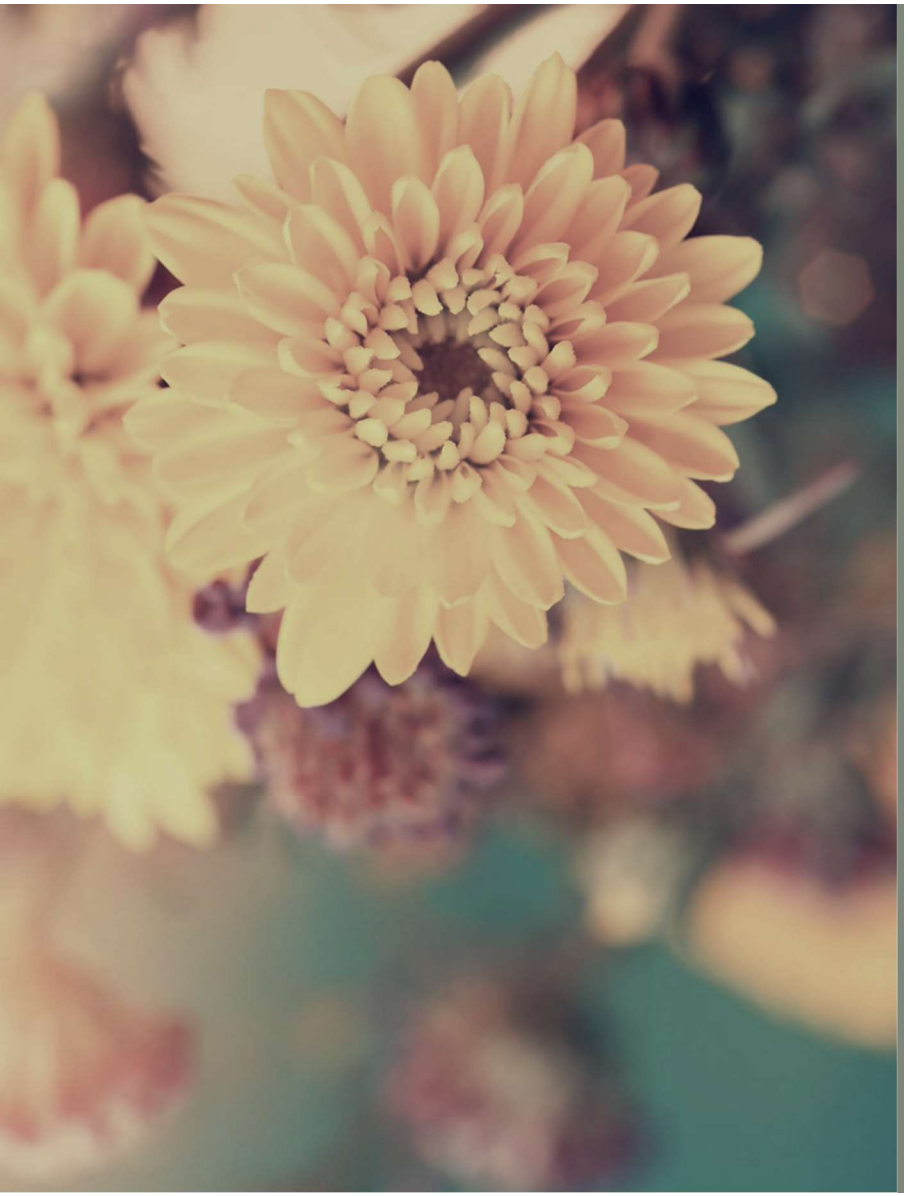
Laptop Price Analysis

Sudip Dey



Project Overview

Dataset is available in the given link:
https://drive.google.com/file/d/1sU3TLwZA306lXScMvY_qgZs7-BvffSEw/view?usp=drive_link

This project will help you understand how to analyze and predict laptop prices using a dataset containing laptop specifications. It is a simple regression task where we predict the price of a laptop based on its features like brand, processor, RAM, storage, etc.

