1. Data Overview:

- **Customers.csv**: Contains customer profile data, such as `CustomerID`, `Age`, `Income`, `Gender`, and `Location`.
- **Products.csv**: Provides details about products like `ProductID`, `ProductCategory`, and `Price`.
- **Transactions.csv**: Contains transactional data, such as `TransactionID`, `CustomerID`, `ProductID`, `Quantity`, `TotalAmount`, and `TransactionDate`.

2. Data Cleaning:

- **Missing Values**: Impute missing values or remove rows/columns with excessive missing data.
- **Data Types**: Ensure correct data types for features, such as converting `TransactionDate` to datetime format and ensuring numerical columns are in the correct format.

3. Feature Engineering:

- **TotalSpent**: Calculate the total amount spent in each transaction (`Quantity * Price`).
- **Recency**: Measure how recent the last transaction was.
- **Categorization**: Group customers by `Age` (e.g., 18-25, 26-35) and `Income` (e.g., low, medium, high).

4. Univariate Analysis:

- **Age**: Visualize the distribution of customer age using histograms or boxplots.
- **Income**: Examine the distribution of income using histograms.
- **TotalSpent**: Explore the spending patterns using histograms or boxplots.

5. Bivariate Analysis:

- **Income vs. Spending**: Analyze the relationship between `Income` and `TotalSpent` using scatter plots.
- **Age vs. Spending**: Investigate how age correlates with spending behavior.
- **Product Category vs. Spending**: Check which product categories contribute most to total spending using bar plots..

7. Outlier Detection:

- **Outliers**: Identify any outliers in numerical features such as `Income`, `TotalAmount`, and `Quantity` using statistical methods (e.g.,box).

8. Insights:

- **Customer Segments**: Identify patterns in customer behavior, such as age and income segments that influence spending.

- **Product Preferences**: Understand which products are favored by different customer groups, helping to inform marketing strategies.