**E-Commerce Sales Analysis Report (Pandas Project Summary)**

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**Purpose:** To provide business insights from E-Commerce sales data for strategic decisions.

**✅ Dataset Overview**

* **Total Records:** 10,447 sales transactions.
* **Columns:** 26, covering customer details, product info, order & payment status, pricing, categories, ratings, and more.
* **No Missing Data or Duplicates:** Dataset is clean.

**✅ Key Business Insights**

1. **Total Revenue**
   * **₹9.54 Crores** generated from all transactions combined.
2. **Top Product Categories by Sales**

| **Category** | **Total Sales** |
| --- | --- |
| Electronics | ₹2.17 Cr |
| Beauty | ₹2.16 Cr |
| Home | ₹2.10 Cr |
| Apparel | ₹1.61 Cr |
| Sports | ₹1.49 Cr |

1. **Electronics** is the top-selling category, followed closely by **Beauty** and **Home** products.
2. **Top Performing Brands**

| **Brand Name** | **Total Sales** |
| --- | --- |
| Waller-Murray (Home) | ₹18.17 Lakh |
| Cummings, Thomas and Sanchez (Electronics) | ₹18.17 Lakh |
| Reed PLC (Sports) | ₹18.08 Lakh |

1. These brands dominate sales in their respective categories.
2. **Top Cities by Revenue**

| **City** | **Total Sales** |
| --- | --- |
| West Christopher | ₹15.48 Lakh |
| Barbarafurt | ₹12.60 Lakh |
| South Mitchellport | ₹10.82 Lakh |

1. **Monthly Sales Trend**
   * A **line chart** showed sales fluctuating month over month.
   * Useful for understanding **seasonality** or **peak periods**.
2. **Top 10 Customers**
   * A bar chart displayed customers contributing the highest revenue.
   * Identifying them helps in **loyalty programs** or **targeted marketing**.
3. **Payment Method Distribution**

| **Payment Method** | **Total Sales** |
| --- | --- |
| UPI | ₹2.41 Cr |
| Credit Card | ₹2.39 Cr |
| Net Banking | ₹2.37 Cr |
| COD | ₹2.36 Cr |

1. **UPI** is the most preferred payment method.
2. **Order Payment Status**

| **Payment Status** | **Total Sales** |
| --- | --- |
| Success | ₹3.31 Cr |
| Failed | ₹3.16 Cr |
| Pending | ₹3.06 Cr |

1. A significant amount of revenue is stuck in **failed** and **pending** payments — a key improvement area.
2. **Customer Ratings Distribution**
   * A **count plot** visualized how customers rated their experience.
   * Provides insight into **customer satisfaction**.

**✅ Visualizations Created**

* **Line chart:** Total Sales by Month
* **Bar charts:** Top Customers, Top Brands
* **Pie charts:** Payment Method, Category Distribution, Payment Status
* **Count plot:** Product Ratings

**✅ Key Recommendations for Management**

1. **Focus on Electronics & Beauty categories** for promotional campaigns.
2. **Engage top customers** with rewards or loyalty programs.
3. **Improve payment success rates** to recover lost revenue.
4. **Analyze top cities further** to scale marketing efforts regionally.
5. **Monitor customer ratings** to improve service quality and product satisfaction.

**✅ Conclusion**

This analysis provides clear visibility into which products, brands, cities, and customers drive sales. The findings can help **optimize marketing, operations, and payment systems**, directly impacting revenue growth and customer satisfaction.

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