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Report on Laptop Pricing Analysis.

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Data Architecture

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Contents

1. Introduction 2

2. Purpose and Goals 2

3. Key Questions 2

4. Metrics and KPIs 2

5. Data Model 3

6. Dashboard Overview 3

7. Results 7

My Learning 7

8. Conclusion 7

1. Introduction

The dataset used for this project was sourced from Kaggle and contains data on various laptop models, including details such as brand, specifications (e.g., RAM, storage, screen size), and price. The aim was to explore how specific laptop features impact their pricing and identify patterns that help consumers and businesses make better decisions.

2. Purpose and Goals

The primary goal of this project was to analyse the relationship between laptop specifications and prices and provide insights into key factors that drive pricing. The project focused on:

- Understanding how laptop features (e.g., RAM, screen size, CPU, GPU) influence price.
- Identifying trends in brand pricing and comparing different brands.
- Providing a visual representation of the data through a Power BI dashboard.

3. Key Questions

The analysis revolved around answering the following key questions

1. Which laptop specifications have the most significant impact on price?
2. How do premium features (e.g., Retina Display, SSD, GPU) affect pricing?
3. How do different brands compare in terms of pricing and features?

4. Metrics and KPIs

Several key performance indicators (KPIs) were used to evaluate operational and strategic objectives:

- **Average Price per Brand**: Helps track the variation in pricing across different brands.
- **Price per Inch of Screen**: Assesses the impact of screen size on laptop pricing.
- **Price per GB of RAM**: Analyses the relationship between the size of RAM and price.

- **Impact of GPU/CPU on Price**: Measures the influence of specific GPU and CPU combinations on pricing

5. Data Model

The data was organized with columns such as **Brand**, **RAM**, **CPU**, **Screen Size**, **Storage**, and **Price**. Key transformations and cleaning steps included:

- Removing duplicates and empty rows.
- Converting text to numerical values where necessary (e.g., screen size in inches, RAM in GB).
- Aggregating the data to compute averages and medians where applicable

DataModel

6. Dashboard Overview

A dashboard was built using Power BI to present the results visually. Key components of the dashboard include:

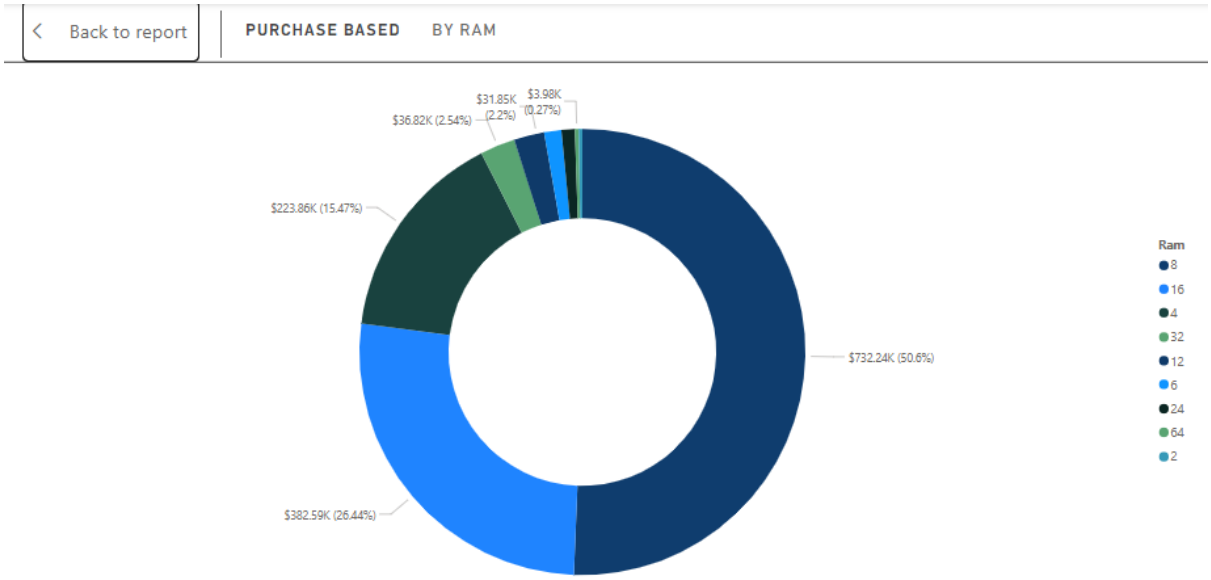
- **Summary Boxes**: Showing total number of laptops analysed, average price, and average price per feature category.
- **Sales Bar Chart**: Comparing sales performance across different brands.
- **Price Distribution Bar Chart**: Visualizing the distribution of laptop prices by brand.
- **Pie Chart**: Representing the market share of leading brands like Apple, HP, and Lenovo

Here's a detailed explanation of each visual in the dashboard:

1. **Average Price, Total Sales Revenue, Laptops Sold (Cards)**:
    - These three cards summarize key metrics:
        - **Average Price**: Displays the average selling price of laptops, which is $1.13K.
        - **Total Sales Revenue**: The total sales revenue generated is 1.45M, indicating strong sales.
        - **Laptops Sold**: A total of 1,275 laptops have been sold. These cards give a glance at the overall performance.

