

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline

import seaborn as sns
```

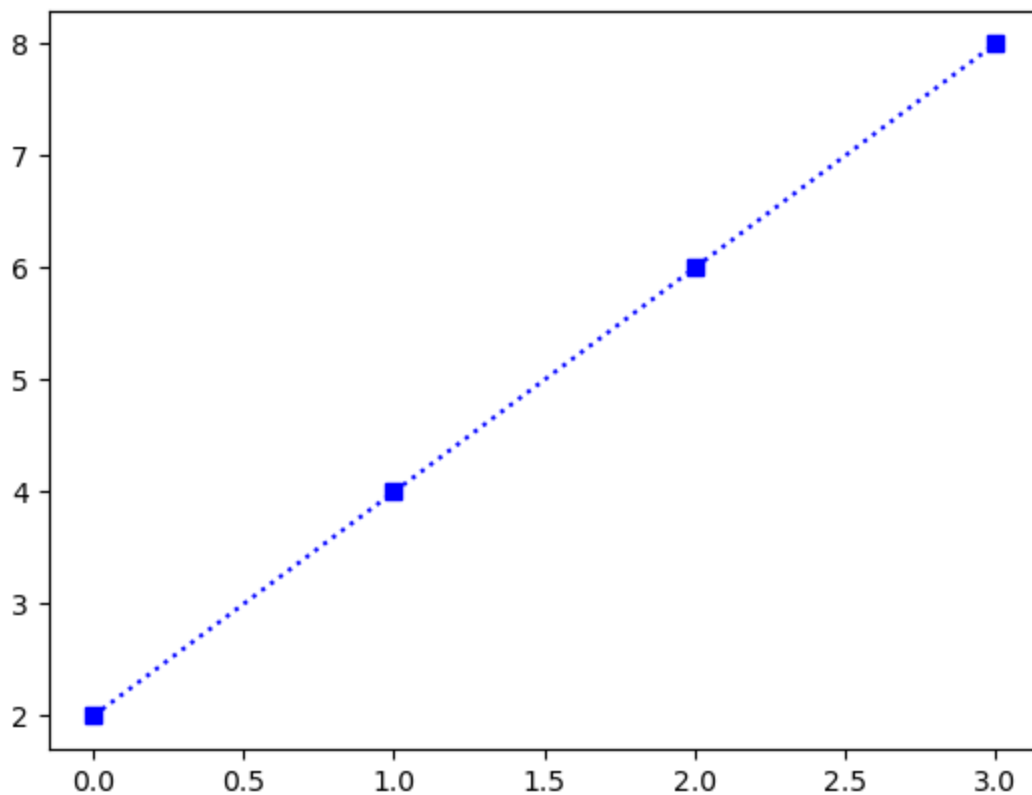
I) Line graph:

1.1) Plotting:

- Syntax: `plt.plot([x], y, [fmt_string])`
- Given `n` = #points; `x = (0....n-1)`

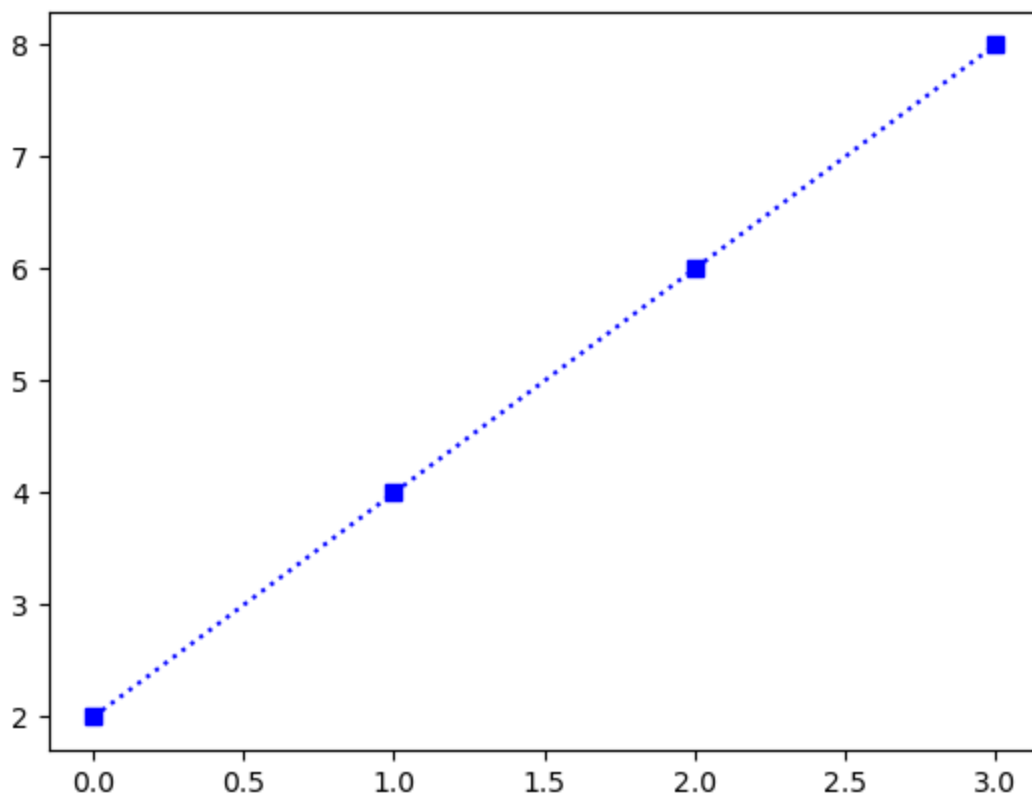
```
In [2]: plt.plot([0,1,2,3],[2,4,6,8], 'bs:')
```

