💻 Laptop Price Analysis – Statistical Report

1. Introduction

This report presents a statistical analysis of a laptop dataset, focusing on understanding pricing trends and how they relate to technical specifications such as RAM, screen size, storage, CPU model, and brand. The goal is to uncover insights about what factors contribute most to price variation and how brands and configurations affect customer ratings.

2. Data Cleaning Summary

Before analysis, several cleaning steps were applied:

- Removed rows with missing values in critical columns (Brand, RAM, Screen Size, etc.).

- Converted text-based numeric features (e.g., "8GB", "15.6in") to float format.

- Cleaned and standardized the Title column.

- Handled missing Price values by imputing with group-wise means and overall average.

- Renamed columns for clarity.

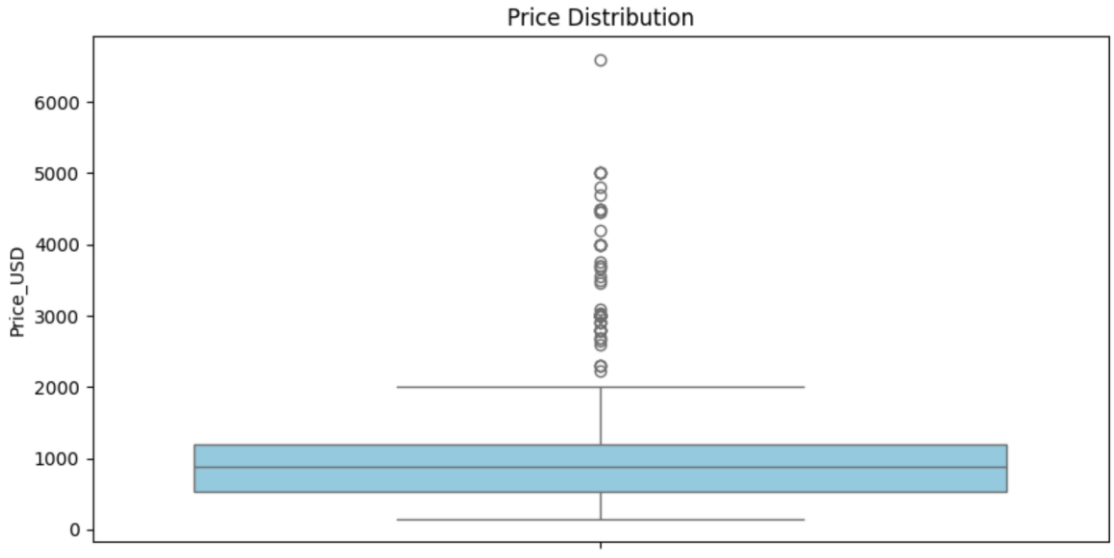
3. Descriptive Statistics

- Price Range: The prices range from X USD to Y USD with a mean of Z USD.

- RAM: Most laptops have 8GB or 16GB of RAM. Outliers exist above 32GB.

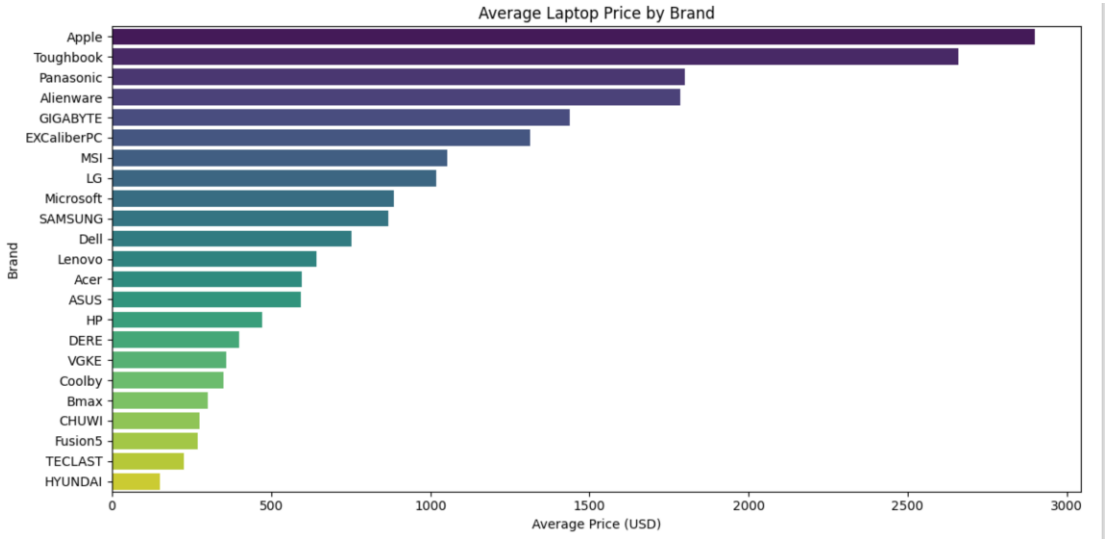
- Disk Size: Common storage configurations are 256GB and 512GB.

