LAPTOP PRICE DEPENDENCY FACTORS

My analysis is offering multiple options to our prospective customers so they could decide which laptop they'd like to purchase. The factors they could refer to are Price, Popularity, Brand, Processor, CPU, RAM, ROM, GPU & Operating systems.

Analysis performed using Dataset from www.Kaggle.com

https://github.com/ASI11006/LAPTOP-PRICE-DEPENDENCY-FACTORS.ipynb

```
import pandas as pd
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import plotly.express as px
from plotly.offline import iplot,plot
from plotly.subplots import make_subplots
```

```
df = pd.read_csv('Downloads\data.csv')
```

```
# Shape of DataSet
df.shape
```

```
(893, 18)
```

```
df.head()
```

	Unnamed: 0.1	Unnamed: 0	brand	name	price	spec_rating	processor	CPU	Ram	Ram_type	ROM	ROM_type	GPU	display_size	resc
0	0	0	HP	Victus 15-fb0157AX Gaming Laptop	49900	73.000000	5th Gen AMD Ryzen 5 5600H	Hexa Core, 12 Threads	8GB	DDR4	512GB	SSD	4GB AMD Radeon RX 6500M	15.6	
1	1	1	HP	15s-fq5007TU Laptop	39900	60.000000	12th Gen Intel Core i3 1215U	Hexa Core (2P + 4E), 8 Threads	8GB	DDR4	512GB	SSD	Intel UHD Graphics	15.6	
2	2	2	Acer	One 14 Z8-415 Laptop	26990	69.323529	11th Gen Intel Core i3 1115G4	Dual Core, 4 Threads	8GB	DDR4	512GB	SSD	Intel Iris Xe Graphics	14.0	
3	3	3	Lenovo	Yoga Slim 6 14IAP8 82WU0095IN Laptop	59729	66.000000	12th Gen Intel Core i5 1240P	12 Cores (4P + 8E), 16 Threads	16GB	LPDDR5	512GB	SSD	Intel Integrated Iris Xe	14.0	
4	4	4	Apple	MacBook Air 2020 MGND3HN Laptop	69990	69.323529	Apple M1	Octa Core (4P + 4E)	8GB	DDR4	256GB	SSD	Apple M1 Integrated Graphics	13.3	

GLIMPSE OF MY DATASET & LIBRARIES IMPORTED

```
#CLEAN DATASET AND GETTING INFO AGAIN
df.drop(columns=['Unnamed: 0.1','Unnamed: 0'],inplace=True)
```

```
df.shape
```

```
(893, 16)
```

```
df.describe(exclude=np.number)
```

	brand	name	processor	CPU	Ram	Ram_type	ROM	ROM_type	GPU	OS
count	893	893	893	893	893	893	893	893	893	893
unique	30	815	184	29	7	12	7	2	134	14
top	HP	Inspiron 3525 Laptop	12th Gen Intel Core i5 1235U	Quad Core, 8 Threads	16GB	DDR4	512GB	SSD	Intel Iris Xe Graphics	Windows 11 OS
freq	186	4	49	130	456	499	634	872	107	782