```
Out[2]: [<matplotlib.lines.Line2D at 0x220a42358d0>]
```



```
In [3]: plt.plot([2,4,6,8], 'bs:')
```

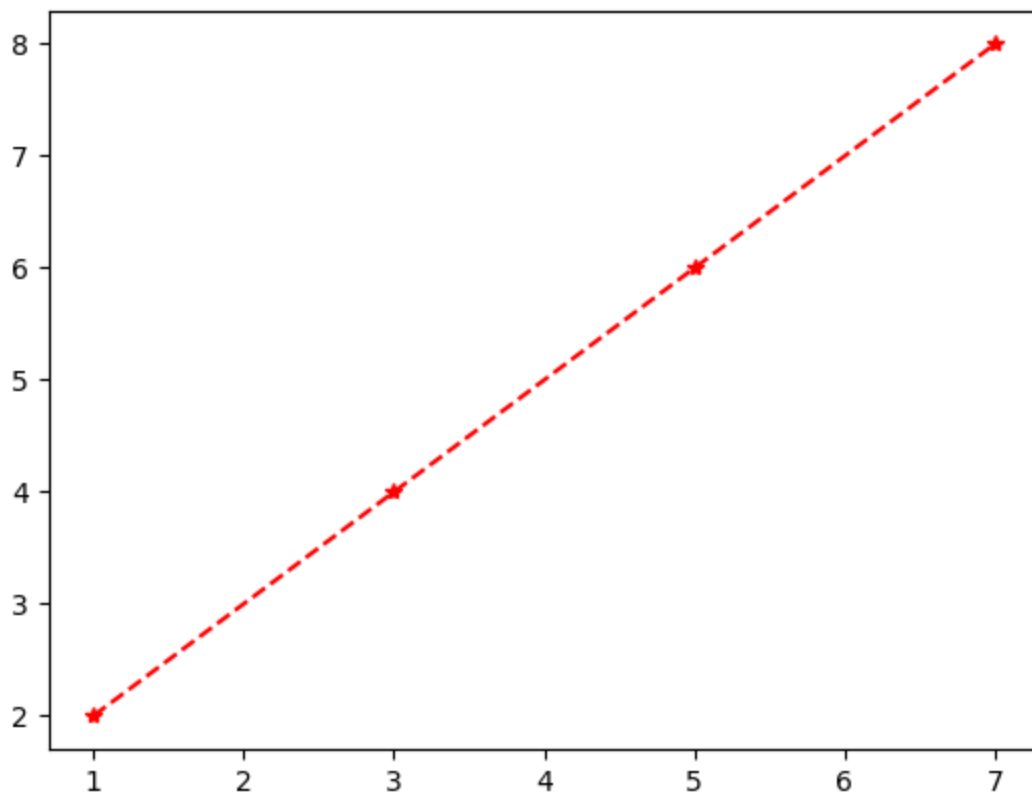
```
Out[3]: [<matplotlib.lines.Line2D at 0x220a4b0f010>]
```



```
In [4]: # Line= star markers, red in colour, dashed line.  
# X coords = odd nums  
# Y coords = even nums
```

