Project -1
RETAILER Database

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```
CREATE database Retailer;
use Retailer;

CREATE TABLE Customer (
    Customer_ID INT PRIMARY KEY,
    Name VARCHAR(100),
    Email VARCHAR(100),
    Phone VARCHAR(15),
    Loyalty_Program VARCHAR(50)
);

CREATE TABLE Store (
    Store_ID INT PRIMARY KEY,
    Name VARCHAR(100),
    Address VARCHAR(255),
    Open_Hours VARCHAR(50)
);

CREATE TABLE Product_Type (
    Product_Type_ID INT PRIMARY KEY,
    Name VARCHAR(100)
);

CREATE TABLE Vendor (
    Vendor_ID INT PRIMARY KEY,
    Name VARCHAR(100),
    Address VARCHAR(255),
    Contact_Info VARCHAR(100)
);

CREATE TABLE Brand (
    Brand_ID INT PRIMARY KEY,
    Name VARCHAR(100),
    Vendor_ID INT,
    FOREIGN KEY (Vendor_ID) REFERENCES Vendor(Vendor_ID)
);
```

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CREATE TABLE Product (
    UPC INT PRIMARY KEY,
    Name VARCHAR(100),
    Price DECIMAL(10, 2),
    Size VARCHAR(50),
    Brand_ID INT,
    Product_Type_ID INT,
    Vendor_ID INT,
    FOREIGN KEY (Brand_ID) REFERENCES Brand(Brand_ID),
    FOREIGN KEY (Product_Type_ID) REFERENCES
Product_Type(Product_Type_ID),
    FOREIGN KEY (Vendor_ID) REFERENCES Vendor(Vendor_ID)
);

CREATE TABLE Inventory (
    Inventory_ID INT PRIMARY KEY,
    Store_ID INT,
    Product_ID INT,
    Quantity INT,
    FOREIGN KEY (Store_ID) REFERENCES Store(Store_ID),
    FOREIGN KEY (Product_ID) REFERENCES Product(UPC)
);

CREATE TABLE Purchase_Cart (
    Order_ID INT PRIMARY KEY,
    Customer_ID INT,
    Store_ID INT,
    Purchase_Date DATE,
    FOREIGN KEY (Customer_ID) REFERENCES Customer(Customer_ID),
    FOREIGN KEY (Store_ID) REFERENCES Store(Store_ID)
);

CREATE TABLE Order_Product (
    Order_ID INT,
    Product_ID INT,
    Quantity INT,
    PRIMARY KEY (Order_ID, Product_ID),
    FOREIGN KEY (Order_ID) REFERENCES Purchase_Cart(Order_ID),
    FOREIGN KEY (Product_ID) REFERENCES Product(UPC)
);

CREATE TABLE Customer_Store (
    Customer_ID INT,
    Store_ID INT,
    PRIMARY KEY (Customer_ID, Store_ID),
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```
    FOREIGN KEY (Customer_ID) REFERENCES Customer(Customer_ID),
    FOREIGN KEY (Store_ID) REFERENCES Store(Store_ID)
);

CREATE TABLE Vendor_Store (
    Vendor_ID INT,
    Store_ID INT,
    PRIMARY KEY (Vendor_ID, Store_ID),
    FOREIGN KEY (Vendor_ID) REFERENCES Vendor(Vendor_ID),
    FOREIGN KEY (Store_ID) REFERENCES Store(Store_ID)
);

CREATE TABLE Brand_Product_Type (
    Brand_ID INT,
    Product_Type_ID INT,
    PRIMARY KEY (Brand_ID, Product_Type_ID),
    FOREIGN KEY (Brand_ID) REFERENCES Brand(Brand_ID),
    FOREIGN KEY (Product_Type_ID) REFERENCES
Product_Type(Product_Type_ID)
);
```

```
INSERT INTO Customer (Customer_ID, Name, Email, Phone, Loyalty_Program)
VALUES
(1, 'Rahul Sharma', 'rahul.sharma@example.com', '9876543210', 'Gold'),
(2, 'Priya Singh', 'priya.singh@example.com', '9876543211', 'Silver'),
(3, 'Amit Kumar', 'amit.kumar@example.com', '9876543212', 'Bronze'),
(4, 'Sneha Gupta', 'sneha.gupta@example.com', '9876543213', 'Gold'),
(5, 'Rohit Verma', 'rohit.verma@example.com', '9876543214', 'Silver');

INSERT INTO Store (Store_ID, Name, Address, Open_Hours) VALUES
(1, 'SuperMart', '123 Market Street, Delhi', '8 AM - 10 PM'),
(2, 'BigBazaar', '456 Mall Road, Mumbai', '9 AM - 11 PM'),
(3, 'Reliance Fresh', '789 High Street, Bangalore', '7 AM - 9 PM'),
(4, 'More Supermarket', '123 Hill Road, Kolkata', '8 AM - 10 PM'),
(5, 'Dmart', '456 Park Avenue, Chennai', '9 AM - 11 PM');

INSERT INTO Product_Type (Product_Type_ID, Name) VALUES
(1, 'Groceries'),
(2, 'Electronics'),
(3, 'Clothing');

INSERT INTO Vendor (Vendor_ID, Name, Address, Contact_Info) VALUES
```

(1, 'Tata Distributors', 'Tata Road, Mumbai', 'tata@example.com'),
(2, 'Reliance Supply Co.', 'Reliance Avenue, Delhi', 'reliance@example.com'),
(3, 'Future Group', 'Mall Road, Bangalore', 'futuregroup@example.com');

