Exercise 9

```python
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd

from google.colab import files
uploaded = files.upload()
```

Choose Files No file chosen   Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

```python
data = pd.read_csv('Technological-Products-Sample-Data.csv')
df = pd.DataFrame(data)
df
```

|	Brand	Device	Model	Country of Origin	Date of Release	Price (USD)
0	Apple	iPhone	13 Pro Max	United States	9/24/2021	1099
1	Samsung	Galaxy	S21 Ultra	South Korea	1/29/2021	1199
2	Google	Pixel	6 Pro	United States	10/19/2021	899
3	Sony	PlayStation	5	Japan	11/12/2020	499
4	Microsoft	Surface	Laptop 4	United States	4/15/2021	999
5	Dell	XPS	13	United States	1/28/2021	999
6	HP	Spectre	x360	United States	4/16/2021	1349
7	Lenovo	ThinkPad	X1 Carbon	China	2/15/2021	1429
8	Asus	ROG	Zephyrus G14	Taiwan	3/15/2021	1499
9	Acer	Predator	Helios 300	Taiwan	2/17/2021	1299
10	Apple	MacBook	Pro 14-inch	United States	10/26/2021	1999
11	Samsung	Odyssey	G9	South Korea	7/22/2020	1699
12	Google	Pixelbook	Go	United States	6/17/2021	649
13	Sony	Xperia	1 III	Japan	8/19/2021	1299
14	Microsoft	Xbox	Series X	United States	11/10/2020	499
15	Dell	Alienware	m15 R5	United States	4/20/2021	1999
16	HP	Pavilion	x360	United States	5/14/2021	749
17	Lenovo	IdeaPad	5 Pro	China	3/10/2021	999
18	Asus	ZenBook	14	Taiwan	1/15/2021	799
