Project Title: Sales & Inventory Management System

Project Scenario

You are a data analyst working for a retail company that wants to better understand their sales, customers, products, and inventory.

They need reports for:

- Sales trends
- Top customers
- Inventory levels
- Product performance
- Region-wise sales

Data Analysis SQL Tasks

1. .Total sales amount by month
2. .Top 3 customers by sales
3. .Products that are low in inventory
4. .Total sales per product
5. .Sales by category
6. .Orders with multiple products
7. .Customer purchase frequency
8. .Most sold product

Database Schema

We will create 5 tables

```
CREATE DATABASE RetailDB;

USE RetailDB;
```

##Customers Table

```
CREATE TABLE Customers (

    customer_id INT PRIMARY KEY,

    customer_name VARCHAR(100),

    city VARCHAR(50),

    state VARCHAR(50),

    join_date DATE

);
```

##Customers table

INSERT INTO Customers (customer_id, customer_name, city, state, join_date) VALUES

(1, 'Rahul Sharma', 'Delhi', 'Delhi', '2023-01-15'),

(2, 'Anjali Mehta', 'Mumbai', 'Maharashtra', '2023-03-10'),

(3, 'Amit Patel', 'Ahmedabad', 'Gujarat', '2023-05-20'),

(4, 'Neha Verma', 'Kolkata', 'West Bengal', '2023-06-25');

##Products Table

```
CREATE TABLE Products (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(100),
    category VARCHAR(50),
    price DECIMAL(10, 2)
);
```

##Products Table

INSERT INTO Products (product_id, product_name, category, price) VALUES

(101, 'Laptop', 'Electronics', 55000),

(102, 'Smartphone', 'Electronics', 25000),

(103, 'Office Chair', 'Furniture', 7000),

(104, 'Notebook', 'Stationery', 50);

Inventory Table

```
CREATE TABLE Inventory (
    product_id INT,
    stock_quantity INT,
    last_updated DATE,
    FOREIGN KEY (product_id) REFERENCES Products(product_id)
);
```

Inventory Table

```
INSERT INTO Inventory (product_id, stock_quantity, last_updated) VALUES
(101, 10, '2024-12-01'),
(102, 25, '2024-12-01'),
(103, 5, '2024-12-01'),
(104, 500, '2024-12-01');
```

Orders Table

```
CREATE TABLE Orders (
    order_id INT PRIMARY KEY,
    customer_id INT,
    order_date DATE,
    total_amount DECIMAL(10, 2),
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)
);
```

##Orders Table

```
INSERT INTO Orders (order_id, customer_id, order_date, total_amount) VALUES

(1001, 1, '2024-11-10', 80000),

(1002, 2, '2024-11-15', 25500),

(1003, 3, '2024-11-20', 7050),

(1004, 1, '2024-12-05', 100);
```

Order_Items Table

```
CREATE TABLE Order_Items (

    order_item_id INT PRIMARY KEY,

    order_id INT,

    product_id INT,

    quantity INT,

    item_price DECIMAL(10, 2),

    FOREIGN KEY (order_id) REFERENCES Orders(order_id),

    FOREIGN KEY (product_id) REFERENCES Products(product_id)

);
```

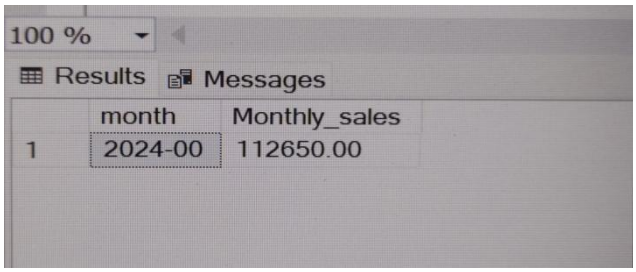
#Order_items

```
INSERT INTO Order_Items (order_item_id, order_id, product_id, quantity, item_price) VALUES

(1, 1001, 101, 1, 55000),

(2, 1001, 102, 1, 25000),

(3, 1002, 102, 1, 25000),

(4, 1002, 104, 10, 50),

(5, 1003, 103, 1, 7000),

(6, 1003, 104, 1, 50),

(7, 1004, 104, 2, 50)
```