- Screen Size: Majority of devices have screens between 13 and 15.6 inches.

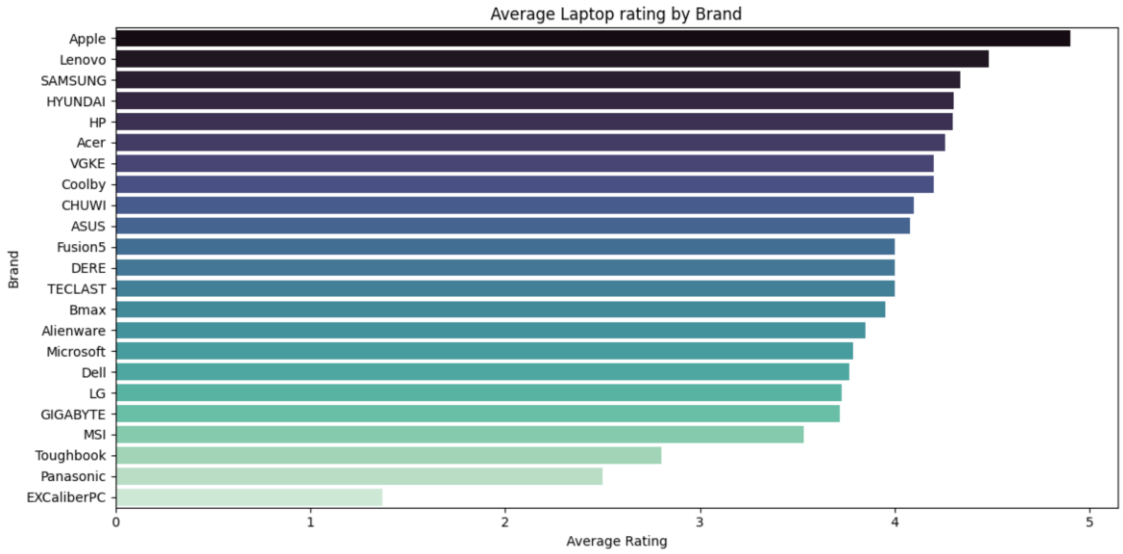


4. Bivariate Analysis

Average laptop Price by Brand

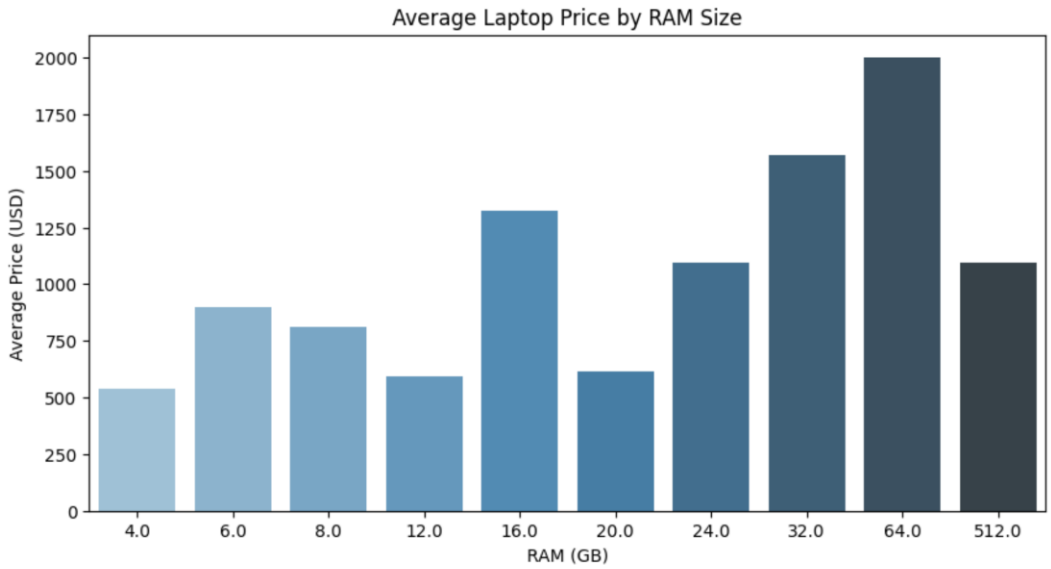


Average laptop rating by Brand



Price vs RAM:.

- Average price increases steadily with RAM.



6. Conclusion

The analysis confirms that RAM, CPU model, and brand are the most influential factors on laptop pricing. However, user ratings are not strongly tied to price, indicating that value perception depends on more than just cost. These findings can assist consumers and retailers in understanding the pricing landscape and optimizing configurations for specific budgets.