**Total Sales:**

SELECT SUM(Products.Price * OrderDetails.Quantity) AS Sales_2024

FROM Orders

JOIN OrderDetails ON Orders.OrderID = OrderDetails.OrderID

JOIN Products ON OrderDetails.ProductID = Products.ProductID

WHERE YEAR(Orders.OrderDate) = 2024;

| Sales_2024 |
|---|
| 349394.00 |

**Top 5 products of 2024:**

SELECT OrderDetails.ProductID, Products.Name, SUM(OrderDetails.Quantity) AS TotalQuantitySold

FROM OrderDetails

JOIN Products ON OrderDetails.ProductID = Products.ProductID

JOIN Orders ON Orders.OrderID = OrderDetails.OrderID

WHERE YEAR(Orders.OrderDate) = 2024

GROUP BY ProductID

ORDER BY TotalQuantitySold DESC

LIMIT 5;

| ProductID | Name | TotalQuantitySold |
|---|---|---|
| 145 | Mochi | 10 |
| 155 | Silver Earing | 9 |
| 163 | Pressure Cooker | 9 |
| 147 | Adidas | 9 |
| 148 | Woodland | 9 |

**Total Orders in every month of 2024:**

SELECT MONTHNAME(OrderDate) AS OrderMonth, COUNT(*) AS TotalOrders

FROM Orders

WHERE Year(OrderDate)=2024

GROUP BY MONTHNAME(OrderDate);

| | OrderMonth | TotalOrders |
|---|---|---|
| ▶ | January | 2 |
| | February | 2 |
| | March | 3 |
| | April | 2 |
| | May | 3 |
| | June | 3 |
| | July | 3 |
| | August | 2 |
| | September | 3 |
| | October | 3 |
| | November | 2 |
| | December | 2 |

**Products and their Total Sales:**

SELECT Products.Name, SUM(Products.Price*OrderDetails.OrderID) AS TotalSales

FROM Products

JOIN OrderDetails ON Products.ProductID = OrderDetails.ProductID

GROUP BY Products.Name;

**Products and order quantities:**

SELECT Products.Name, OrderDetails.Quantity

FROM OrderDetails

INNER JOIN Products ON OrderDetails.ProductID = Products.ProductID;

**Products and Reviews:**

SELECT Products.Name, Reviews.Comment

FROM Products

JOIN Reviews ON Products.ProductID = Reviews.ProductID;


**Ship Date and Delivery Date:**

SELECT orderdetails.OrderID, products.Name, Shipping.ShipDate, Shipping.DeliveryDate

FROM orderdetails

JOIN Shipping ON OrderDetails.OrderID = Shipping.OrderID

JOIN Products ON OrderDetails.ProductID = Products.ProductID;


**Top rated Products:**

SELECT Products.ProductID, Products.Name, Reviews.Rating

FROM Products

JOIN reviews ON Products.ProductID = reviews.ProductID

WHERE Reviews.Rating = 5;

| ProductID | Name | Rating |
|---|---|---|
| 103 | SONY Camera | 5 |
| 105 | GoPro | 5 |
| 107 | ASUS TUF Laptop | 5 |
| 108 | Noise Smartwatch | 5 |
| 110 | SONY Speakers | 5 |
| 115 | Denim Jacket | 5 |
| 122 | Sofa Chair | 5 |
| 123 | Wooden Table | 5 |
| 127 | Cupboard | 5 |
| 130 | Bed | 5 |
| 131 | Wheat Floar | 5 |
| 132 | Peanut | 5 |
| 141 | Bata | 5 |
| 142 | PUMA | 5 |
| 143 | CAMPUS | 5 |
| 144 | Nike | 5 |
| 145 | Mochi | 5 |
| 149 | Allen Cooper | 5 |
| 155 | Silver Earing | 5 |
| 158 | Nose Pin | 5 |
| 159 | Anklet | 5 |
| 160 | Toe Ring | 5 |
| 165 | Induction Cooktop | 5 |
| 167 | Sandwich Maker | 5 |
| 168 | Oven | 5 |
| 169 | Water Purifier | 5 |


**Average Ratings:**

SELECT AVG(Reviews.Rating) AS AverageRating

FROM Reviews;

| AverageRating |
|---|
| 4.1286 |

**Products and their reviews:**

SELECT Customer.Name, Products.Name, Reviews.Rating , Reviews.Comment

FROM Reviews

INNER JOIN Products ON Reviews.ProductID = Products.ProductID

INNER JOIN Customer ON Reviews.CustomerID = Customer.CustomerID;

