Regression

Laptop Price

- **A**bdulmajeed Mesfir Alnfaie

- **N**ouf Buqaysh Alshabani

- **A**hmad Yahya Hakami

In this presentation

Introduction

There are many computer companies competing to produce unique laptops that fit the needs of the new generation with all their features and prices. The goal of this project is to identify the features that affect the price by analyzing many types of laptops in many companies and predicting the price of many types.

Dataset Information

Dataset Information

	Column name	Column info	Column type
1	laptop_id	ID	int64
2	Company	Laptop Manufacturer	object
3	Product	Brand or moder	object
4	TypeName	Type(Notebook,Ultrabook,Gaming,etc.)	object
5	Inches	Screen Size	float64
6	ScreenResolution	The number of distance pixles in each dimension	object
7	Cpu	Central Processing memory	object
8	Ram	Random access memory	object
9	Memory	Hard disk / SSD memory	object
10	Gpu	Graphic Processing Units	object
11	OpSys	Operating System	object
12	Weight	Laptop Weight	object
13	Price_euros	Laptop Price	float64

Dataset Information

```
0    laptop_ID          1303 non-null    int64
1    Company            1303 non-null    object
2    Product            1303 non-null    object
3    TypeName           1303 non-null    object
4    Inches             1303 non-null    float64
5    ScreenResolution   1303 non-null    object
6    Cpu                1303 non-null    object
7    Ram                1303 non-null    object
8    Memory             1303 non-null    object
9    Gpu                1303 non-null    object
10   OpSys              1303 non-null    object
11   Weight             1303 non-null    object
12   Price_euros        1303 non-null    float64
dtypes: float64(2), int64(1), object(10)

  1303 Rows, 13 Columns
```

Dataset Information

Before Cleaning

	laptop_ID	Company	Product	TypeName	Inches	ScreenResolution	Cpu	Ram	Memory	Gpu	OpSys	Weight	Price_euros
0	1	Apple	MacBook Pro	Ultrabook	13.3	IPS Panel Retina Display 2560x1600	Intel Core i5 2.3GHz	8GB	128GB SSD	Intel Iris Plus Graphics 640	macOS	1.37kg	1339.69
1	2	Apple	Macbook Air	Ultrabook	13.3	1440x900	Intel Core i5 1.8GHz	8GB	128GB Flash Storage	Intel HD Graphics 6000	macOS	1.34kg	898.94
2	3	HP	250 G6	Notebook	15.6	Full HD 1920x1080	Intel Core i5 7200U 2.5GHz	8GB	256GB SSD	Intel HD Graphics 620	No OS	1.86kg	575.00
3	4	Apple	MacBook Pro	Ultrabook	15.4	IPS Panel Retina Display 2880x1800	Intel Core i7 2.7GHz	16GB	512GB SSD	AMD Radeon Pro 455	macOS	1.83kg	2537.45
4	5	Apple	MacBook Pro	Ultrabook	13.3	IPS Panel Retina Display 2560x1600	Intel Core i5 3.1GHz	8GB	256GB SSD	Intel Iris Plus Graphics 650	macOS	1.37kg	1803.60
...	...	...	...	...	...	...	...	...	...	...	...	...	...

Dataset Information

After
Cleaning

	Company	Product	TypeName	Ram	OpSys	Weight	Price	Touchscreen	IPS	ppi	cpuName	os	HDD	SSD	Flash	Hybrid
0	Apple	MacBook Pro	Ultrabook	8	macOS	1.37	1339.69	0	1	226.983005	Intel Core i5	Mac	0	128	0	0
1	Apple	Macbook Air	Ultrabook	8	macOS	1.34	898.94	0	0	127.677940	Intel Core i5	Mac	0	0	128	0
2	HP	250 G6	Notebook	8	No OS	1.86	575.00	0	0	141.211998	Intel Core i5	Others OS/Linux	0	256	0	0
3	Apple	MacBook Pro	Ultrabook	16	macOS	1.83	2537.45	0	1	220.534624	Intel Core i7	Mac	0	512	0	0
4	Apple	MacBook Pro	Ultrabook	8	macOS	1.37	1803.60	0	1	226.983005	Intel Core i5	Mac	0	256	0	0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Challenges