Find Top 10 Brands in the World

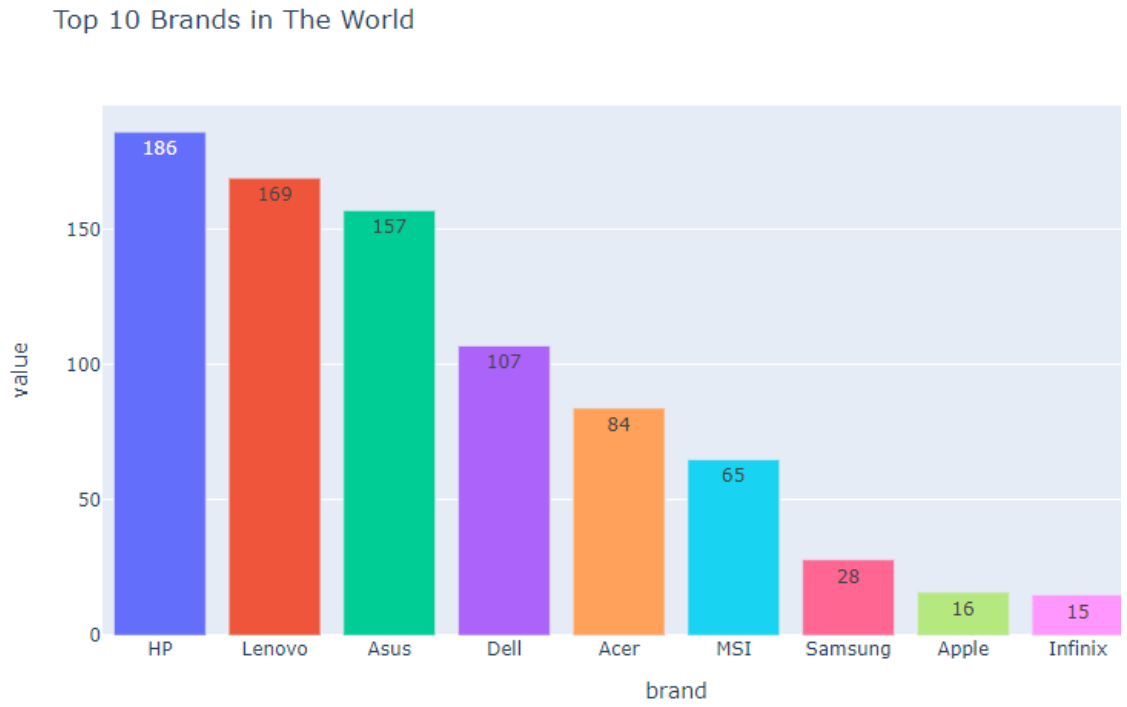
The most popular brand in the market is ‘HP’

```
# Top 10 Brand in the World
brand = df['brand'].value_counts().sort_values(ascending=False)[:10]
```

```
print(f"The highest popular brand in the market is '{brand.idxmax()}'")
```

```
The highest popular brand in the market is 'HP'
```

```
iplot(px.bar(brand,
             color=brand.index,
             text_auto=True,
             labels={'index':'Name of Brand'},
             title='Top 10 Brands in The World',
))
```



