### **Project provided by our “Boss”**

### **Dataset link:** [**https://www.kaggle.com/datasets/shreyanshverma27/online-sales-dataset-popular-marketplace-data**](https://www.kaggle.com/datasets/shreyanshverma27/online-sales-dataset-popular-marketplace-data)

**From the dataset: This dataset provides a comprehensive overview of online sales transactions across different product categories. Each row represents a single transaction with detailed information such as the order ID, date, category, product name, quantity sold, unit price, total price, region, and payment method.**

## **Columns:**

**Order ID: Unique identifier for each sales order.  
Date:Date of the sales transaction.  
Category:Broad category of the product sold (e.g., Electronics, Home Appliances, Clothing, Books, Beauty Products, Sports).  
Product Name:Specific name or model of the product sold.  
Quantity:Number of units of the product sold in the transaction.  
Unit Price:Price of one unit of the product.  
Total Price: Total revenue generated from the sales transaction (Quantity \* Unit Price).  
Region:Geographic region where the transaction occurred (e.g., North America, Europe, Asia).  
Payment Method: Method used for payment (e.g., Credit Card, PayPal, Debit Card).**

### **Sales Analysis by Category**

1. **Total Sales per Category**
   * Calculate the total sales amount for each product category.
   * Identify the category with the highest total sales and the one with the lowest.
2. **Average Sales per Item per Category**
   * Determine the average sales amount per item in each category.
   * Compare these averages to find out which category has the highest and lowest average sales per item.

### **Sales Analysis by Region**

1. **Total Sales per Region**
   * Sum the total sales amount for each region.
   * Analyze which region contributes the most to the overall sales and which one contributes the least.
2. **Average Sales per Transaction per Region**
   * Calculate the average sales amount per transaction for each region.
   * Identify any significant differences in the average transaction value across regions.

### **Payment Method Analysis**

1. **Sales Distribution by Payment Method**
   * Determine the total sales amount processed through each payment method.
   * Analyze the percentage share of each payment method in the overall sales.
2. **Average Sales per Transaction by Payment Method**
   * Calculate the average transaction amount for each payment method.
   * Assess which payment method tends to have higher or lower transaction values.

### **Time-Based Analysis**

1. **Daily Sales Trends**
   * Plot the total sales amount for each day to visualize any trends or patterns over time.
   * Identify any days with unusually high or low sales and investigate possible reasons.
2. **Sales Growth Over Time**
   * Analyze the month-over-month growth in sales to understand the sales trajectory.
   * Identify any significant spikes or dips in sales growth and their potential causes.

### **Product-Specific Analysis**

1. **Top-Selling Products**
   * List the top 10 products by total sales amount.
   * Analyze what makes these products perform well in terms of sales.
2. **Least-Selling Products**
   * Identify the 10 products with the lowest total sales amount.
   * Investigate possible reasons for their low sales and suggest strategies to improve them.

### **Customer Insights**

1. **Repeat Purchase Analysis**
   * Check for any repeat transactions for the same product to identify potential customer loyalty.
   * Analyze trends in repeat purchases by category or region.
2. **High-Value Customers**
   * Identify transactions with the highest total amounts.