19	Acer	Swift	3	Taiwan	2/10/2021	699
20	Apple	iPad	Pro 12.9-inch	United States	5/21/2021	1099
21	Samsung	Galaxy	Tab S7+	South Korea	8/21/2020	849
22	Google	Nest	Hub Max	United States	3/30/2021	229
23	Sony	WH	1000XM4	Malaysia	8/6/2020	349
24	Microsoft	Surface	Pro 8	United States	10/5/2021	899
25	Dell	UltraSharp	U2720Q	China	12/25/2020	499
26	HP	Elite	Dragonfly	United States	6/28/2021	1799
27	Lenovo	Legion	7i	China	4/5/2021	1499
28	Asus	TUF	Gaming A15	Taiwan	3/20/2021	1199
29	Acer	Aspire	5	Taiwan	1/30/2021	599

```python
# A. Read each device's dates of release and sales. Show it using a line plot.

plt.figure(figsize = (10, 6))
plt.plot(df['Date of Release'], df['Price (USD)'], color = 'blue')
plt.title('The Sales Over The Release Dates')
plt.xlabel('Dates')
plt.ylabel('Sales')
plt.xticks(rotation = 45)
plt.show()
```

The Sales Over The Release Dates
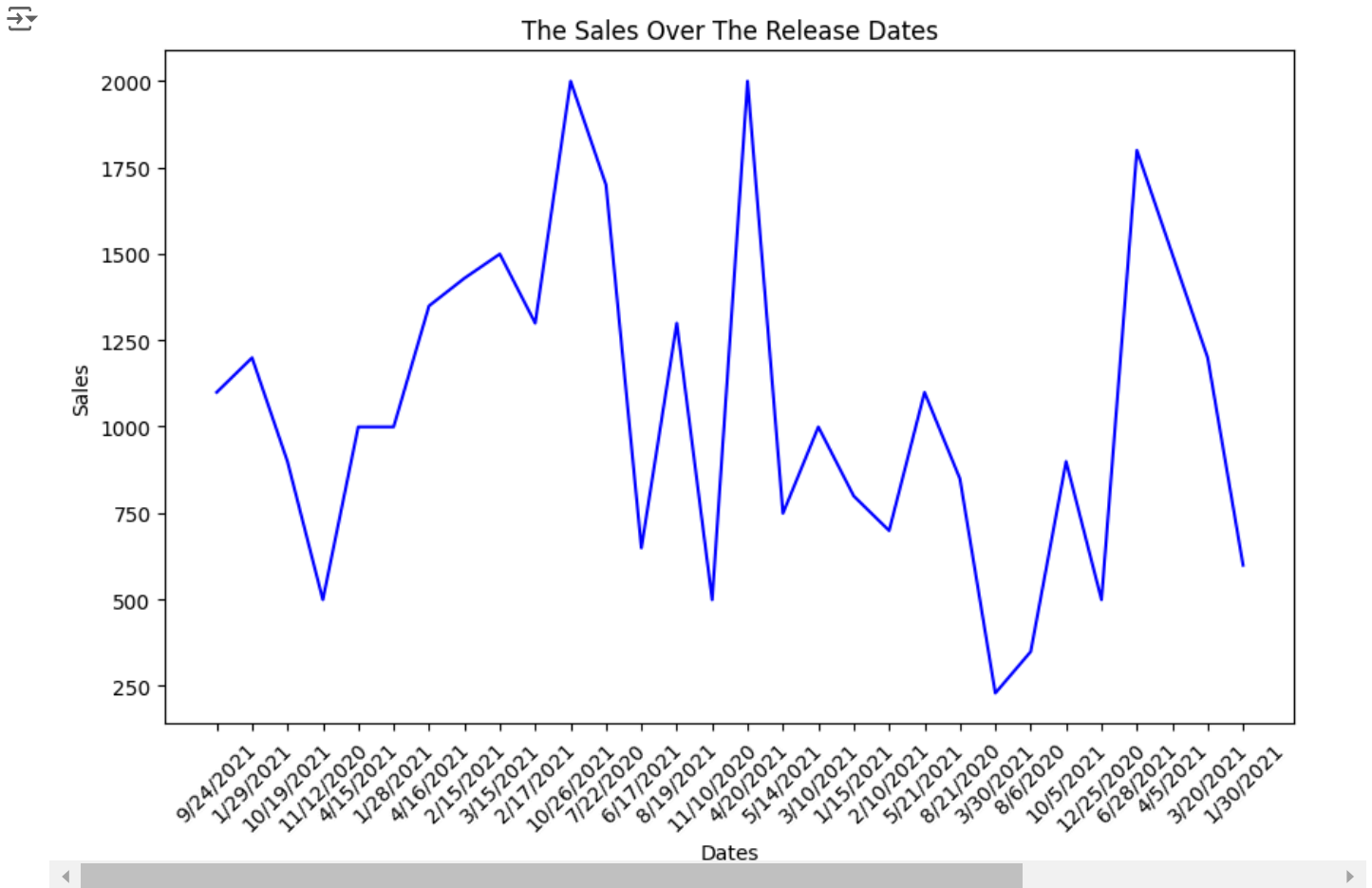
```
# B. Get the total sales and show the line plot with the follwing style properties.

plt.figure(figsize = (10, 6))
plt.plot(df['Date of Release'], df['Price (USD)'], linestyle = 'dotted', linewidth = 3, color = 'red', marker = 'o', labe
plt.title('The Sales Over The Release Dates')
plt.xlabel('Year')
plt.ylabel('Sales')
plt.xticks(rotation = 45)
plt.legend(loc = 'lower right')
plt.show()
```

The Sales Over The Release Dates
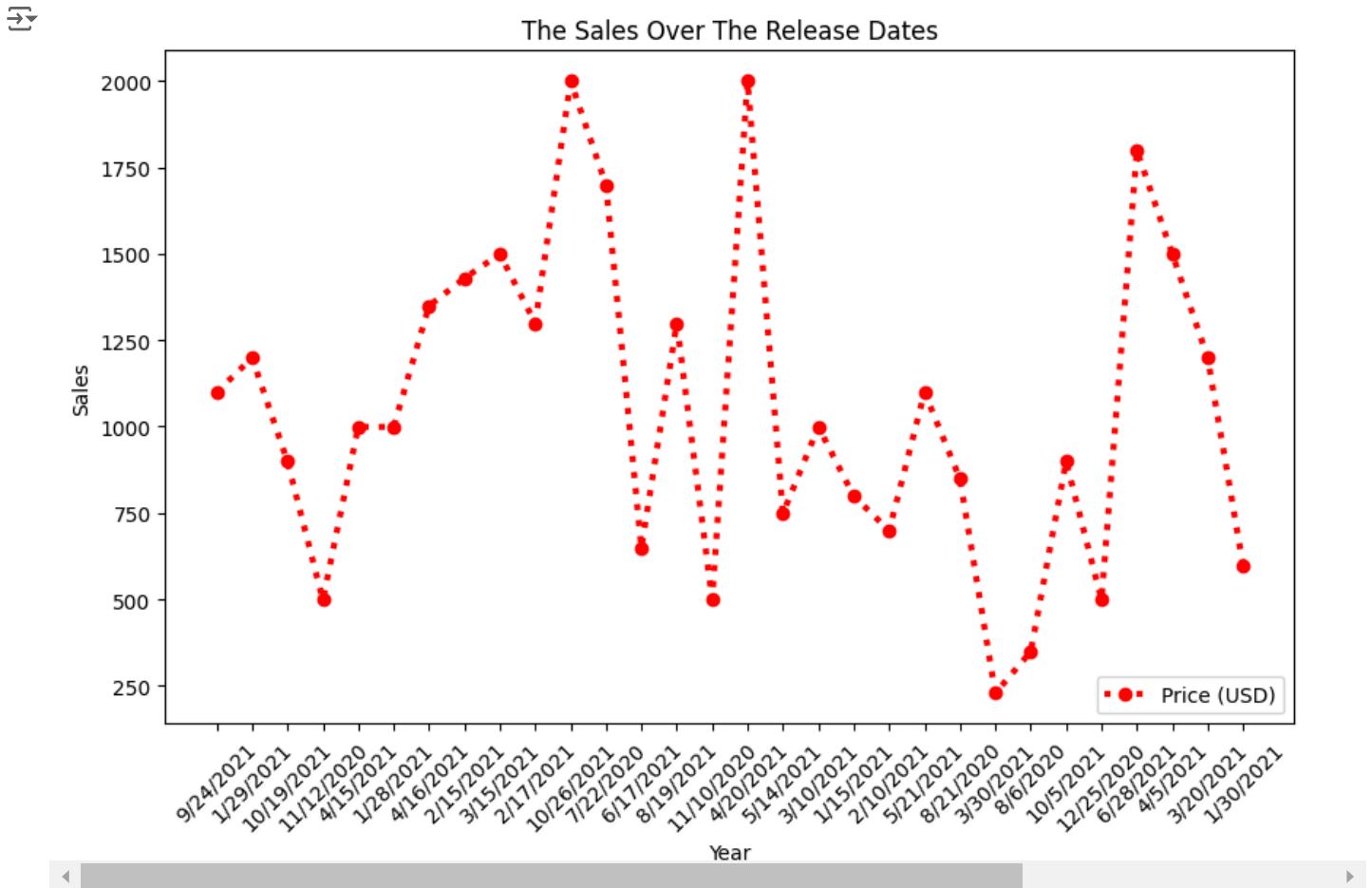
```
# C. Read all product sales data and show it using a multiline plot. Label them.

plt.figure(figsize = (10, 6))
for brand, data in df.groupby('Brand'):
    plt.plot(data['Device'], data['Price (USD)'], label = brand)
plt.title('The Product Sales')
plt.xlabel('Products')
plt.ylabel('Sales')
plt.xticks(rotation = 45)
plt.legend(loc = 'lower right')
plt.show()
```

The Product Sales
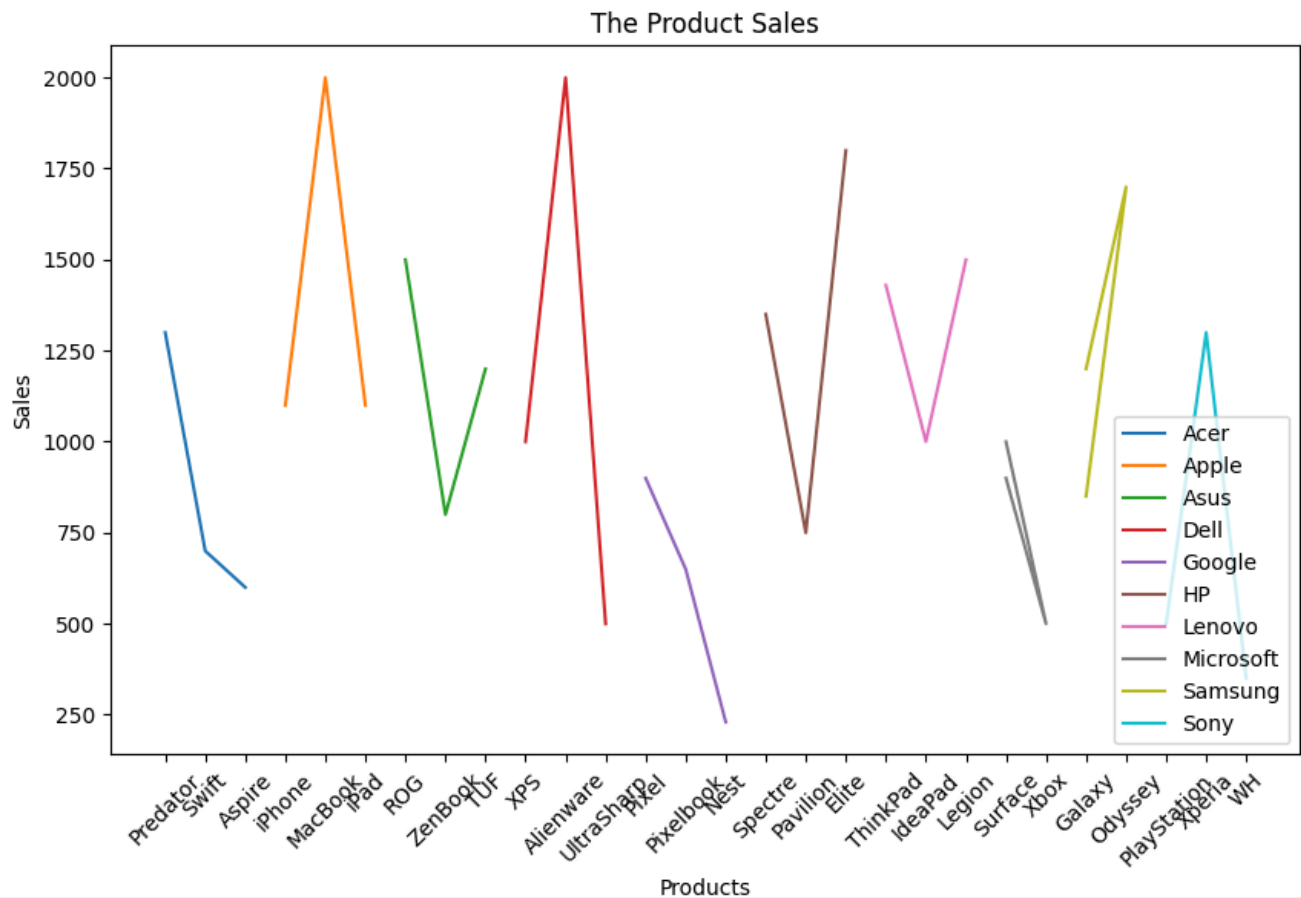
```
# D. Read each brand sales data and show it using the bar chart. Label them.

Brand = df.groupby('Brand')['Price (USD)'].sum()
plt.figure(figsize = (10, 6))
plt.bar(Brand.index, Brand.values)
plt.title('The Brand Sales')
plt.xlabel('Brands')
plt.ylabel('Sales')
plt.xticks(rotation = 45)
plt.show()
```

The Brand Sales
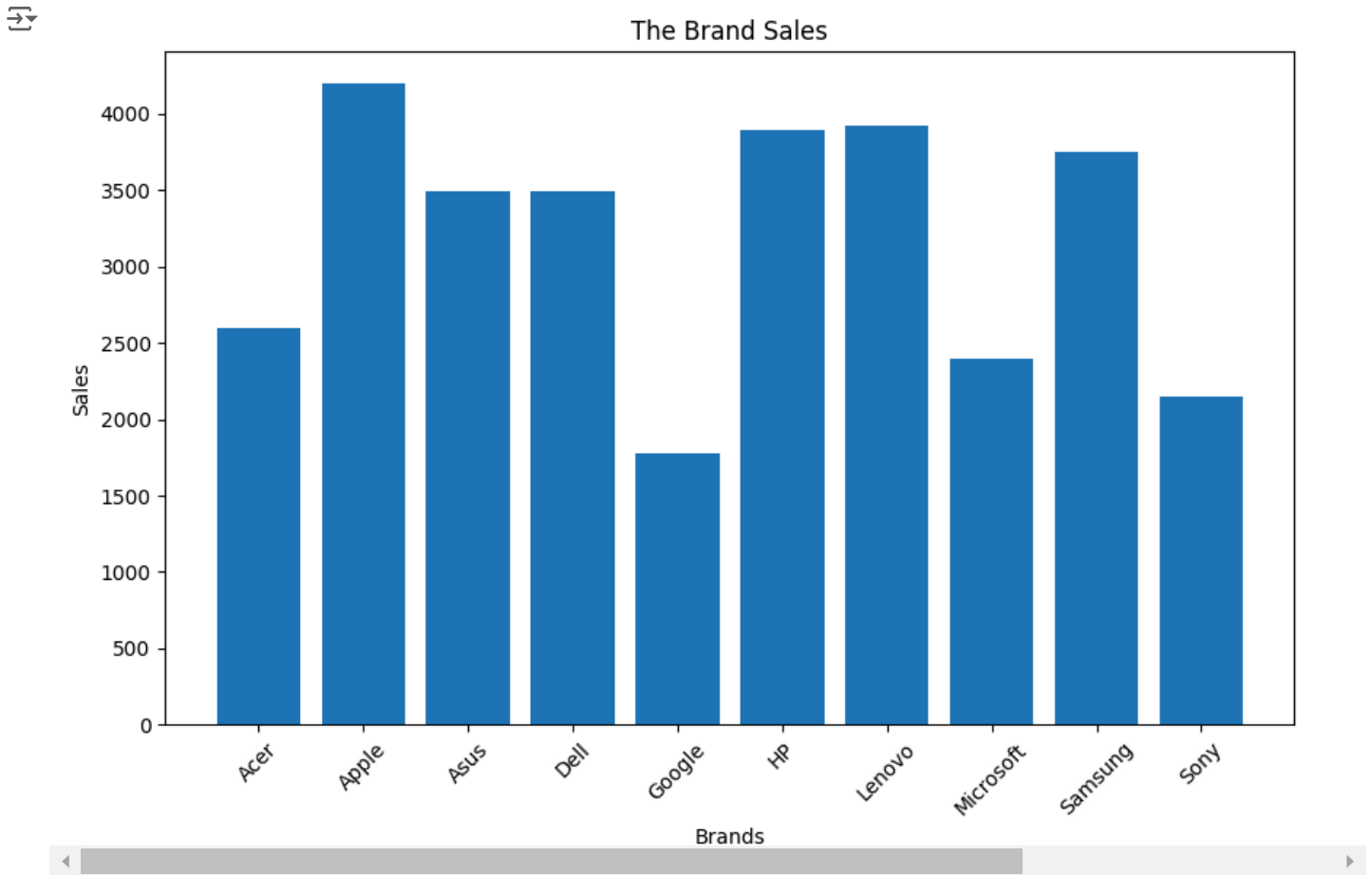

```python
# E. Read each device and show it using the histogram to see the most common country of origin. Label them.

Country = df['Country of Origin'].value_counts()
plt.figure(figsize = (10, 6))
plt.bar(Country.index, Country.values)
plt.title('Most Common Country of Origin')
plt.xlabel('Country of Origin')
plt.ylabel('Number of Devices')
plt.xticks(rotation = 45)
plt.show()
```

Most Common Country of Origin
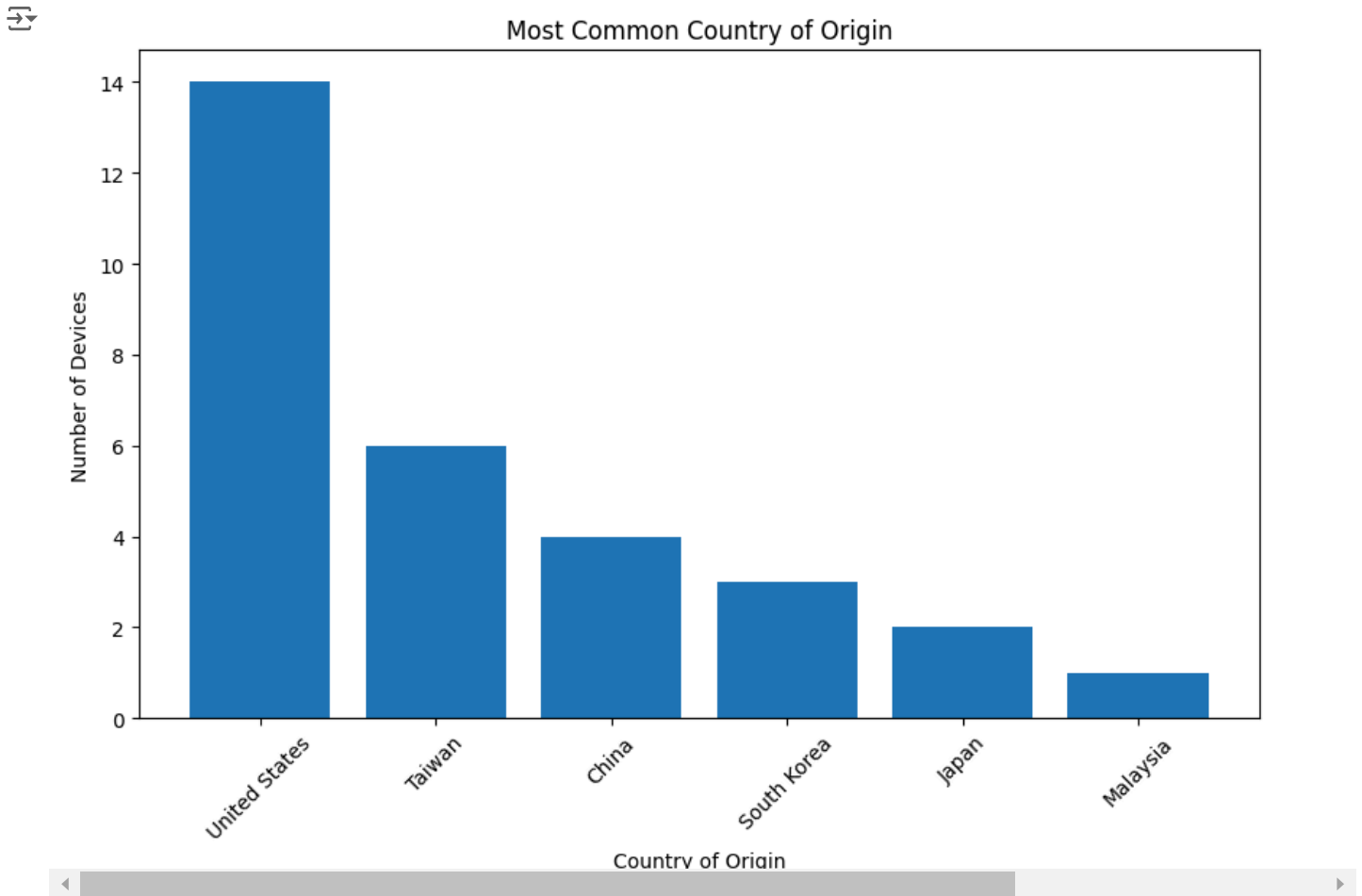

```python
# F. Create a pie chart that shows brand country of origin. Label them.

Country = df['Country of Origin'].value_counts()
plt.figure(figsize = (10, 6))
plt.pie(Country, autopct = '%1.1f%%', labels = Country.index)
plt.title('Most Common Country of Origin')
plt.xlabel('Country of Origin')
plt.ylabel('Number of Devices')
plt.legend(loc = 'lower right')
plt.show()
```

Most Common Country of Origin