INSERT INTO Brand (Brand_ID, Name, Vendor_ID) VALUES
(1, 'Tata', 1),
(2, 'Reliance', 2),
(3, 'Future', 3);

INSERT INTO Product (UPC, Name, Price, Size, Brand_ID, Product_Type_ID, Vendor_ID) VALUES
(101, 'Milk', 100.00, '1kg', 1, 1, 1),
(102, 'Smartphone', 1500.00, 'Medium', 2, 2, 2),
(103, 'Shirt', 500.00, 'Large', 3, 3, 3),
(104, 'Coke', 40.00, '500ml', 1, 1, 1),
(105, 'Pepsi', 40.00, '500ml', 2, 1, 2);

INSERT INTO Inventory (Inventory_ID, Store_ID, Product_ID, Quantity) VALUES
(1, 1, 101, 50),
(2, 2, 102, 30),
(3, 3, 103, 20),
(4, 4, 104, 10),
(5, 5, 105, 5);

INSERT INTO Purchase_Cart (Order_ID, Customer_ID, Store_ID, Purchase_Date) VALUES
(1, 1, 1, '2024-10-27'),
(2, 2, 2, '2024-10-28'),
(3, 3, 3, '2024-10-29'),
(4, 4, 4, '2024-10-30'),
(5, 5, 5, '2024-10-31');

INSERT INTO Order_Product (Order_ID, Product_ID, Quantity) VALUES
(1, 101, 2),
(2, 102, 1),
(3, 103, 3),
(4, 104, 5),
(5, 105, 2);

INSERT INTO Customer_Store (Customer_ID, Store_ID) VALUES
(1, 1),
(2, 2),
(3, 3),
(4, 4),
(5, 5);

INSERT INTO Vendor_Store (Vendor_ID, Store_ID) VALUES
(1, 1),
(2, 2),
(3, 3),
(1, 4),
(2, 5);

INSERT INTO Brand_Product_Type (Brand_ID, Product_Type_ID) VALUES
(1, 1),
(2, 2),
(3, 3);

QUERIES

Q.1 Top 20 Selling Products in Each Store.

```
SELECT Store_ID, Product_ID,
SUM(Quantity) AS Total_Sold
FROM Order_Product
JOIN Purchase_Cart ON
Order_Product.Order_ID =
Purchase_Cart.Order_ID
GROUP BY Store_ID, Product_ID
ORDER BY Store_ID, Total_Sold DESC
LIMIT 20;
```

#	Store_ID	Product_ID	Total_Sold
1	1	101	2
2	2	102	1
3	3	103	3
4	4	104	5
5	5	105	2

Q.2 Top 20 Selling Products in Each State.

```
ALTER TABLE Store ADD COLUMN State VARCHAR(50);

UPDATE Store SET State = 'Delhi' WHERE Store_ID = 1;
UPDATE Store SET State = 'Maharashtra' WHERE Store_ID = 2;
UPDATE Store SET State = 'Karnataka' WHERE Store_ID = 3;
UPDATE Store SET State = 'West Bengal' WHERE Store_ID = 4;
UPDATE Store SET State = 'Tamil Nadu' WHERE Store_ID = 5;

SELECT State, Product_ID, SUM(Quantity) AS Total_Sold
FROM Order_Product
```

JOIN Purchase_Cart ON Order_Product.Order_ID = Purchase_Cart.Order_ID
JOIN Store ON Purchase_Cart.Store_ID = Store.Store_ID
GROUP BY State, Product_ID
ORDER BY State, Total_Sold DESC
LIMIT 20;

#	State	Product_ID	Total_Sold
1	Delhi	101	2
2	Karnataka	103	3
3	Maharashtra	102	1
4	Tamil Nadu	105	2
5	West Bengal	104	5

Q.3 Top 5 Stores with most sales so far in this year.

SELECT Store_ID, SUM(Quantity) AS Total_Sales
FROM Order_Product
JOIN Purchase_Cart ON Order_Product.Order_ID = Purchase_Cart.Order_ID
WHERE YEAR(Purchase_Date) = YEAR(CURDATE())
GROUP BY Store_ID
ORDER BY Total_Sales DESC
LIMIT 5;

#	Store_ID	Total_Sales
1	4	5
2	3	3
3	1	2
4	5	2
5	2	1

Q.4 Stores where Coke outsells Pepsi.

SELECT Store_ID
FROM (
SELECT Store_ID,
SUM(CASE WHEN Product_ID = 104 THEN Quantity ELSE 0 END) AS Coke_Sales,
SUM(CASE WHEN Product_ID = 105 THEN Quantity ELSE 0 END) AS Pepsi_Sales
FROM Order_Product
JOIN Purchase_Cart ON Order_Product.Order_ID = Purchase_Cart.Order_ID
GROUP BY Store_ID
) AS Sales

#	Store_ID
1	4

WHERE Coke_Sales > Pepsi_Sales;

Q.5 Top 3 types of products bought in addition to Milk.

```
SELECT Product_Type_ID, COUNT(*) AS Purchase_Count
FROM Order_Product AS OP1
JOIN Product ON OP1.Product_ID = Product.UPC
WHERE OP1.Order_ID IN (
    SELECT Order_ID
    FROM Order_Product
    WHERE Product_ID = 101
)
AND Product_ID != 101
GROUP BY Product_Type_ID
ORDER BY Purchase_Count DESC
LIMIT 3;
```