```
In [5]: plt.plot([1,3,5,7],[2,4,6,8], 'r*--')
```

```
Out[5]: [<matplotlib.lines.Line2D at 0x220a4ba9bd0>]
```

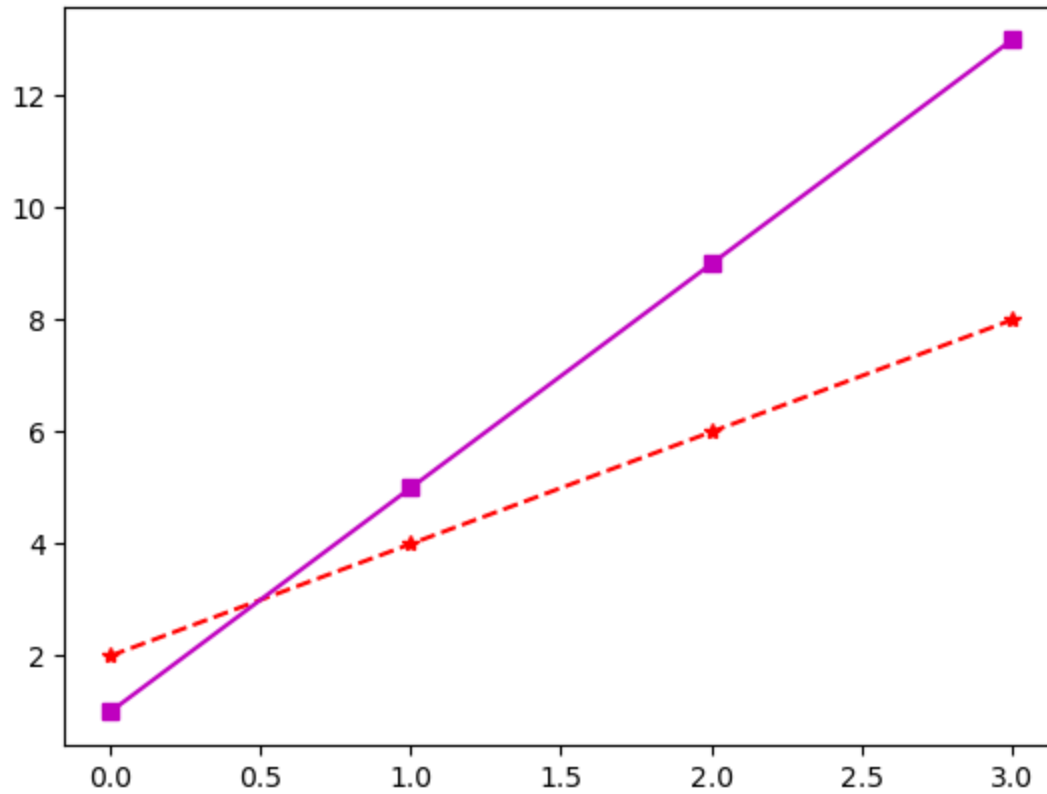


1.2) Plotting MULTIPLE data-pairs:

```
plt.plot([x], y1, [fmt_str1], y2, [fmt_str2] )
```

```
In [6]: plt.plot([2,4,6,8], 'r*--', [1,5,9,13], 'ms-')
```

```
Out[6]: [<matplotlib.lines.Line2D at 0x220a4c0f910>,  
<matplotlib.lines.Line2D at 0x220a4c0f9a0>]
```

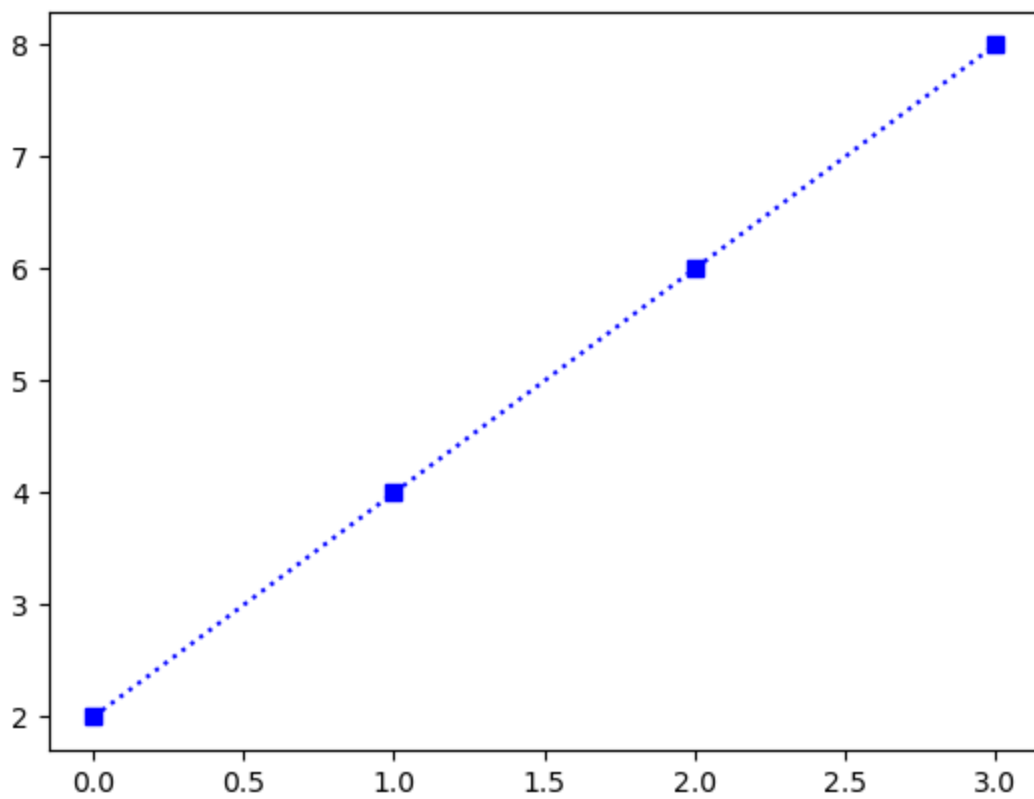


1.3) Modifying the appearance of the lines:

- `linewidth`
- `markersize`