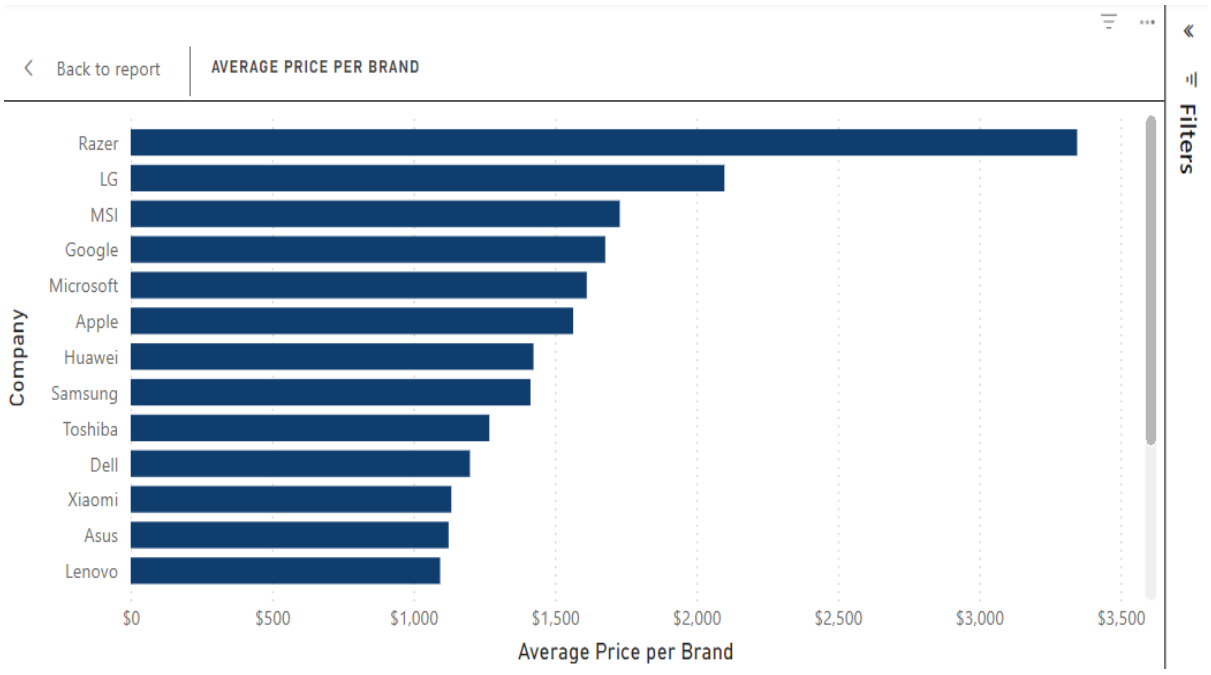
2. **Pie Chart (Purchase Based on RAM)**:

- This pie chart breaks down laptop sales by RAM size.
- The largest portion of laptops sold has **8GB RAM**, accounting for 26.44% of sales.
- Other RAM configurations, like 16GB (15.77%) and 4GB, contribute smaller percentages.
- This chart helps identify which RAM configurations are most popular with customers.



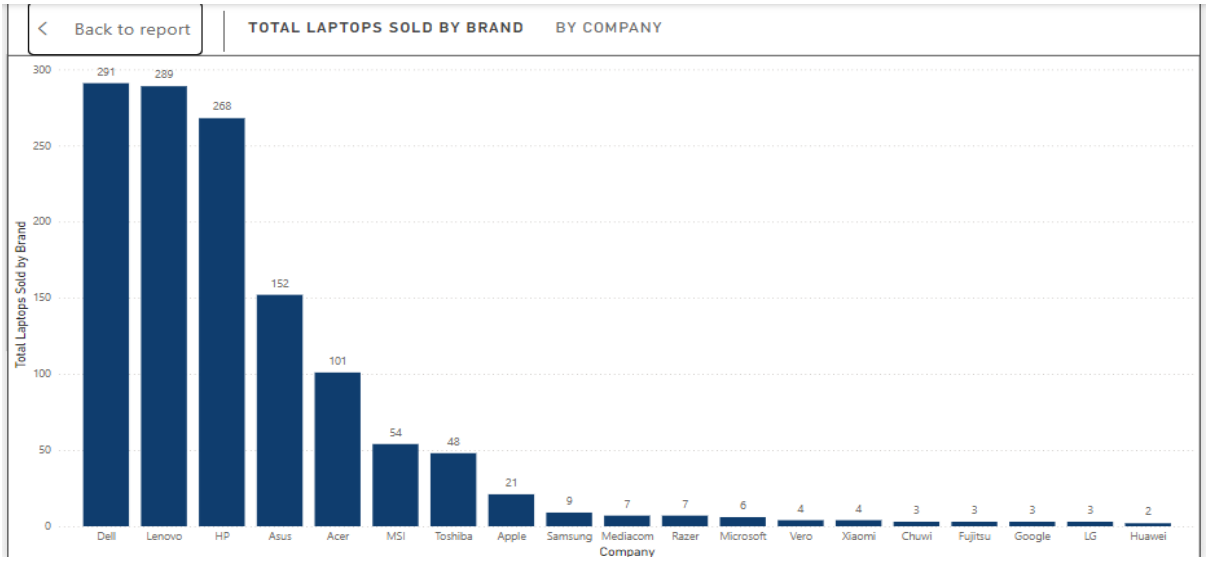
3. **Stacked Bar Chart (Average Price per Brand)**:

