E-Commerce sales analysis using SQL

1. **Project Overview**

This project focuses on analyzing an E-commerce database using SQL to derive meaningful business insights and draw conclusions based on those insights. The objective of this project is to analyze the sales, customer engagement, generated revenue and usage of payment methods as well as, countrywise, categorywise and monthwise sales trends to support data-driven decision-making.

Tools Used:
MySQL, SQL (Joins, Aggregations, Subqueries)

2. **Database Schema**

The database consists of five normalised tables: customers, orders, order_items, products, and categories. The schema has a real-life e-commerce design where customers place an orders, each order contains multiple products, and then the products are grouped into different categories and divided into multiple countries according to the number of orders, revenue generated and average order value. The data is ordered by above factors as well as the order date.

3. **Business Questions**

- Which product categories generate the highest revenue?
- How do orders and revenue vary across countries?
- What are the monthly trends in orders and revenue?
- Which payment methods are most commonly used?
- What is the average order value?

4. <u>Analysis Summary</u>

Category wise analysis shows that the number of customers and orders for Home & Kitchen category is more while the total revenue generated as well as the Average Order Value for Clothing category is higher.
Country wise analysis revealed that Germany has the most number of orders as well as the total revenue while Singapore has the least.
Monthly trend analysis doesn't show any specific trend but April and October have the most number of sales due to the festive season while November has the least, while payment method analysis shows that more than 80% of the customers show strong preference towards digital payment and very less number of customers prefer cash on delivery.

5. <u>Key Findings</u>

- Digital payments dominate both order volume and revenue.
- Sales show clear seasonal patterns with peak performance toward year-end.
- Revenue concentration exists in specific categories and countries.
- Average Order Value remains consistent across segments, indicating stable pricing.
- High-revenue regions and categories should be prioritized for targeted marketing.

6. <u>Conclusion</u>

This project used SQL to analyze an e-commerce database and extract key business insights related to sales, customers, and revenue trends. The analysis showed a strong preference for digital payment methods, high revenue contribution from categories like Clothing and Books, and significant regional differences in customer spending. Monthly trends revealed seasonal sales patterns with higher performance toward the end of the year. Overall, the project demonstrates the ability to convert raw data into actionable insights using SQL.