PRICE PER BRAND ANALYSIS

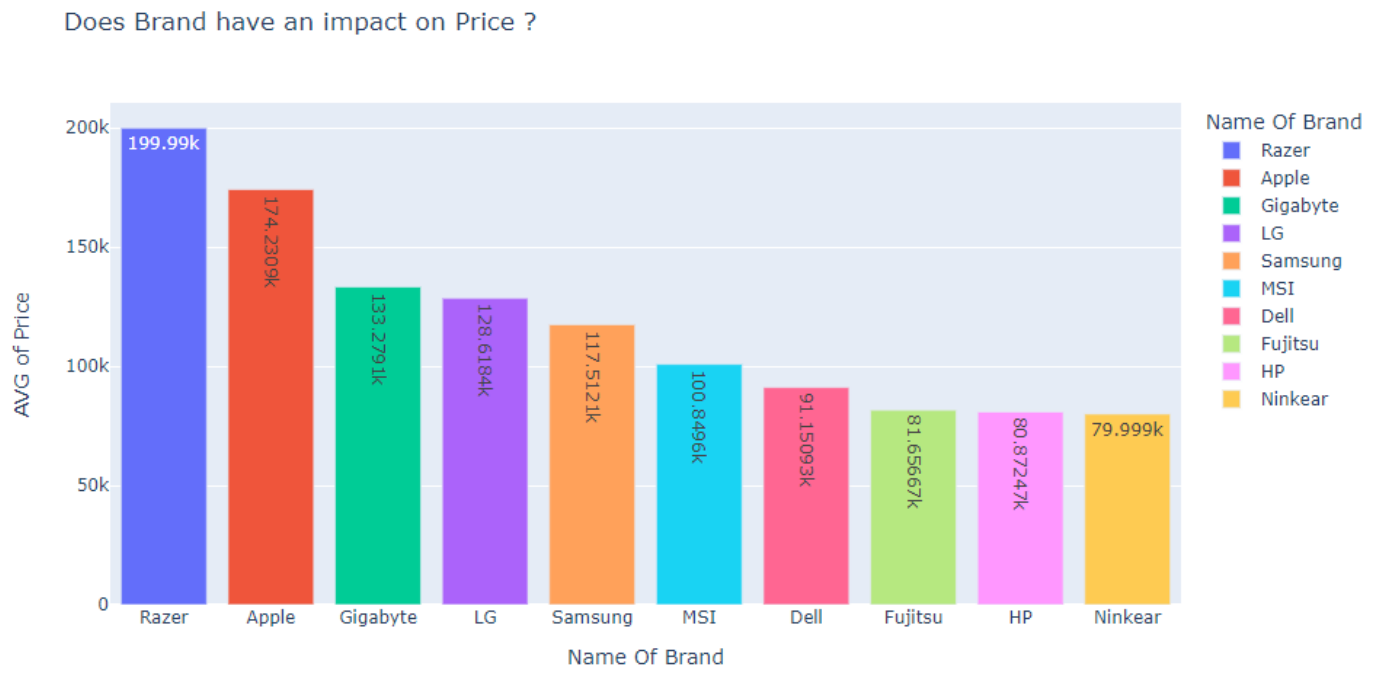
HERE WE SEE THE MOST EXPENSIVE BRAND IS 'RAZER'

```
#PRICE PER BRAND
price_brand = df.groupby('brand')['price'].mean().sort_values(ascending=False)[:10]
```

```
print(f"Most expensive brand in the market '{price_brand.idxmax()}'")
```

```
Most expensive brand in the market 'Razer'
```

```
iplot(px.bar(price_brand,
             color=price_brand.index,
             labels={'brand':'Name Of Brand','value':'AVG of Price'},
             text_auto=True,
             title='Does Brand have an impact on Price ?'))
```



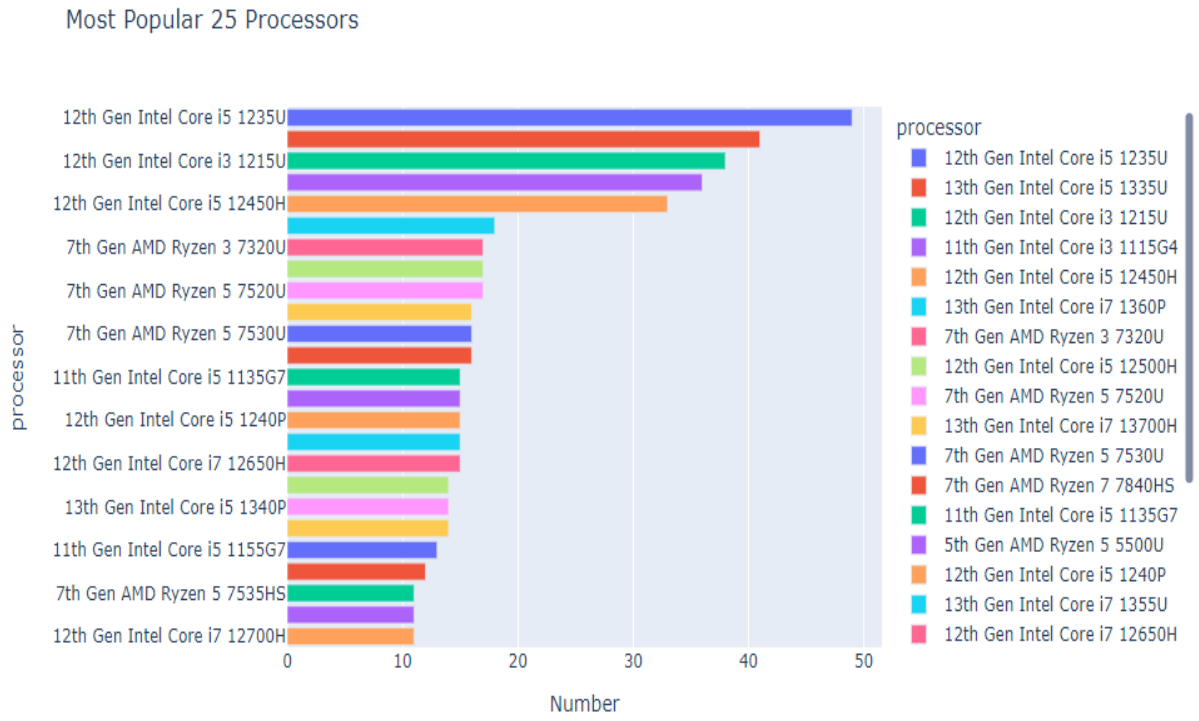
Top Processor used in Laptops is ‘12th Gen Intel Core i5 1235U with 49 winners

```
processor = df['processor'].value_counts()[:25]
```

```
print(f"Top Processor Use in Laptops is '{processor.idxmax()}' with '{processor.max()}'")
```

```
Top Processor Use in Laptops is '12th Gen Intel Core i5 1235U' with '49'
```

```
iplot(px.bar(processor,
             color=processor.index,
             labels={'value':'Number','index':'Name of Processor'},
             title='Most Popular 25 Processors',
             orientation='h',
))
```