1

Most of the Columns was object

2

We find some nulls and wrong values

3

Split & Change types of columns

4

features engineering to improve results of models

EDA Questions

01 What is the average price of laptops per company?

02 What is the minimum weight of laptops for each company ?

03 What is the company of the most expensive laptops?
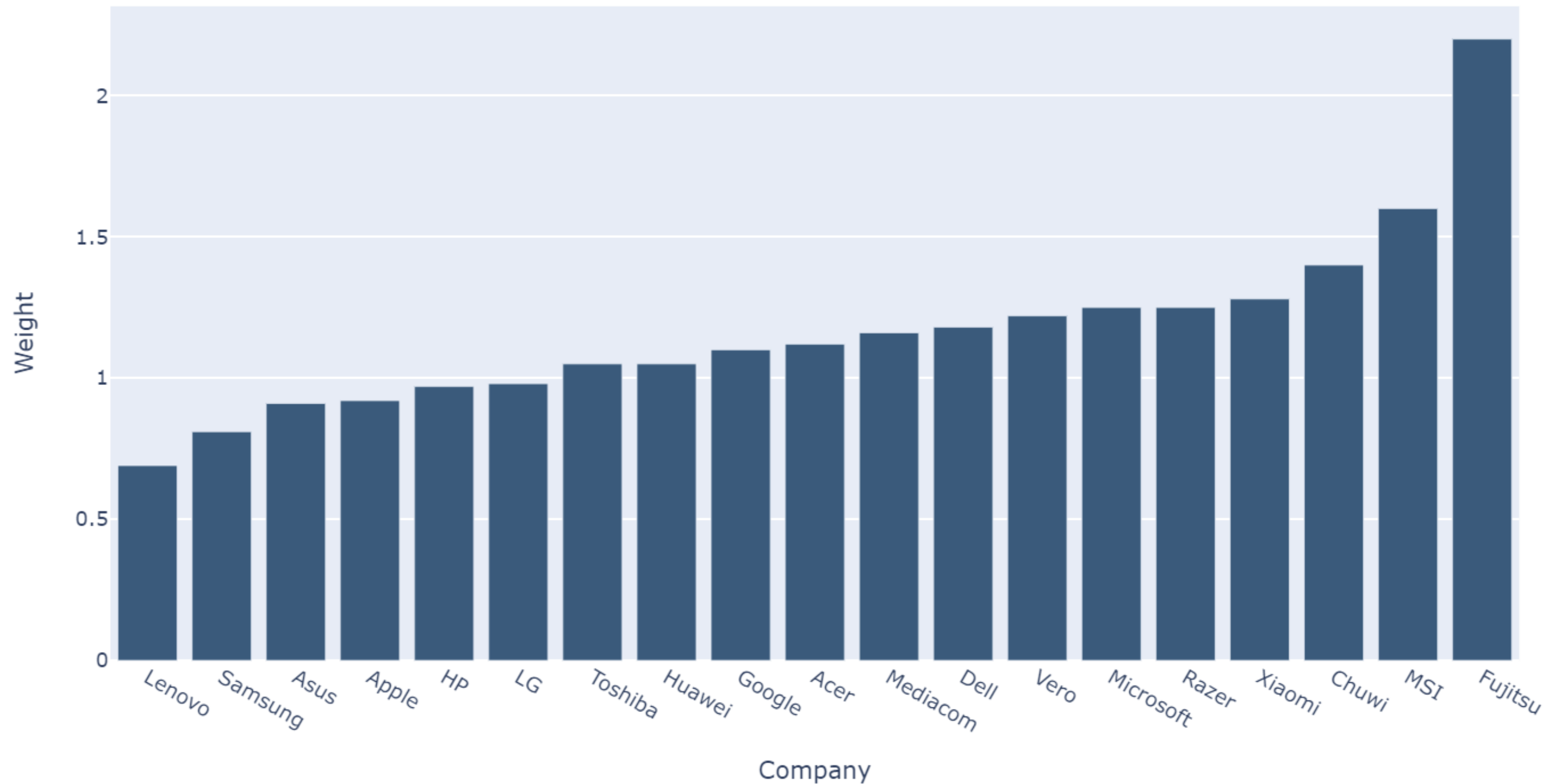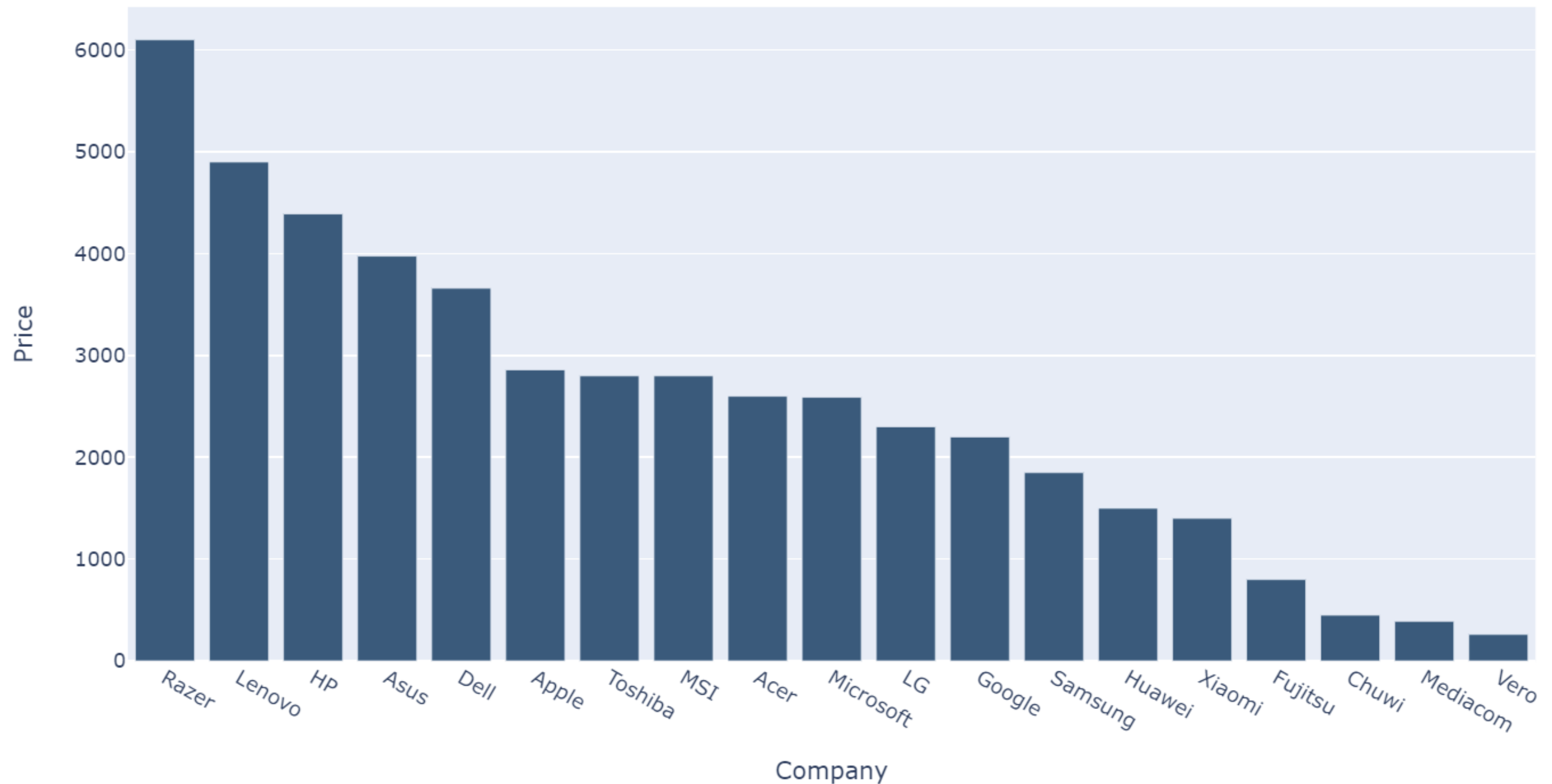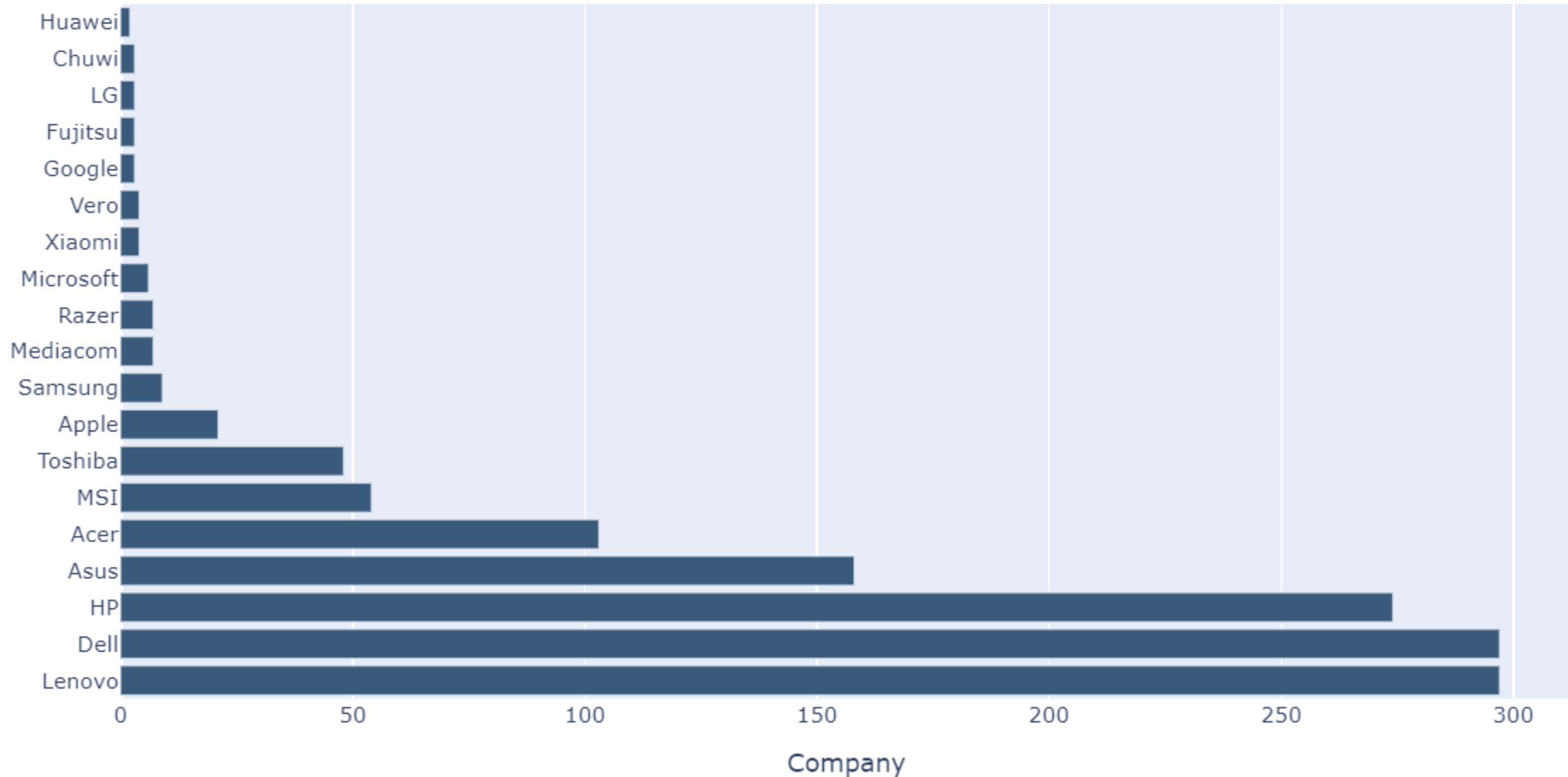
04 What is the common hard drive used for every laptop?

05 Which brand is the most frequent in the dataframe?

1. What is the average price of laptops per company?
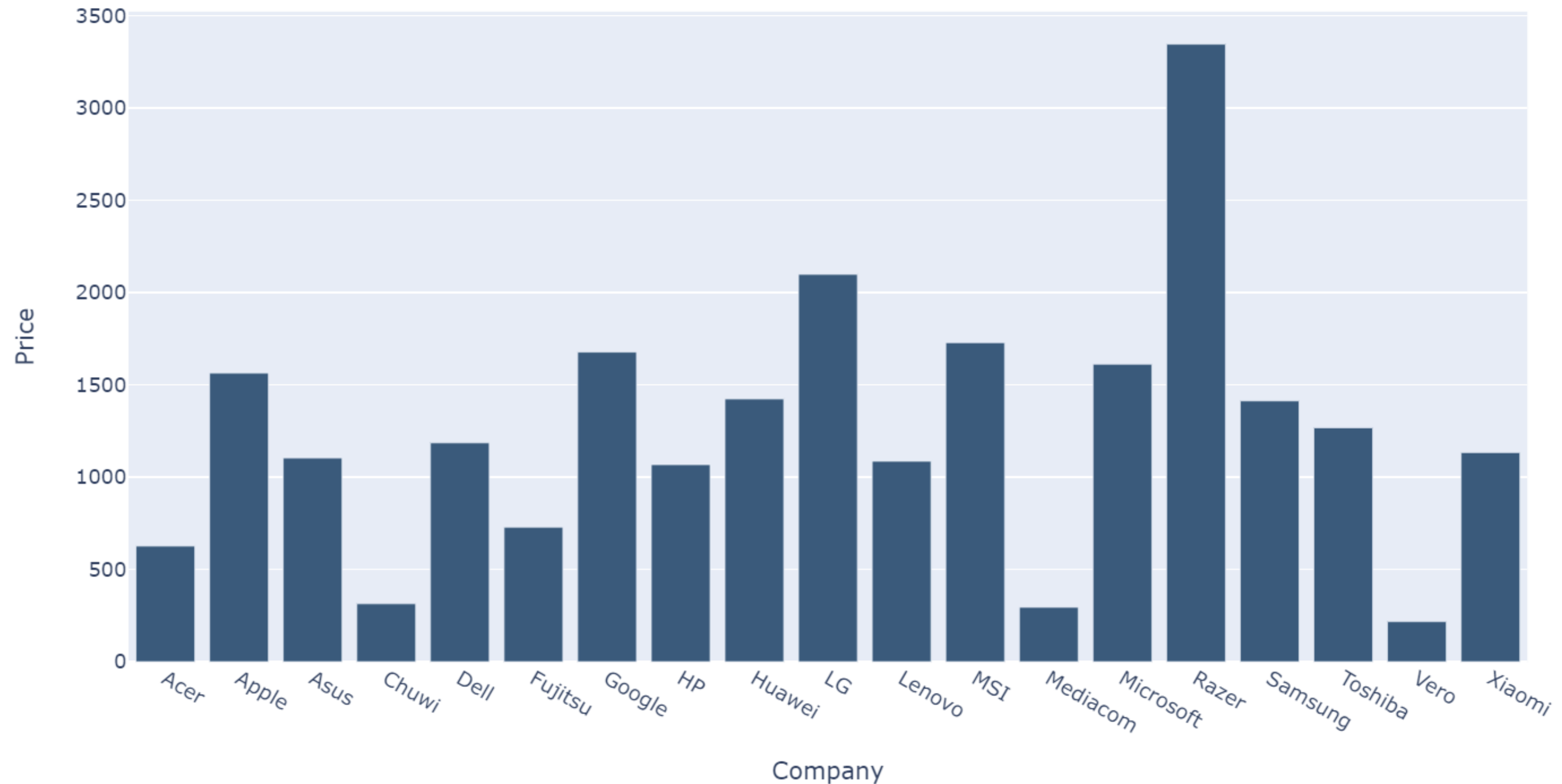
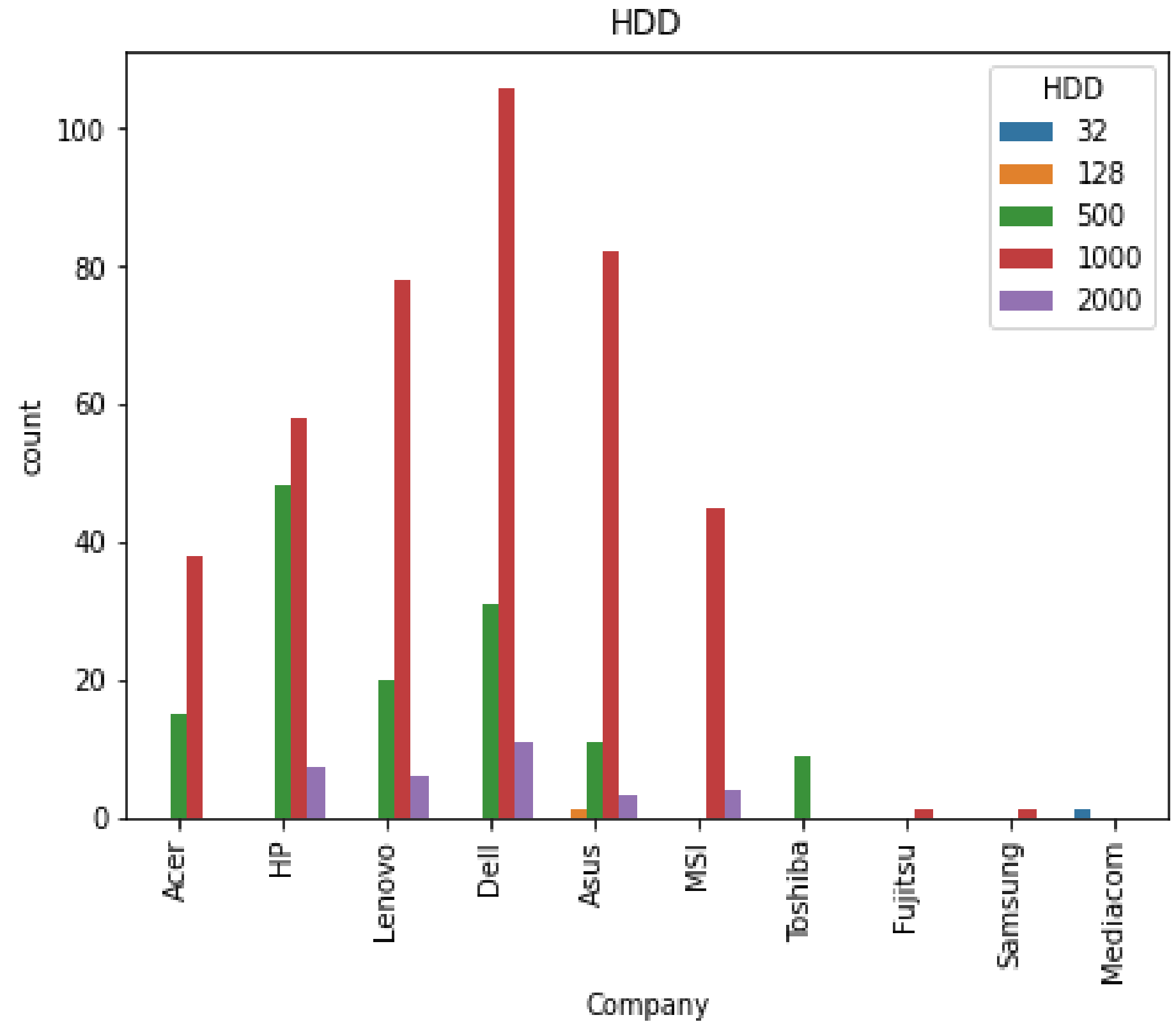# 2. What is the minimum weight of laptops for each company ?
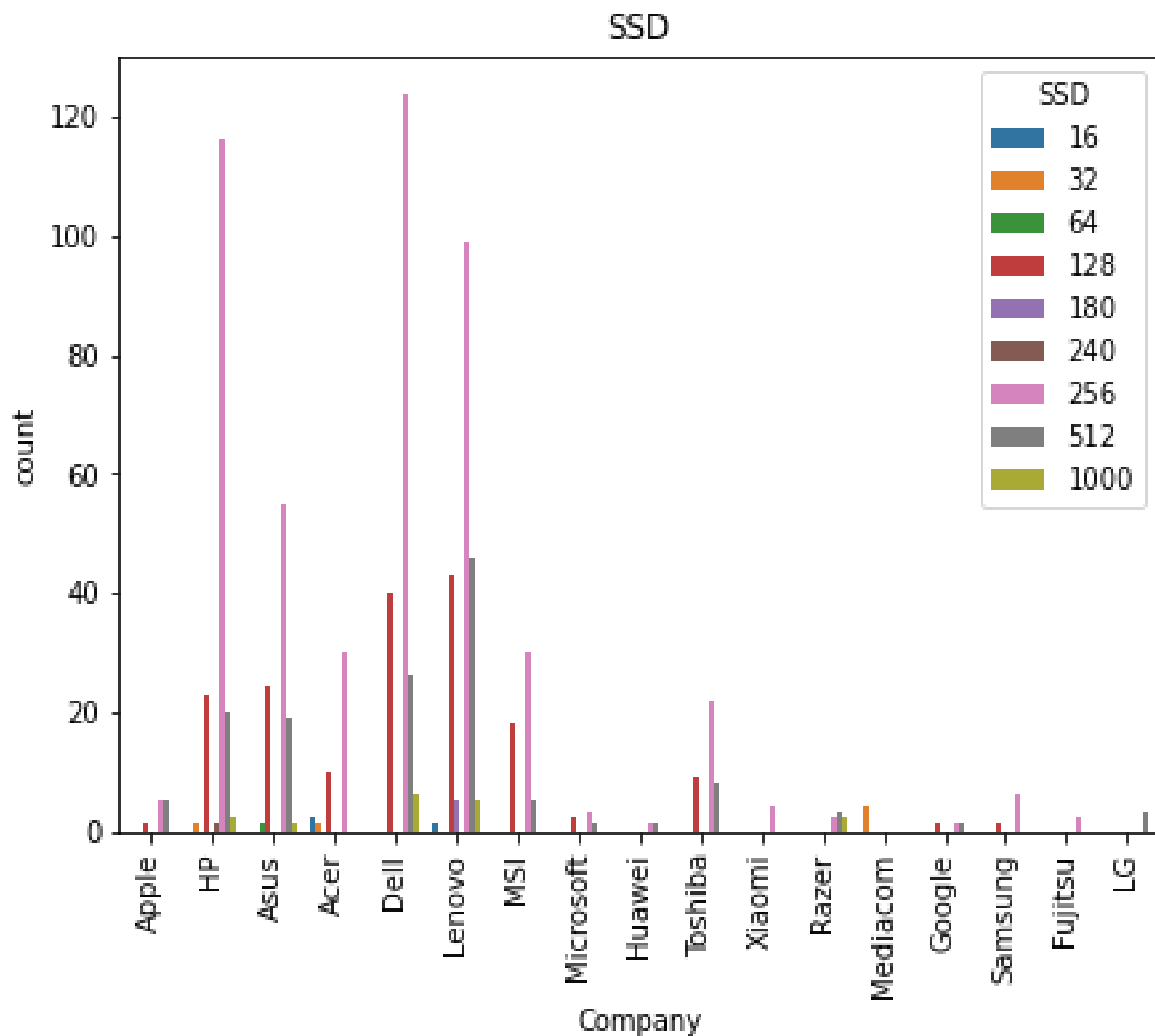
3. What is the company of the most expensive laptops?

4. Which brand is the most frequent in the dataframe?
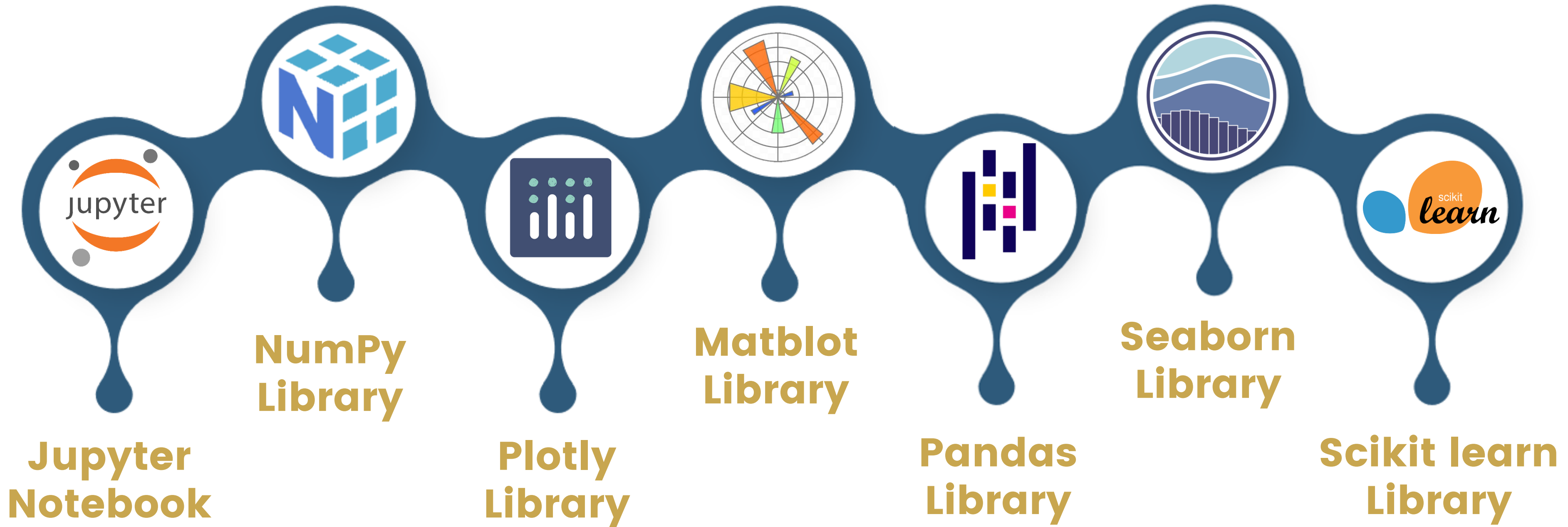
5. What is the common hard drive used for every laptop?

Regression Model

Algorithms	R^2	
	Validation	Test
Linear Regression	0.83	0.82
Decision Tree Regression	0.73	0.74
Polynomial Regression	0.80	0.77

Conclusions

Companies can now set goals for laptop production or use, for example, browsing and designs for study/work, or games and programmers, with these goals they can set sufficient specifications that maintain the quality and reasonable prices of what they were made for without exaggeration.

Tools

Jupyter Notebook

NumPy Library

Plotly Library

Matblot Library

Pandas Library

Seaborn Library

Scikit learn Library

Thank You!

Any Questions?

| Abdulmajeed | Nouf | Ahmad |

Github @AbdulamjeedAlnefaie   Github @NoufAlshabani   Github @AhmadHakami