**📘 Day 50 – SQL Challenge (Milestone Set)**

**Dataset: E-Commerce Analytics (Advanced)**

**Customers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CustomerID** | **Name** | **Country** | **Segment** | **JoinDate** |
| 1 | Alice | USA | Retail | 2020-01-01 |
| 2 | Bob | India | Corporate | 2021-02-15 |
| 3 | Charlie | UK | Small Business | 2021-05-01 |
| 4 | David | Canada | Retail | 2022-03-10 |
| 5 | Emma | India | Retail | 2022-06-25 |

**Orders**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OrderID** | **CustomerID** | **OrderDate** | **Status** | **TotalAmount** |
| 101 | 1 | 2023-01-05 | Completed | 500 |
| 102 | 1 | 2023-02-10 | Completed | 300 |
| 103 | 2 | 2023-02-15 | Cancelled | 0 |
| 104 | 3 | 2023-03-01 | Completed | 700 |
| 105 | 4 | 2023-03-12 | Returned | 0 |
| 106 | 5 | 2023-04-01 | Completed | 900 |
| 107 | 2 | 2023-04-15 | Completed | 1200 |
| 108 | 3 | 2023-05-01 | Completed | 650 |
| 109 | 1 | 2023-06-01 | Completed | 400 |
| 110 | 5 | 2023-06-15 | Completed | 750 |

**OrderDetails**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **OrderDetailID** | **OrderID** | **ProductName** | **Category** | **Quantity** | **Price** |
| 1 | 101 | Laptop | Electronics | 1 | 500 |
| 2 | 102 | Mouse | Electronics | 2 | 150 |
| 3 | 104 | Desk Chair | Furniture | 1 | 700 |
| 4 | 106 | Smartphone | Electronics | 1 | 900 |
| 5 | 107 | Laptop | Electronics | 1 | 1200 |
| 6 | 108 | Desk | Furniture | 1 | 650 |
| 7 | 109 | Keyboard | Electronics | 2 | 200 |
| 8 | 110 | Tablet | Electronics | 1 | 750 |

**❓ Day 50 Questions (Milestone Set)**

1. **Customer Revenue Analysis**  
   Find total revenue, total orders, and average order value per customer (Completed only).
2. **Top Categories by Revenue**  
   Rank product categories based on total revenue.
3. **Repeat Purchase Customers**  
   Find customers who placed more than **2 completed orders**.
4. **Monthly Revenue Trend**  
   Show total revenue per month and calculate % change from previous month using LAG.
5. **Returned vs Completed Orders**  
   For each customer, calculate ratio of Returned orders vs Completed orders.
6. **High-Value Customers**  
   Find customers whose **average completed order value > $500**.
7. **Cross-Category Buyers**  
   List customers who purchased from **more than 1 category**.
8. **Country-Wise Insights**  
   Show revenue per country and rank them by contribution.
9. **Window Function – Product Popularity**  
   Use ROW\_NUMBER() to find the **top-selling product** in each category.
10. **Customer Lifetime Value (CLV)**  
    CLV = (Total Revenue ÷ Years since first order). Round to 2 decimals.

**🎯 Bonus Challenge (Milestone Special)**

1. **Churn Prediction (Advanced)**  
   A customer is considered “At Risk” if:

* Last order date was more than **90 days ago** from max order date
* AND they placed less than 2 orders in the last 12 months  
  Write a query to flag such customers.