- This chart compares the average price of laptops across different brands.
- **Razer** has the highest average price, followed by **LG** and **MSI**.
- It provides insight into the pricing strategies of different brands and helps identify premium brands in the market.



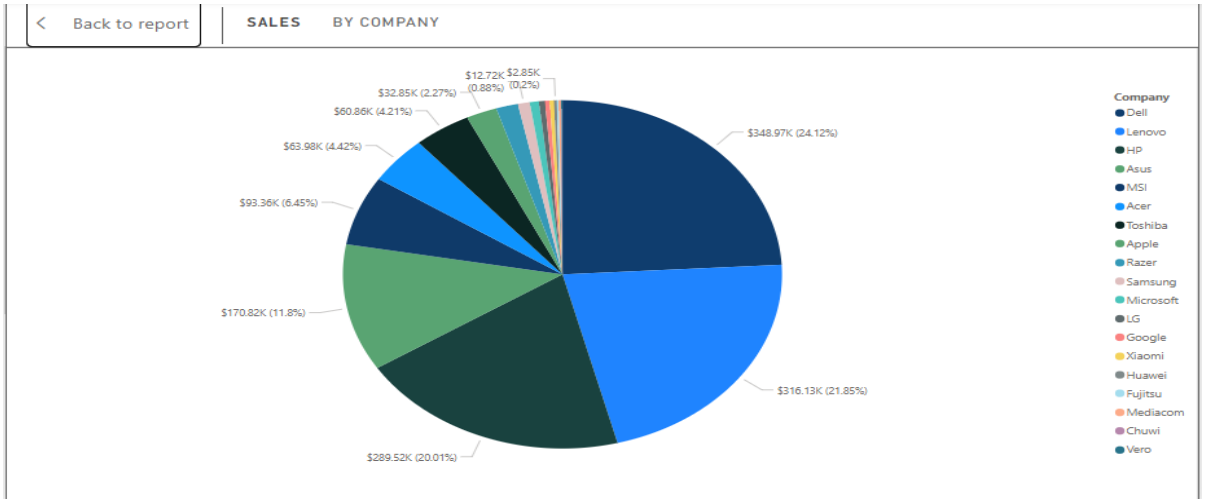
4. **Bar Chart (Total Laptops Sold by Brand)**:

- Shows the number of laptops sold for each brand.
- **Dell** leads with the most units sold, followed closely by **Lenovo** and **HP**.
- This chart highlights which brands are most popular in terms of unit sales.



5. **Pie Chart (Sales by Company)**:

- This pie chart shows the percentage of total sales made by each company.
- **Dell** has the largest share (42.17%), followed by **Lenovo** (24.17%) and **HP** (20.01%).
- The chart illustrates the market share distribution among major laptop manufacturers.



7. Results

The analysis revealed several key insights:

- **RAM and CPU** were identified as the most significant factors influencing laptop prices.
- Premium features like **SSD storage** and **advanced GPUs** substantially increase the price of laptops.
- Apple laptops consistently ranked as the most expensive, whereas brands like **HP and Lenovo** offered competitive pricing with similar specifications

My Learning

From this report, I learned how to analyse and interpret sales data using various visual tools like cards, bar charts, and pie charts in Power BI. I gained insights into the overall performance of the laptop market, including key metrics like average price, total sales revenue, and units sold. By examining sales by brand, RAM size, and screen type, I understood which factors influence customer preferences and sales trends. The visual representation of data helped me identify the most popular brands (Dell, Lenovo, and HP) and the dominance of certain specifications, such as 8GB RAM, in driving sales. This analysis enhanced my ability to draw actionable insights from data and track market performance effectively.

8. Conclusion

The project successfully identified the main drivers of laptop prices, with specifications such as RAM, storage, and CPU playing pivotal roles. The Power BI dashboard provided a clear and informative visual representation of the data, enabling easy comparison of brands and features. This project demonstrated the power of data visualization in presenting complex data in an understandable format and highlighted laptops offering the best value for money

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