# E-Commerce Sales Analysis Using SQL

**Author:** Kavya Chaturvedi

## 1. Project Objective

The goal of this project is to analyze an E-Commerce transactions dataset using SQL (SQLite) to extract actionable insights about customer behavior, sales trends, product performance, and payment patterns. This project demonstrates practical SQL skills suitable for data analyst or data scientist roles.

## 2. Dataset Overview

**Dataset Name:** Kaggle E-Commerce Transactions Dataset

**Columns:**

- `transaction_id` : Unique order number
- `user_name` : Unique customer identifier
- `age` : Customer age
- `country` : Country of customer
- `product_category` : Category of the product purchased
- `purchase_amount` : Amount spent per transaction
- `payment_method` : Method of payment (Credit Card, UPI, COD, PayPal, etc.)
- `transaction_date` : Date of purchase

**Number of records:** \~50000 transactions

**Source:** Public dataset available on Kaggle

## 3. SQL Analysis & Questions

### Section 1: Data Exploration

1. Total orders in the dataset
2. Number of unique customers
3. Unique product categories
4. Total sales revenue
5. Top 5 countries with the most orders

### Section 2: Sales Insights

1. Product categories generating the highest revenue
2. Average order value per transaction
3. Most sold products by transaction count

### Section 3: Customer Analysis

1. Top customers by total spend
2. Customers with more than 5 purchases
3. Country-wise average spend per customer
4. Age group segmentation (Young, Adults, Elderly)

### Section 4: Payment Insights

1. Total transactions per payment method
2. Payment method usage by product category
3. Countries using UPI the most

### Section 5: Advanced Insights

1. Popular product categories by country
2. Repeat customers (more than one order)
3. Customers who purchased from multiple categories

### Bonus Insights

1. High-value customers (spent > ₹10,000)
2. Summary table by country including total orders, total revenue, and average order value

---

## 4. Tools & SQL Features Used

- SQLite database (DB Browser for SQLite)
- SQL commands: `SELECT`, `COUNT`, `SUM`, `AVG`, `GROUP BY`, `HAVING`, `ORDER BY`, `LIMIT`, `CASE WHEN`, `CREATE VIEW`, `CREATE TABLE`
- Data cleaning and formatting techniques
- Optional visualization tools (Excel / Power BI) for charts

---

## 5. Key Findings (Illustrative Examples)

| Metric | Result |
|---|---|
| Total Orders | 50000 |
| Unique Customers | 100 |

| Metric | Result |
|---|---|
| Top Category | SPORTS |
| Most Used Payment | UPI |
| Highest Average spent Country | USA |

## 6. Conclusion

This project provides a comprehensive end-to-end analysis of e-commerce transactions using SQL. It highlights trends in customer behavior, top-selling products, payment patterns, and high-value customers. The project demonstrates SQL proficiency in aggregation, grouping, filtering, and advanced analytics queries — all crucial for a data analyst or data scientist role.

---

**Author:** Kavya Chaturvedi