```
In [7]: plt.plot([2,4,6,8], 'bs:')
```

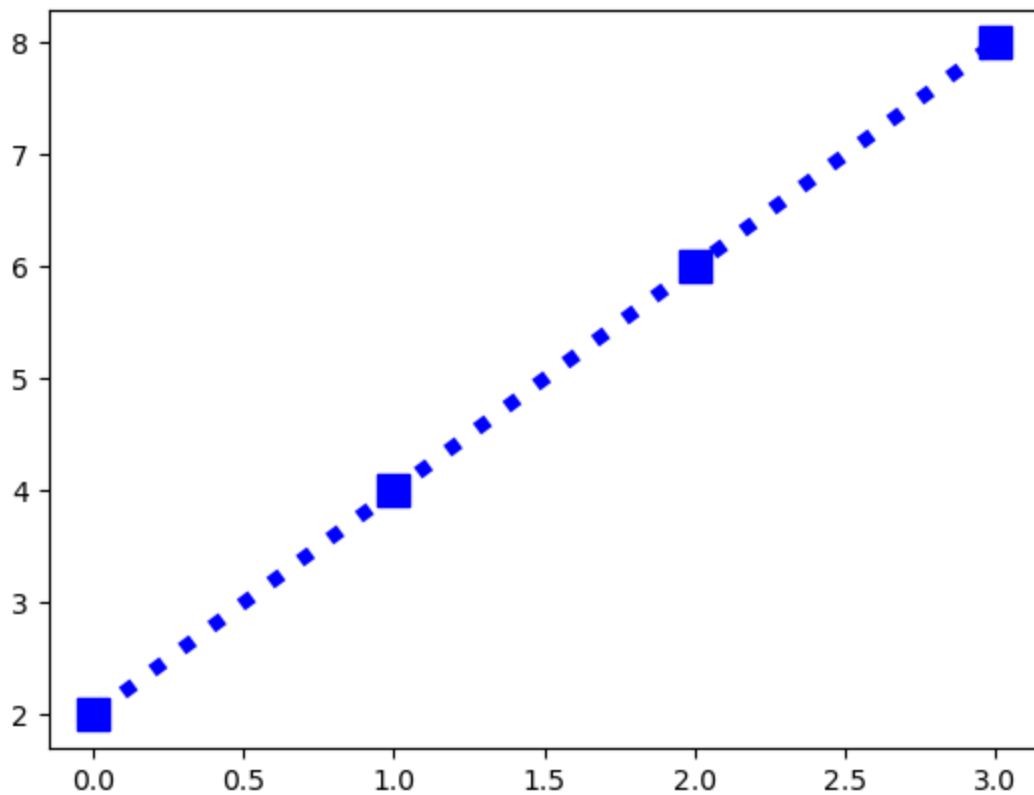
```
Out[7]: [<matplotlib.lines.Line2D at 0x220a4bd3610>]
```



Versus