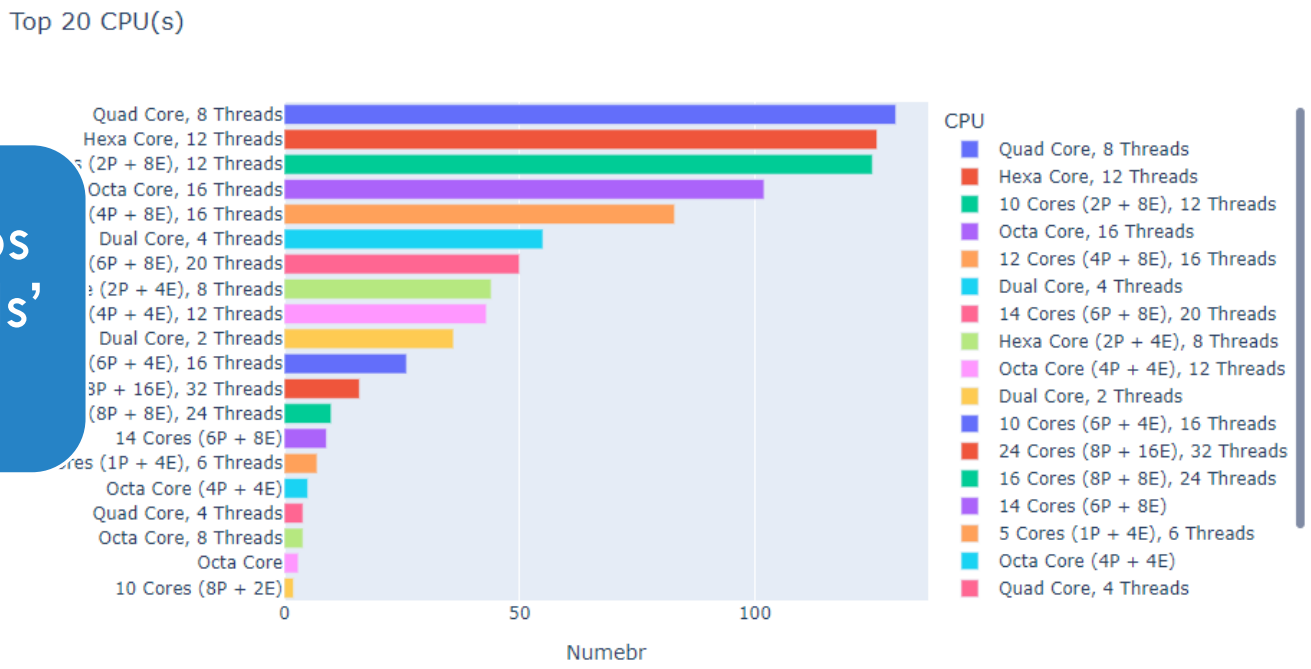
Top CPU used in Laptops is ‘Quad Core, 8 Threads’ with 130 winners

```
#CPU
cpu = df['CPU'].value_counts()[:20]
```

```
print(f"Top CPU used in Laptops is '{cpu.idxmax()}' with '{cpu.max()}'")
```

```
Top CPU used in Laptops is 'Quad Core, 8 Threads' with '130'
```

```
iplot(px.bar(cpu,
             color=cpu.index,
             labels={'value':'Numebr','index':'Name of CPU'},
             title='Top 20 CPU(s)',
             orientation='h',
))
```



```
#RAM SIZES & TYPES
ram = df['Ram'].value_counts()
```

```
print(f"Most Popular RAM size used in laptops is '{ram.idxmax()}' with '{ram.max()}'")
```