1.Total sales amount by month

```sql
select
       format(Order_date, 'yyyy-mm')
as month,
       sum(total_amount) as
Monthly_sales
from orders
Group by format(Order_date, 'yyyy-mm')
Order by month;
```

Output:-



```sql
2. Top 3 customers by Total spend
select c.customer_name, sum(o.total_amount) as
Total_spent
from orders o
join Customers c on o.customer_id=c.customer_id
group by c.customer_name
Order by Total_spent desc;
```

Output:-

100 %

Results | Messages

	customer_name	Total_spent
1	Rahul Sharma	80100.00
2	Anjali Mehta	25500.00
3	Amit Patel	7050.00

3. Products low in Inventory (less then 10 items)

```
select p.product_name, I.stock_quantity
from Inventory I
join Products p on I.product_id=p.product_id
where I.stock_quantity <10;
```

Output:-

100 %

Results | Messages

	product_name	stock_quantity
1	Office Chair	5

```sql
4. Total sales per product
select
        p.product_name,
        sum(OI.quantity * OI.item_price)
as Total_sales
from order_items OI
join products p on
OI.product_id=p.product_id
Group by p.product_name
Order by Total_sales desc;
```

Output:-

100 %

Results | Messages

	product_name	Total_sales
1	Laptop	55000.00
2	Smartphone	50000.00
3	Office Chair	7000.00
4	Notebook	650.00

```sql
5. Sales by product category
select p.category,
        sum(oi.Quantity * item_price) as
category_sales
from Order_Items oi
join products p on oi.product_id=p.product_id
Group by p.category
Order by category_sales desc;
```

Output:-

100 %

Results | Messages

	category	category_sales
1	Electronics	105000.00
2	Furniture	7000.00
3	Stationery	650.00

```sql
6. Orders with multiple products

select
        Order_id,
        Count(product_id) as Num_products
from Order_items
Group by Order_id
Having count(Product_id) >1;
```

Output:-

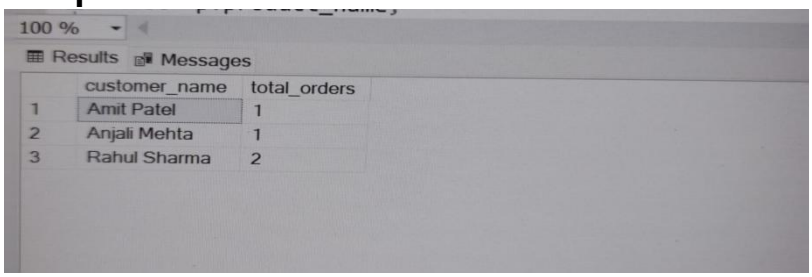
100 %

Results | Messages

	Order_id	Num_products
1	1001	2
2	1002	2
3	1003	2

```sql
7 How often each customer buys
select * from orders;
select * from Customers;

select c.customer_name,
    count(o.order_id) as total_orders
from orders o
join Customers c on o.customer_id=c.customer_id
group by c.customer_name;
```

Output:-



100 %

Results | Messages

	customer_name	total_orders
1	Amit Patel	1
2	Anjali Mehta	1
3	Rahul Sharma	2

```sql
8. Most sold product( by Quantity)
select * from order_items ;

select  p.product_name,
     sum(oi.Quantity) as total_quantity_sold
from order_items oi
join products p on oi.product_id=p.product_id
group by p.product_name
Order by total_quantity_sold;
```

Output:-

100 %

Results | Messages

	product_name	total_quantity_sold
1	Laptop	1
2	Office Chair	1
3	Smartphone	2
4	Notebook	13