VISUAL ANALYTICS-HOMEWORK 2

Name: Ramakrishna Gali

Student ID: 02149393

1. Visualization Design Choices: Our visualization design includes two different types of charts using D3.js:

- **Bar Chart (Category-wise Sales):** This visualization represents total sales across different product categories. A bar chart was chosen due to its clarity in comparing categorical data. A tooltip was added for interactivity, displaying precise sales values when hovering over bars.
- **Line Chart (Monthly Sales Trend):** A time-series line chart effectively represents sales trends over different months. It allows users to observe seasonal variations and patterns in sales. Interactive tooltips provide detailed insights, and a brush & zoom feature enhances usability for deeper analysis.

2. Insights from the Visualizations:

- The **bar chart** highlights the top-performing categories and those contributing less to total sales. This insight helps businesses focus on high-revenue categories and improve low-performing ones.
- The **line chart** reveals sales trends over time, showing periods of high and low sales. Identifying peak sales months allows businesses to optimize marketing strategies and inventory management.
- Seasonal fluctuations and outliers in the dataset can be analyzed more effectively with zooming functionality in the line chart.

3. Challenges Faced:

- **Data Preprocessing:** Converting time-series data into a structured format and handling missing values required careful preprocessing.
- **D3.js Implementation:** Implementing advanced features like brush & zoom required an understanding of D3's event handling and scale transformations.
- **Performance Optimization:** With a large dataset, rendering interactive elements led to slow performance, necessitating optimizations in data fetching and rendering strategies.

Overall, these visualizations provide actionable insights into Flipkart's sales trends, enabling data-driven decision-making. The combination of interactive elements enhances user engagement and analysis depth.