```
In [8]: plt.plot([2,4,6,8], 'bs:', linewidth = 5, markersize = 12)
```

```
Out[8]: [ <matplotlib.lines.Line2D at 0x220a4d34100>]
```



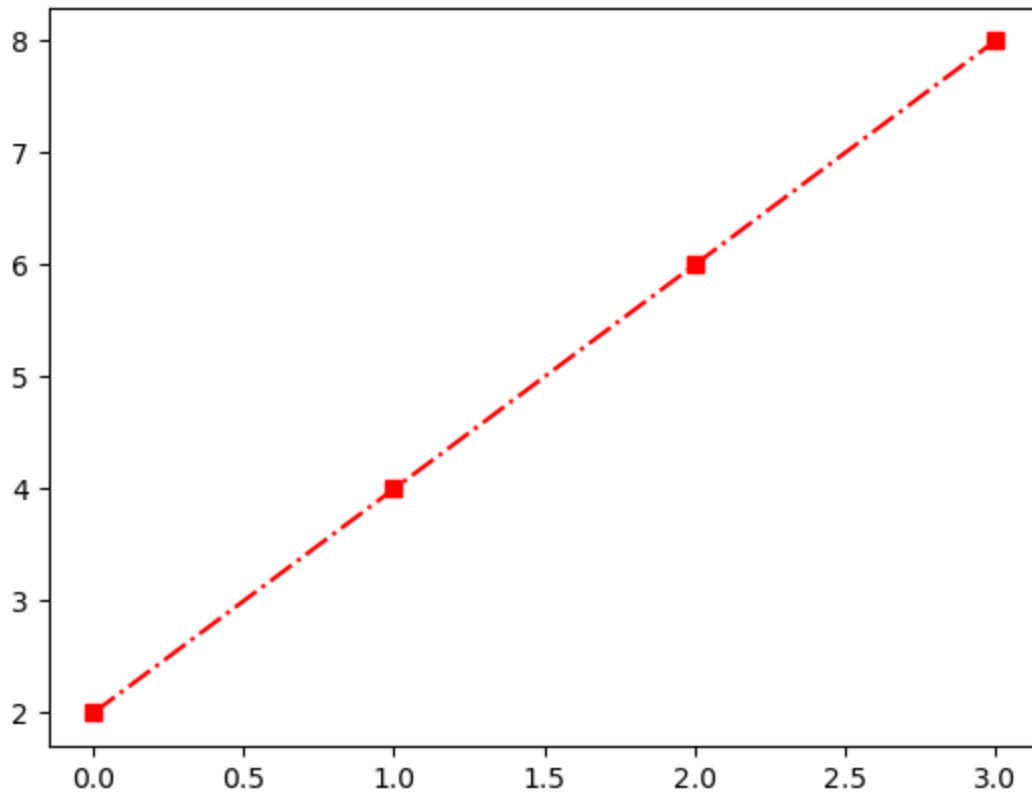
1.4)

- You can also use a Pandas DF as the source of the x-coords and y-coords.
- Syntax: `plt.plot('xcol', 'ycol', data= df_name)`

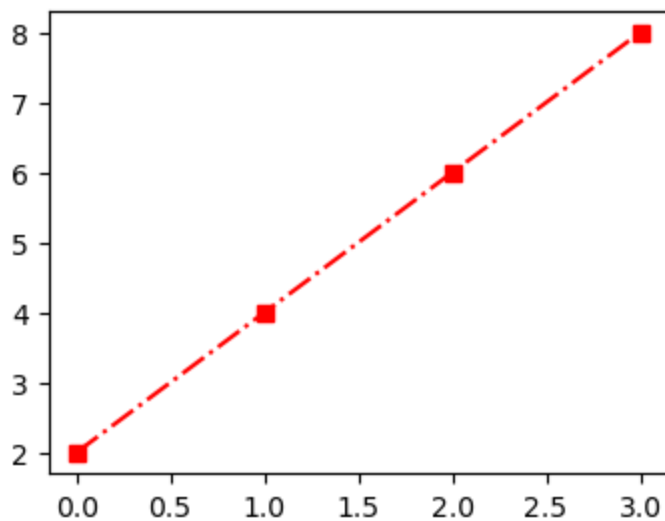
1.5)

- To create a Figure: `plt.figure()`
- To create the linegraph with linestyles, markers, colours: `plt.plot()`
- To display Figures: `plt.show()`
- To save the figure: `plt.savefig('fname.png')`

```
In [11]: plt.figure()  
plt.plot([2,4,6,8], 'rs-.')  
#plt.show()  
plt.savefig('8thJune_linegraph.png')
```



```
In [13]: plt.figure(figsize = (4,3))  
plt.plot([2,4,6,8], 'rs-.')  
plt.show()  
  