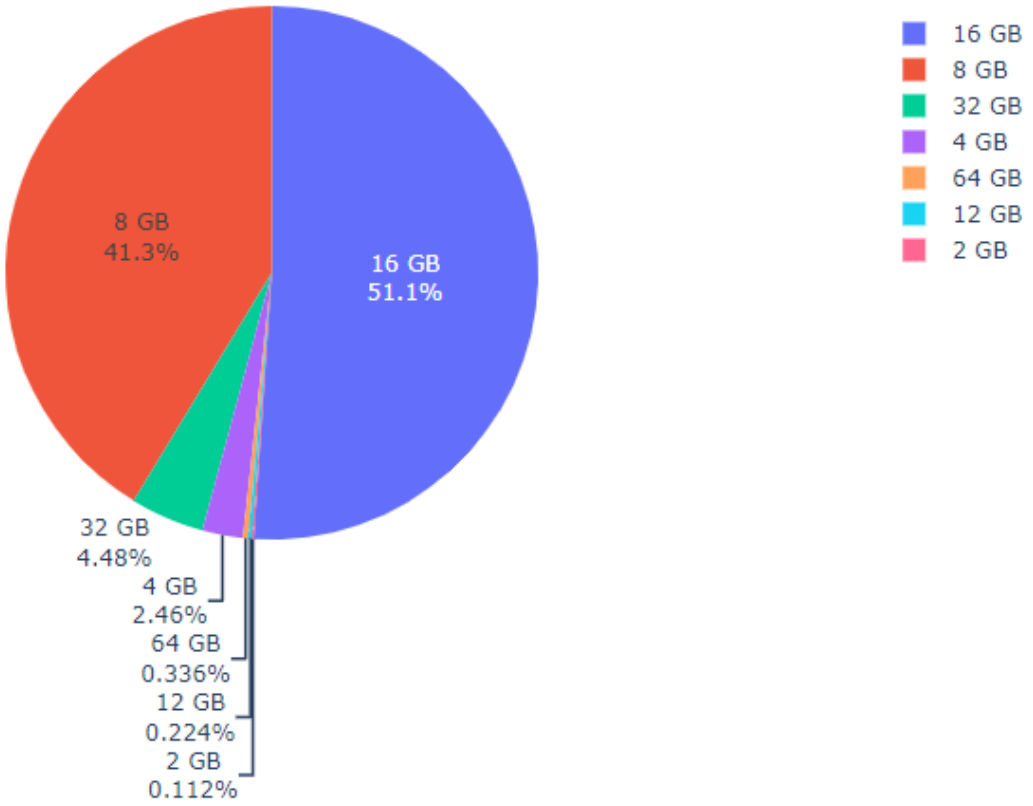
```
Most Popular RAM size used in laptops is '16GB' with '456'
```

```
iplot(px.pie(values=ram,
             names=['16 GB','8 GB','32 GB','4 GB','64 GB','12 GB','2 GB'],
             title='Most Popular RAM Size in Laptops'

).update_traces(textinfo='label+percent'))
```