About Dataset

The dataset contains 1,275 entries and 23 columns related to laptop specifications, including details about:

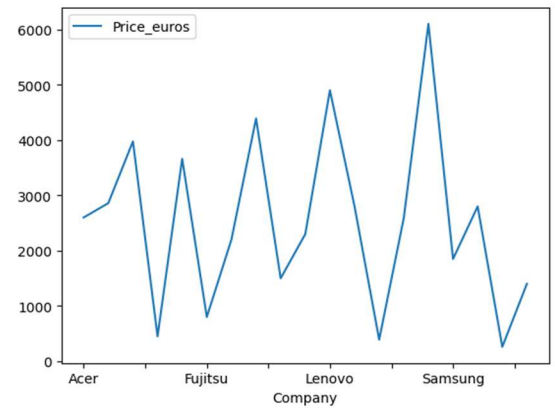
1. General Information: Company, Product, Type (e.g., Notebook, Ultrabook).
2. Specifications: Screen size (Inches), RAM, Operating System, Weight, and Price.
3. Display Features: Screen resolution (Width and Height), Touchscreen, IPS panel, Retina Display.
4. Processor Information: CPU company, frequency, model.
5. Storage: Primary and secondary storage capacity, and storage type (SSD, HDD).
6. Graphics: GPU company and model.

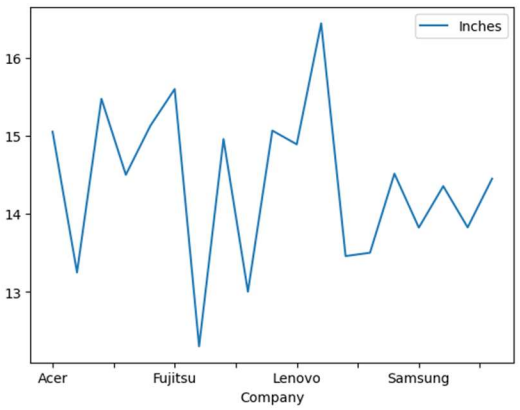
Project Goal

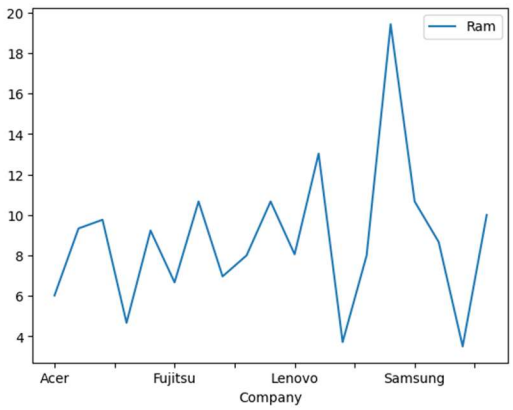
Let's analyze some key insights from this data, focusing on:

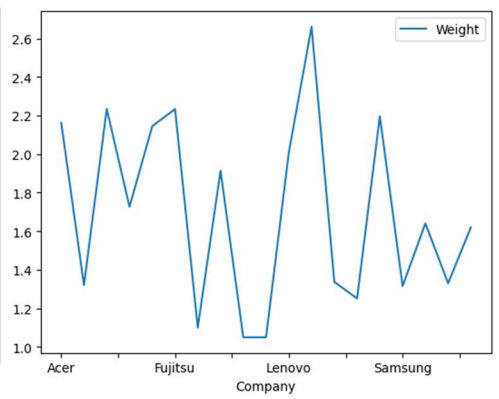
1. Price Distribution and Factors Influencing Price: We'll examine how attributes like company, RAM, CPU, and storage type affect the price.
2. Storage and Display Features: We'll analyze storage and display preferences across different laptop types.
3. Performance Characteristics: Exploring CPU frequency and RAM across different brands and types to see how they impact laptop performance characteristics.

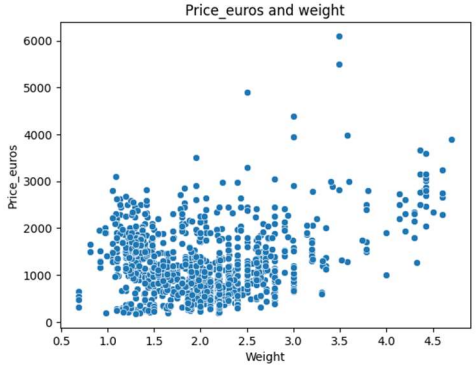
Analyses

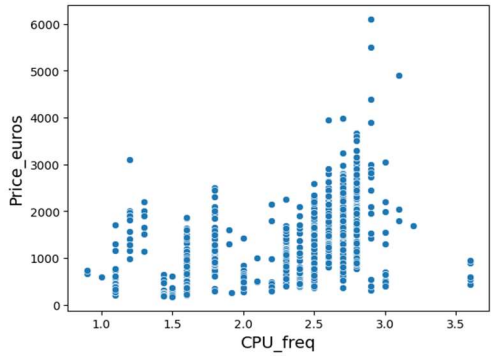

Price_euros
Acer
Fujitsu
Lenovo
Samsung
Company

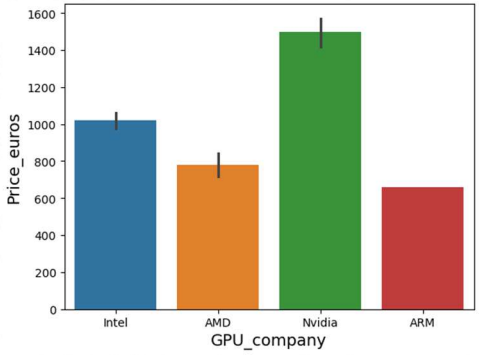

Inches
Acer
Fujitsu
Lenovo
Samsung
Company

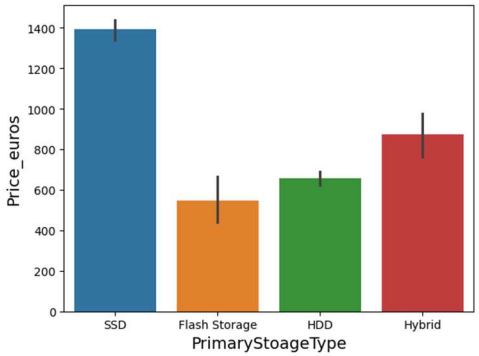

Ram
Acer
Fujitsu
Lenovo
Samsung
Company


Weight
Acer
Fujitsu
Lenovo
Samsung
Company


Price_euros and weight
Price_euros
Weight

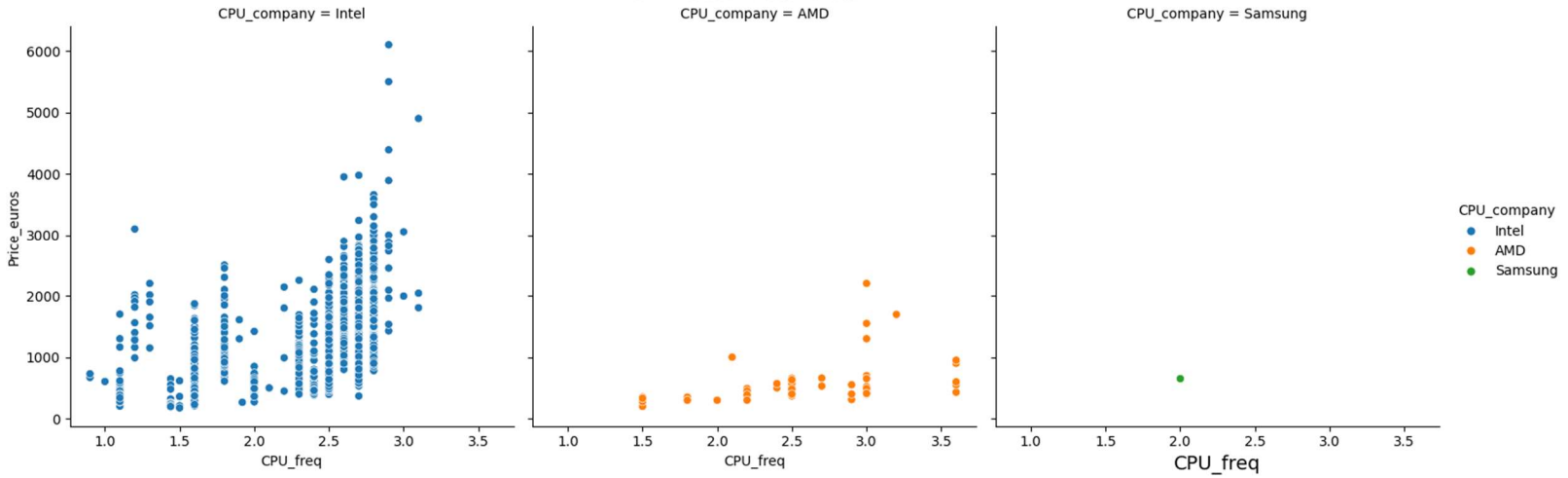

Price_euros
CPU_freq


Price_euros
Intel
AMD
Nvidia
ARM
GPU_company

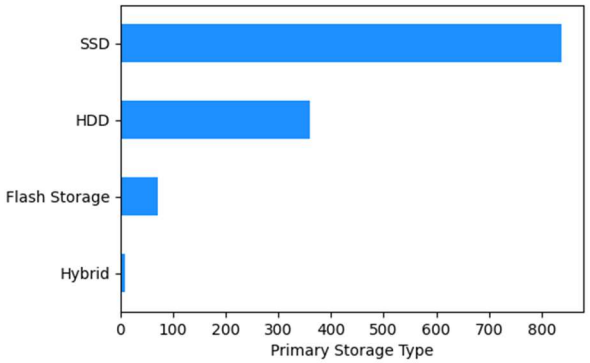

Price_euros
SSD
Flash Storage
HDD
Hybrid
PrimaryStoageType

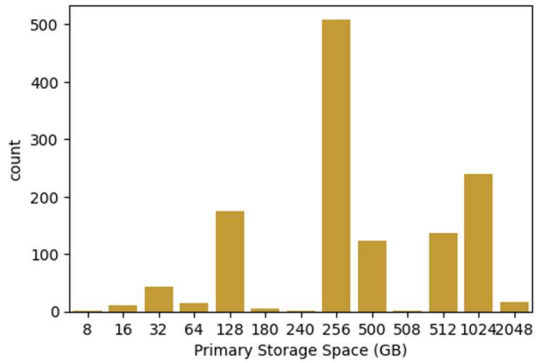
Analyses

TypeName	4K Ultra HD	Full HD	Quad HD+	Standard
2 in 1 Convertible	7.0	76.0	7.0	27.0
Gaming	13.0	190.0	NaN	2.0
Netbook	NaN	4.0	NaN	19.0
Notebook	11.0	418.0	3.0	275.0
Ultrabook	8.0	123.0	18.0	45.0
Workstation	4.0	24.0	NaN	1.0

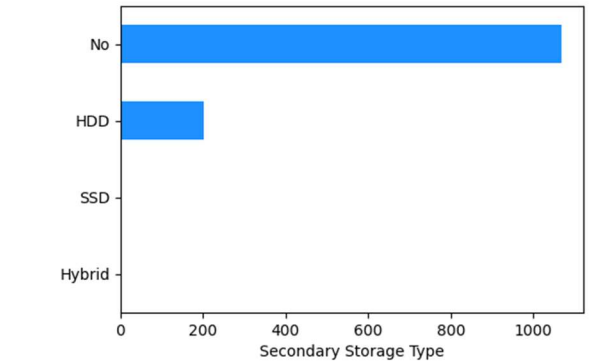


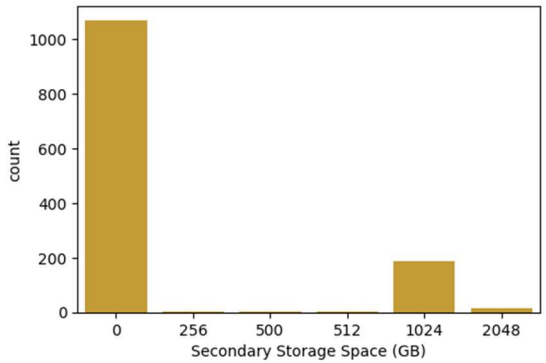
Analyses

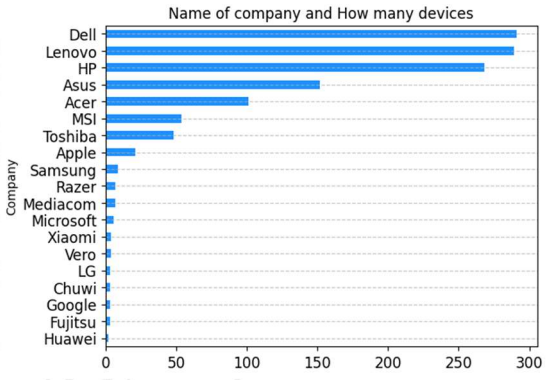

SSD
HDD
Flash Storage
Hybrid
0
100
200
300
400
500
600
700
800
Primary Storage Type


count
0
100
200
300
400
500
8
16
32
64
128
180
240
256
500
508
512
1024
2048
Primary Storage Space (GB)


Inches
Ram
Weight
Price_euros
ScreenW
ScreenH
CPU_freq
PrimaryStorage
SecondaryStorage
1.0
0.2
0.8
0.1
-0.1
-0.1
0.3
0.3
0.4
0.2
1.0
0.4
0.7
0.4
0.4
0.4
0.0
0.4
0.8
0.4
1.0
0.2
-0.0
-0.1
0.3
0.2
0.5
0.1
0.7
0.2
1.0
0.6
0.5
0.4
-0.1
0.3
-0.1
0.4
-0.0
0.6
1.0
1.0
0.2
-0.1
0.1
-0.1
0.4
-0.1
0.5
1.0
1.0
0.2
-0.1
0.1
0.3
0.4
0.3
0.4
0.2
0.2
1.0
0.1
0.2
0.3
0.0
0.2
-0.1
-0.1
-0.1
0.1
1.0
-0.2
0.4
0.4
0.5
0.3
0.1
0.1
0.2
-0.2
1.0
1.0
0.8
0.6
0.4
0.2
−0.2


No
HDD
SSD
Hybrid
0
200
400
600
800
1000
Secondary Storage Type


count
0
200
400
600
800
1000
0
256
500
512
1024
2048
Secondary Storage Space (GB)


Name of company and How many devices
Company
Dell
Lenovo
HP
Asus
Acer
MSI
Toshiba
Apple
Samsung
Razer
Mediacom
Microsoft
Xiaomi
Vero
LG
Chuwi
Google
Fujitsu
Huawei
0
50
100
150
200
250
300

Conclusion and Insights

- **Price Distribution**:
  - The price distribution is positively skewed, with most laptops priced under €1500. A few high-end laptops reach significantly higher prices, likely driven by premium features or brand value.
- **Price by Company**:
  - Apple laptops are priced noticeably higher on average, followed by Razer and Microsoft, suggesting these brands focus on premium models.
  - Companies like HP, Acer, and Dell have a wider range of prices, offering models across different price segments, while brands such as MSI and Alienware seem more concentrated around higher price points, likely targeting gaming or performance-focused customers.
- **Price vs. RAM**:
  - As expected, laptops with higher RAM generally command higher prices. Models with 16GB and 32GB RAM show a substantial increase in price, reflecting their target audience's demand for performance.

Conclusion and Insights

- **Price vs. Storage Type:**
  - Laptops with SSD storage are generally more expensive than those with HDDs, likely due to the performance and efficiency benefits associated with SSDs. Flash storage, typically found in ultrabooks, also tends to be higher priced, aligning with their slim, high-performance build.
- **Price vs. CPU Frequency by CPU Company:**
  - Laptops with higher CPU frequencies often come at a higher price. Intel-based laptops dominate the market, while AMD models appear in both high and mid-frequency ranges, generally showing competitive pricing.

Google Colab(Laptop price analysis): https://colab.research.google.com/drive/1g74f3AgnrlzWcydMydLlWNZ8pxWA-TPu?usp=sharing

Thank you.