#plt.savefig('8thJune_linegraph.png')
```



Exercise#2: Create a linegraph to plot:

(1,1)

(2,3)

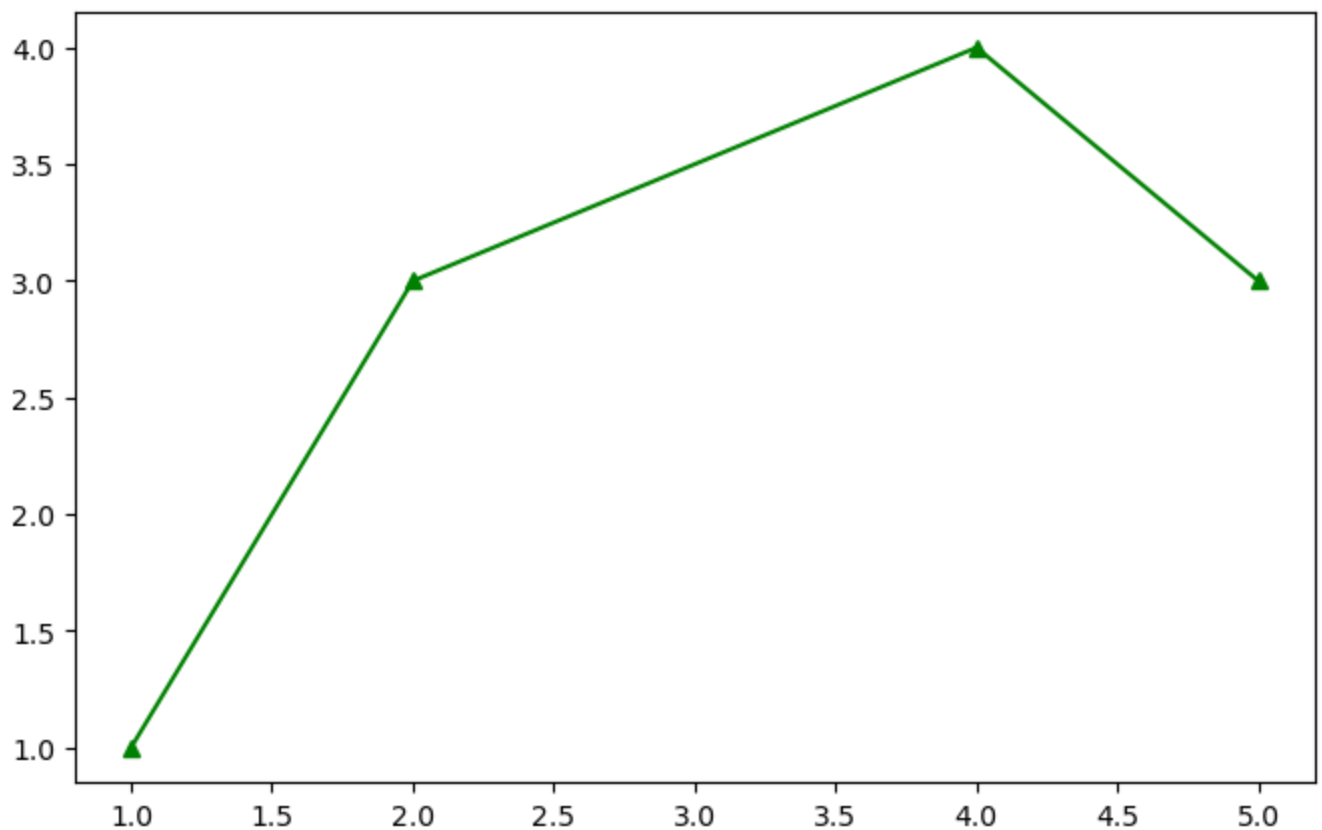
(4,4)

(5,3)

The line should have upward triangular markers, be green in colour and be a solid line.

The dimensions of the figure should be a height of 5 and a width of 8. Save the file as 'exercise2.png'.

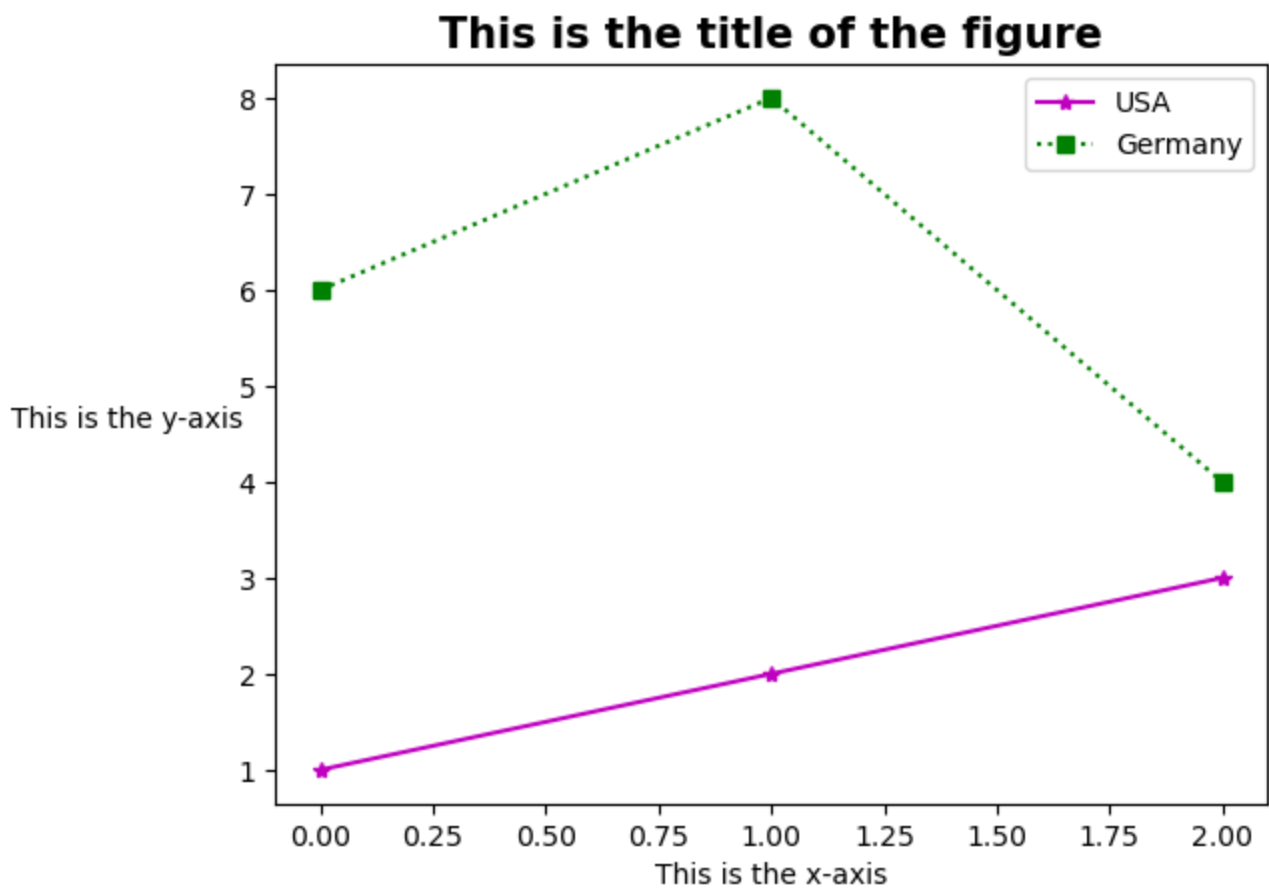
```
In [15]: plt.figure(figsize = (8,5))
plt.plot([1,2,4,5], [1,3,4,3], 'g^-')
#plt.show()
plt.savefig('exercise2.png')
```



1.6)Legends and Text:

```
In [29]: plt.figure()
plt.plot([1,2,3], 'm*- ', label = "USA")
plt.plot([6,8,4], 'gs:', label = "Germany")
plt.title('This is the title of the figure', fontweight = 'bold', fontsize = 15)
plt.xlabel('This is the x-axis')
plt.ylabel('This is the y-axis', rotation = 0, labelpad = 40)

plt.legend()
plt.show()
```



1.7) Stockprices data:

Visualize the trends of each company's closing stock price, over time.

```
In [31]: stock_df = pd.read_csv('U:\\Users\\Reena.Shaw\\Downloads\\stockprices.csv')
```

```
In [33]: stock_df.head(3)
```

```
Out[33]:
```

	date	open	high	low	close	volume	Name
0	2013-02-08	67.7142	68.4014	66.8928	67.8542	158168416	AAPL
1	2013-02-11	68.0714	69.2771	67.6071	68.5614	129029425	AAPL
2	2013-02-12	68.5014	68.9114	66.8205	66.8428	151829363	AAPL

```
In [34]: stock_df.shape
```

```
Out[34]: (6295, 7)
```

```
In [36]: stock_df['Name'].unique()
```

```
Out[36]: array(['AAPL', 'AMZN', 'FB', 'GOOGL', 'MSFT'], dtype=object)
```

```
In [37]: google_df = stock_df[stock_df['Name']=='GOOGL']  
google_df.shape
```

```
Out[37]: (1259, 7)
```

```
In [38]: apple_df = stock_df[stock_df['Name']=='AAPL']  
apple_df.shape
```

```
Out[38]: (1259, 7)
```

```
In [39]: amazon_df = stock_df[stock_df['Name']=='AMZN']  
amazon_df.shape
```