51.1% of laptops in the market have 16GB RAM

t Popular RAM Size in Laptops



```
#ROM SIZES & TYPES
rom = df['ROM'].value_counts()
```

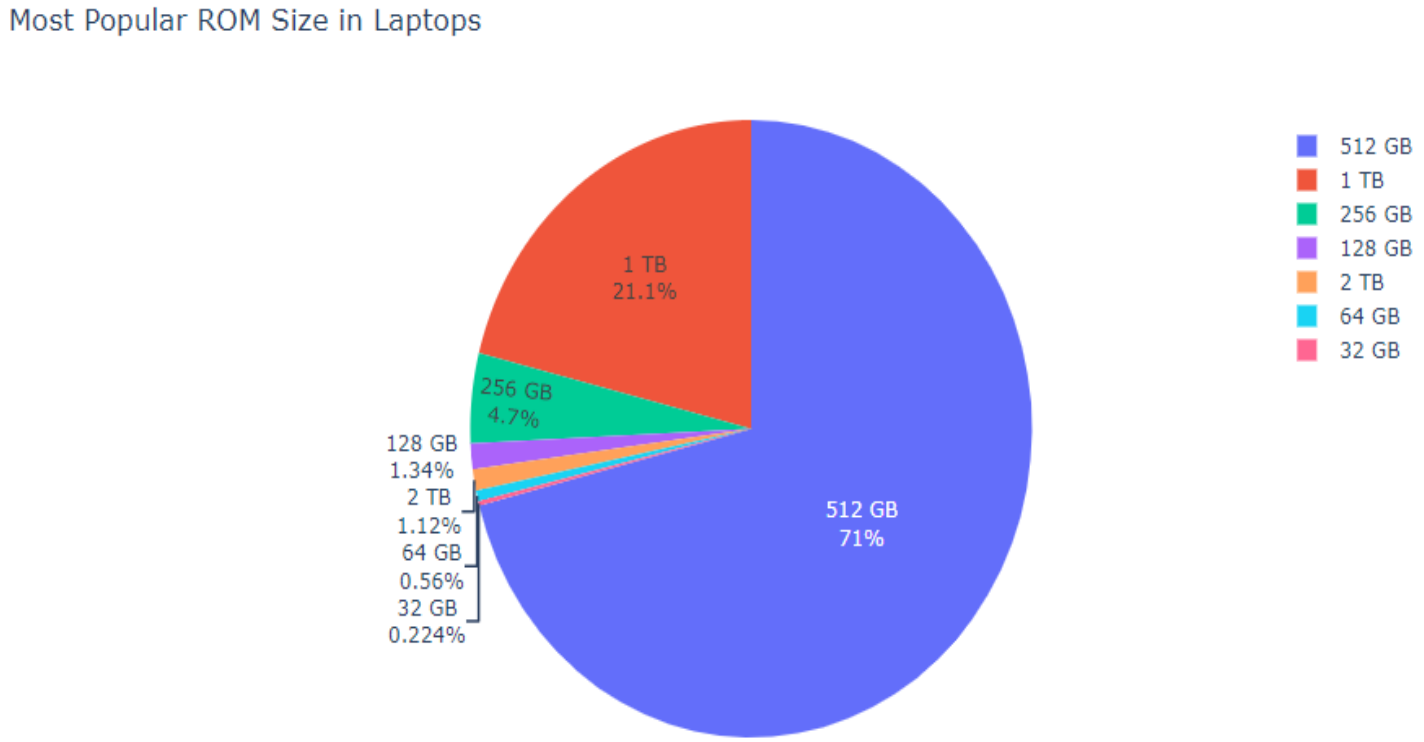
```
print(f"Most Popular ROM Size used in laptops is '{rom.idxmax()}' with '{rom.max()}'")
```

```
Most Popular ROM Size used in laptops is '512GB' with '634'
```

```
iplot(px.pie(values=rom,
             names=['512 GB','1 TB','256 GB','128 GB','2 TB','64 GB','32 GB'],
             title='Most Popular ROM Size in Laptops'

).update_traces(textinfo='label+percent'))
```

71% of laptops in the market have 512GB ROM which makes it most popular ROM size.



We have a clear winner for the ROM Type in Laptops – SSD. Hard Disks are a thing of past!

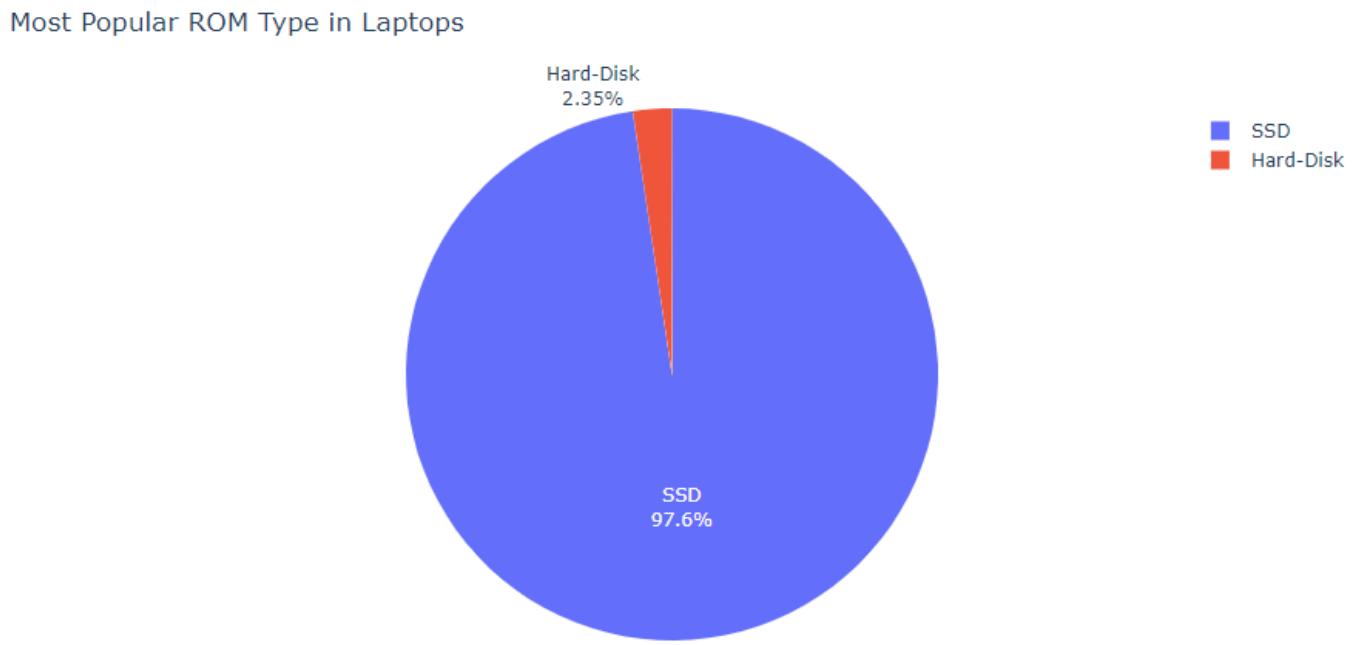
```
rom_type = df['ROM_type'].value_counts()
```

```
print(f"Most Popular ROM Type used in laptops is '{rom_type.idxmax()}' with '{rom_type.max()}'")
```

```
Most Popular ROM Type used in laptops is 'SSD' with '872'
```

```
iplot(px.pie(values=rom_type,
             names=['SSD','Hard-Disk'],
             title='Most Popular ROM Type in Laptops'

).update_traces(textinfo='label+percent'))
```



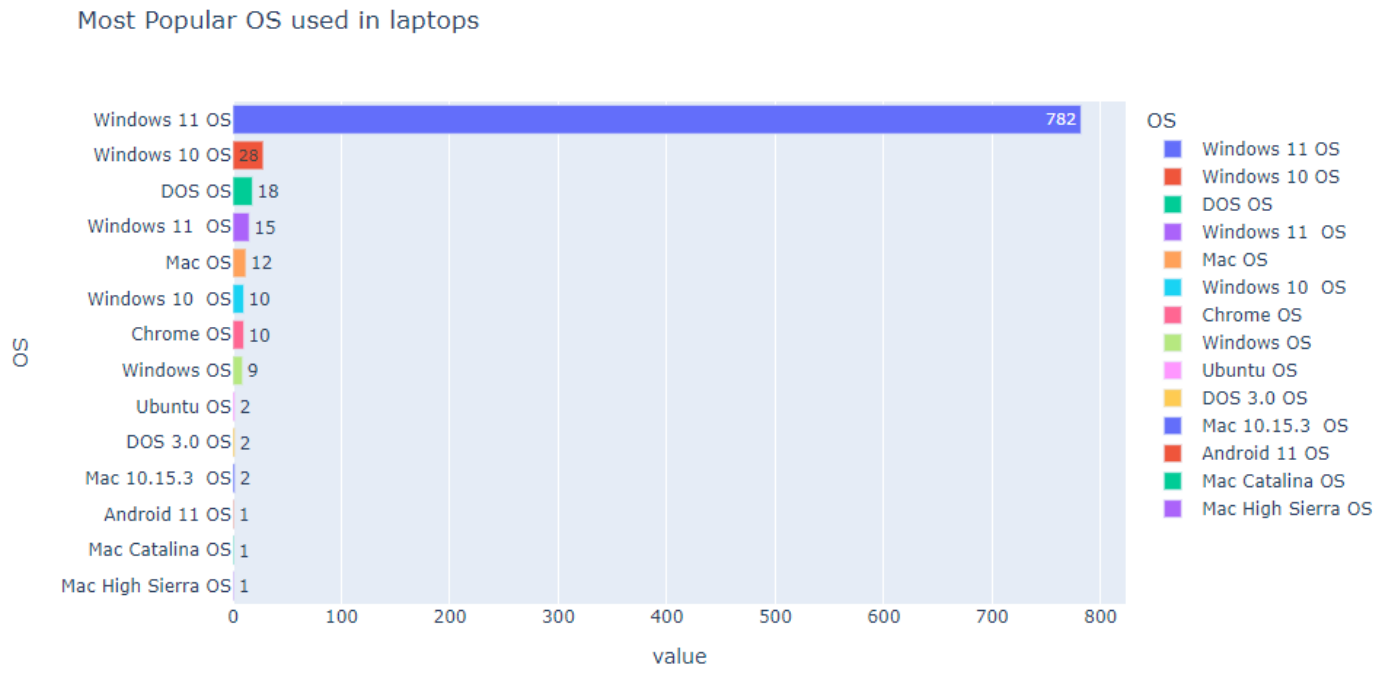
Most Popular OS used in Laptops is Windows 11 OS

```
#Operating System
os = df['OS'].value_counts()[:20]
```

```
print(f"Mostly used OS in laptops is '{os.idxmax()}' with '{os.max()}'")
```

```
Mostly used OS in laptops is 'Windows 11 OS' with '782'
```

```
iplot(px.bar(os,
             orientation='h',
             color=os.index,
             text_auto=True,
             labels={'index':'Name Of OS'},
             title='Most Popular OS used in laptops'
))
```



So, based on the analysis, my recommendation would be to purchase an HP Windows 11 with 12th Gen Intel Core i5 processor and a Quad Core, 8 Threads CPU with 16GB RAM and 512GB ROM