**Categories:**

SELECT CategoryName

FROM Categories;

| CategoryName |
|---|
| Fashion |
| Electronics & Mobile |
| Furnitures |
| Groceries |
| Shoes |
| Jewellery |
| Home and Kitchen accessories |

**Products and their Categories:**

SELECT Products.Name, Categories.CategoryName

FROM Products

INNER JOIN Categories ON Products.CategoryID = Categories.CategoryID;

**Total number of product sold in each category:**

SELECT Categories.CategoryName, SUM(OrderDetails.Quantity) AS TotalSold

FROM Categories

LEFT JOIN Products ON Categories.CategoryID = Products.CategoryID

LEFT JOIN OrderDetails ON Products.ProductID = OrderDetails.ProductID

GROUP BY Categories.CategoryName;

| CategoryName | TotalSold |
|---|---|
| Fashion | 50 |
| Electronics & Mobile | 53 |
| Furnitures | 71 |
| Groceries | 54 |
| Shoes | 60 |
| Jewellery | 51 |
| Home and Kitchen accessories | 57 |

**Total Number of products in each category:**

SELECT Categories.CategoryName, COUNT(Products.ProductID) AS ProductCount

FROM Categories

LEFT JOIN Products ON Categories.CategoryID = Products.CategoryID

GROUP BY Categories.CategoryName;

| CategoryName | ProductCount |
|---|---|
| Fashion | 10 |
| Electronics & Mobile | 10 |
| Furnitures | 10 |
| Groceries | 10 |
| Shoes | 10 |
| Jewellery | 10 |
| Home and Kitchen accessories | 10 |

**Expensive product of each category:**

SELECT Categories.CategoryName, MAX(Products.Price) AS MaxPrice

FROM Categories

INNER JOIN Products ON Categories.CategoryID = Products.CategoryID

GROUP BY Categories.CategoryName;

| CategoryName | MaxPrice |
|---|---|
| Fashion | 3499.00 |
| Electronics & Mobile | 69990.00 |
| Furnitures | 25699.00 |
| Groceries | 364.00 |
| Shoes | 6200.00 |
| Jewellery | 5490.00 |
| Home and Kitchen accessories | 6200.00 |

**Cheapest product of each category:**

SELECT Categories.CategoryName, MIN(Products.Price) AS MaxPrice

FROM Categories

INNER JOIN Products ON Categories.CategoryID = Products.CategoryID

GROUP BY Categories.CategoryName;

| CategoryName | MaxPrice |
|---|---|
| Fashion | 599.00 |
| Electronics & Mobile | 1599.00 |
| Furnitures | 2200.00 |
| Groceries | 170.00 |
| Shoes | 899.00 |
| Jewellery | 399.00 |
| Home and Kitchen accessories | 650.00 |

**Top 5 expensive products:**

SELECT Name, Price

FROM Products

ORDER BY Price DESC

LIMIT 5;

| Name | Price |
|------|-------|
| ▶ SONY Camera | 69990.00 |
| Dell Laptop | 61599.00 |
| ASUS TUF Laptop | 56000.00 |
| Samsung S23 | 54999.00 |
| GoPro | 45000.00 |

**Top 5 cheapest products:**

SELECT Name, Price

FROM Products

ORDER BY Price

LIMIT 5;

| Name | Price |
|------|-------|
| ▶ Dairy Milk | 170.00 |
| Oats | 171.00 |
| Tea | 195.00 |
| Peanut | 215.00 |
| Toor Dal | 228.00 |

**Products which have price >10000:**

SELECT Orders.OrderID, SUM(Products.Price * OrderDetails.Quantity) AS TotalValue

FROM Orders

JOIN OrderDetails ON Orders.OrderID = OrderDetails.OrderID

JOIN Products ON OrderDetails.ProductID = Products.ProductID

GROUP BY Orders.OrderID HAVING TotalValue > 10000;

**Products with stock < 100:**

SELECT Products.Name, Products.StockQuantity

FROM Products

WHERE Products.StockQuantity < 100;

**Products with stock > 100:**

SELECT Products.Name, Products.StockQuantity

FROM Products

WHERE Products.StockQuantity > 100;