```
Out[39]: (1259, 7)
```

```
In [40]: msft_df = stock_df[stock_df['Name']=='MSFT']  
msft_df.shape
```

```
Out[40]: (1259, 7)
```

```
In [41]: fb_df = stock_df[stock_df['Name']=='FB']  
fb_df.shape
```

```
Out[41]: (1259, 7)
```

```
In [43]: stock_df['date'].nunique()
```

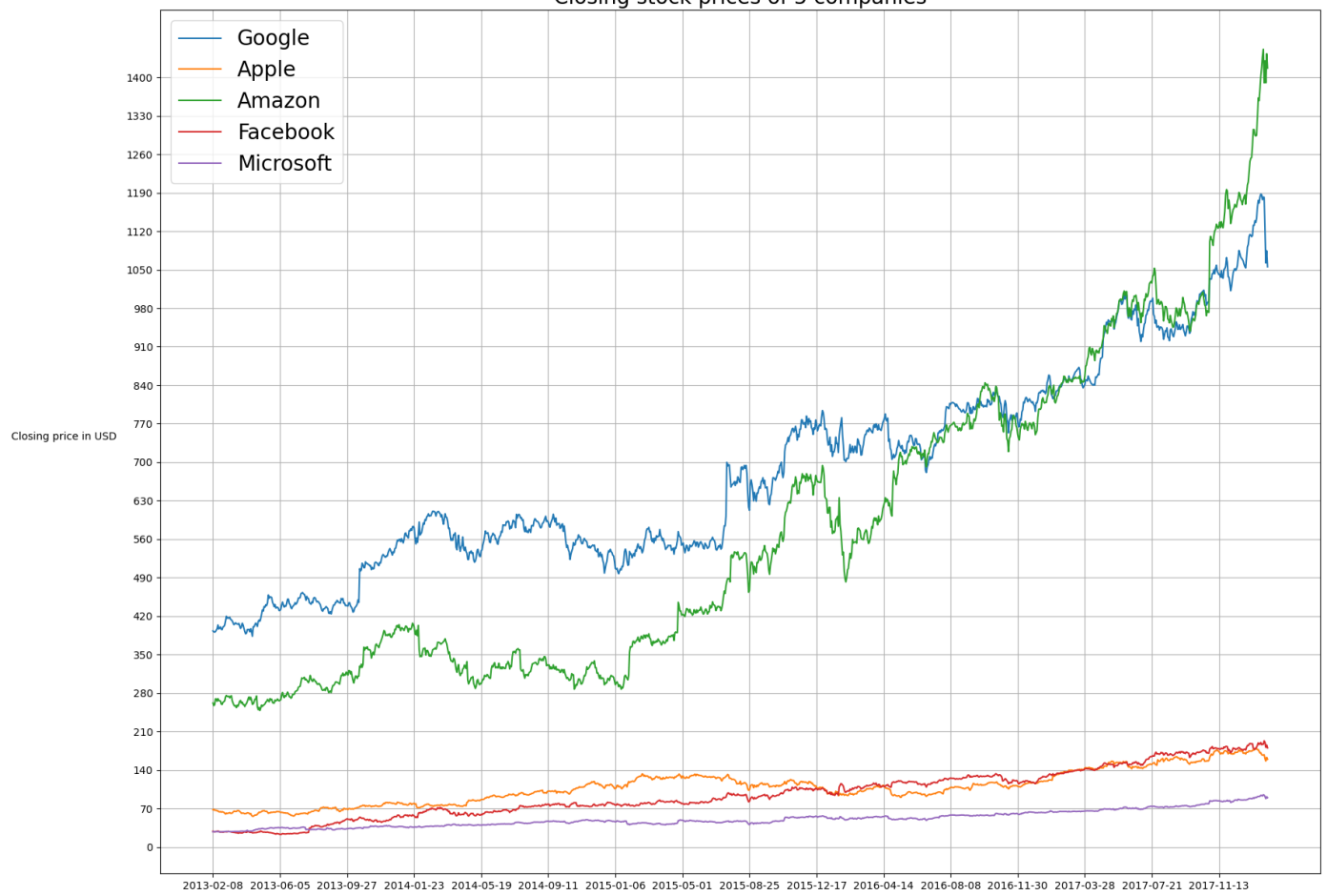
```
Out[43]: 1259
```

```
In [58]: stock_df['close'].max()
```

```
Out[58]: 1450.89
```

```
In [59]: plt.figure(figsize = (20,15))  
plt.plot('date','close', data = google_df, label = "Google")  
plt.plot('date','close', data = apple_df, label = "Apple")  
plt.plot('date','close', data = amazon_df, label = "Amazon")  
plt.plot('date','close', data = fb_df, label = "Facebook")  
plt.plot('date','close', data = msft_df, label = "Microsoft")  
plt.legend(fontsize = 20) #loc = "upper right"  
  
plt.xticks(np.arange(0,1260, 80))  
plt.yticks(np.arange(0,1470, 70))  
  
plt.title('Closing stock prices of 5 companies', fontsize = 20)  
plt.ylabel('Closing price in USD', rotation = 0, labelpad = 60)  
  
plt.grid()  
  
plt.show()
```


Closing stock prices of 5 companies



In []: