Creating line plots

INTRODUCTION TO DATA SCIENCE IN PYTHON

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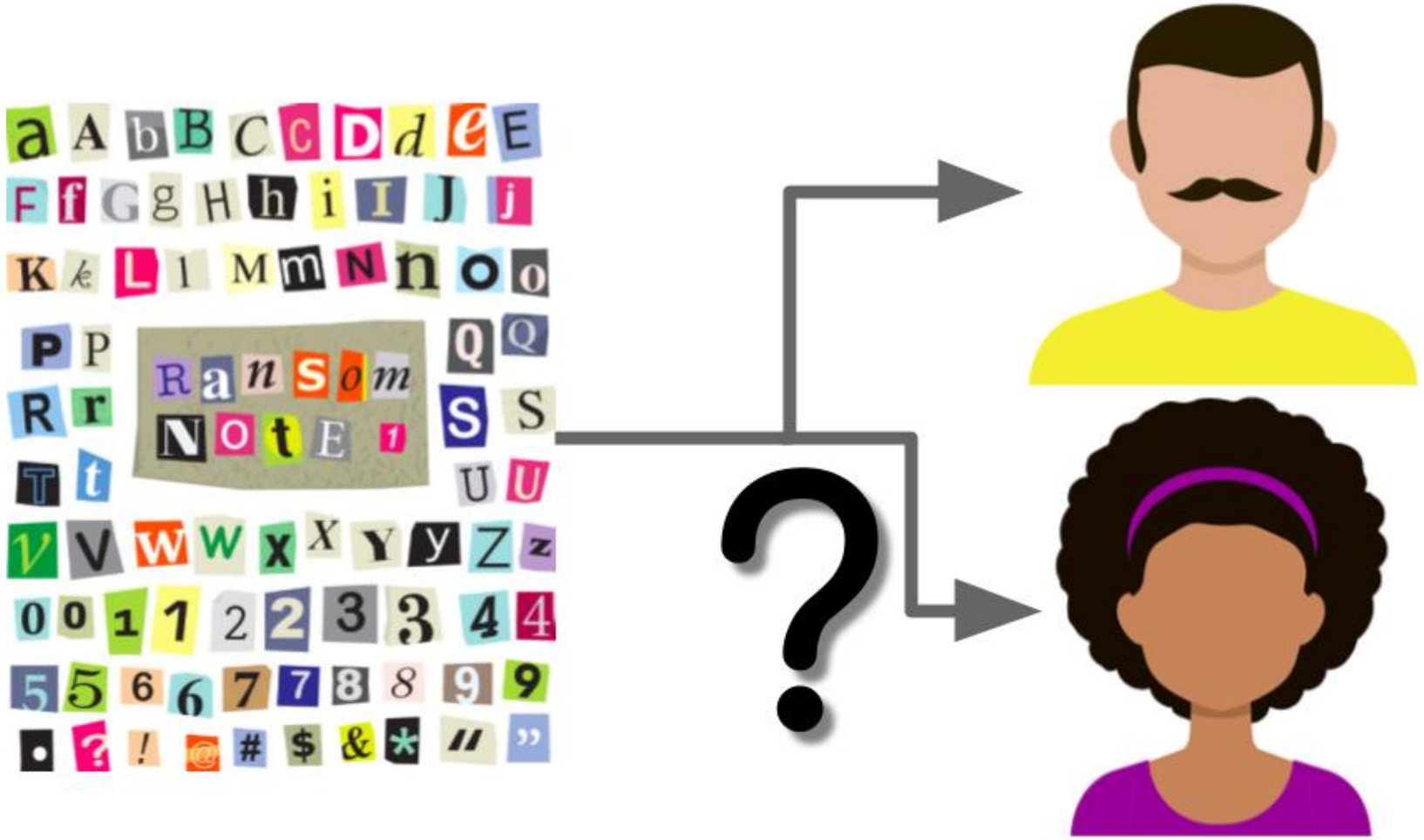
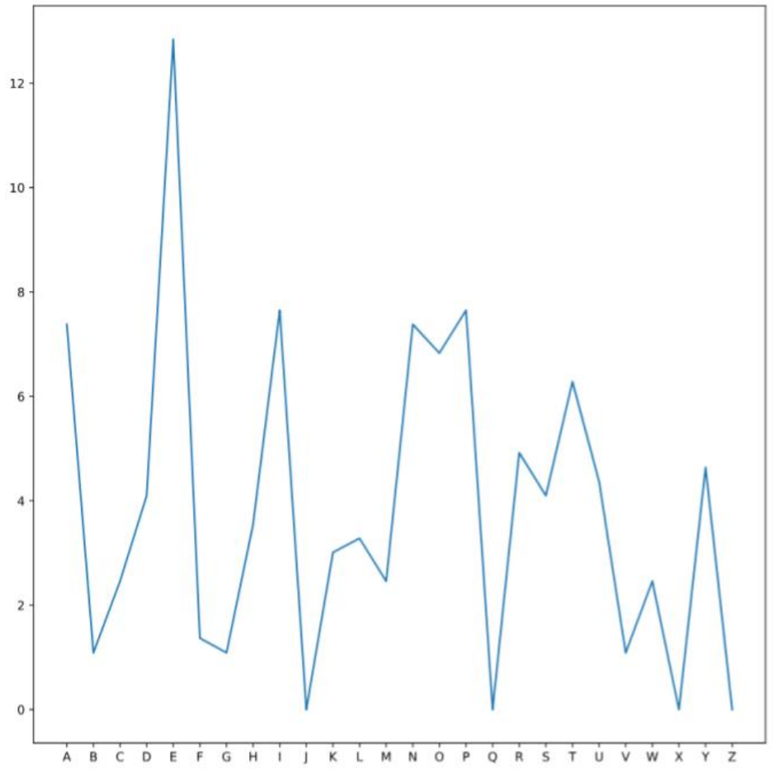
The plot thickens



From DataFrame to Visualization

letter_index	letter	frequency
1	A	7.38
2	B	1.09
3	C	2.46
4	D	4.10
...	...	...

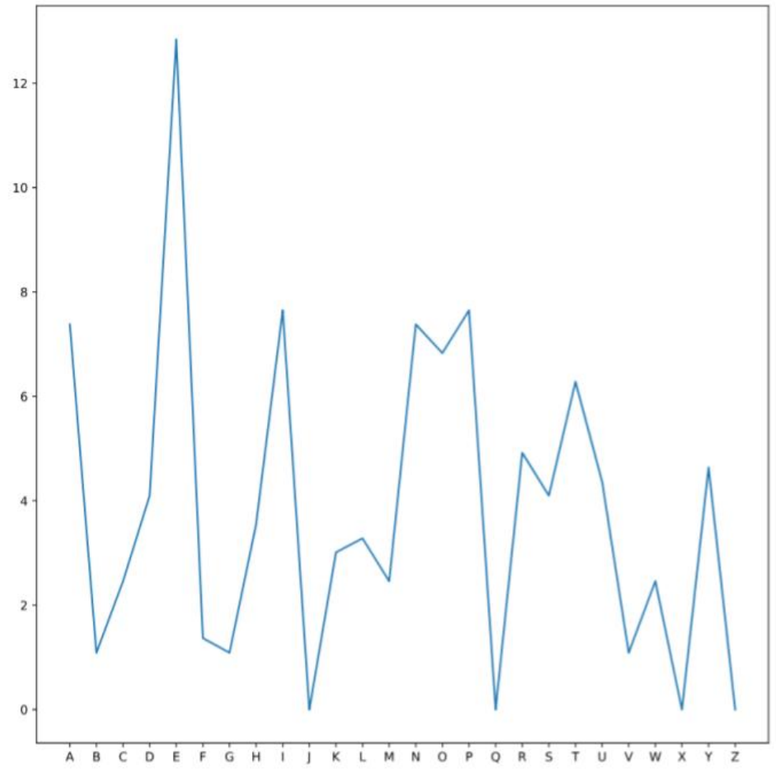


Introducing Matplotlib

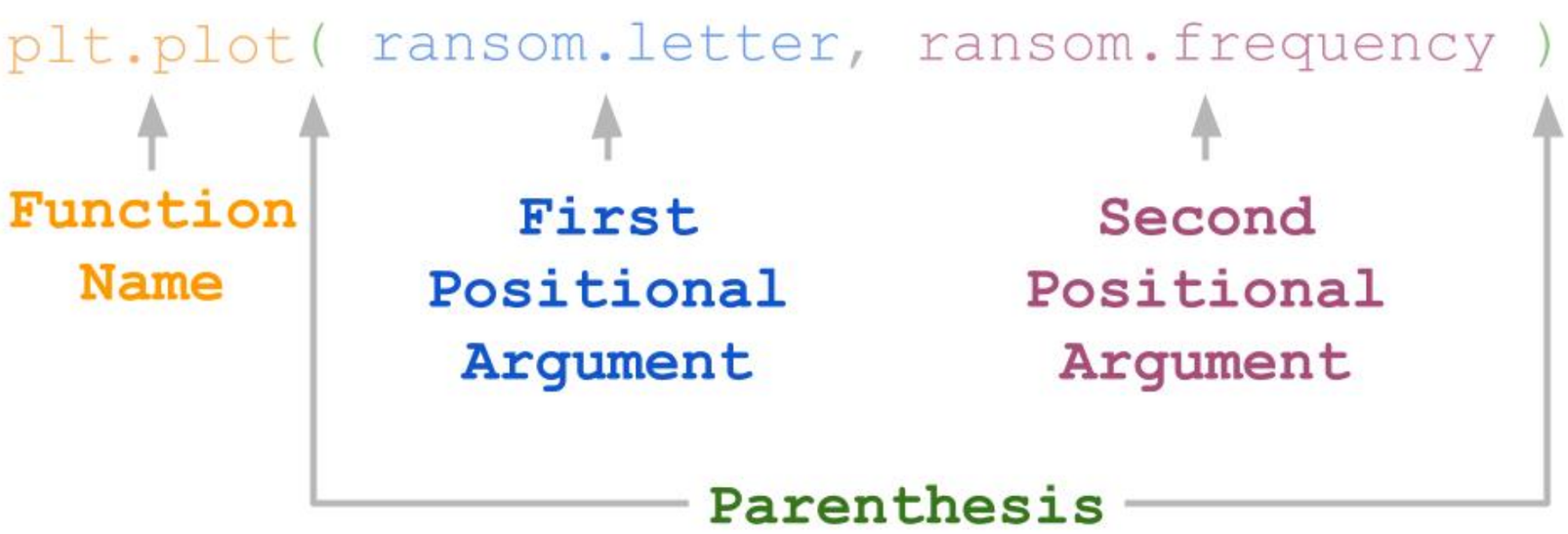
```
from matplotlib import pyplot as plt
```

```
plt.plot(x_values, y_values)

plt.show()
```

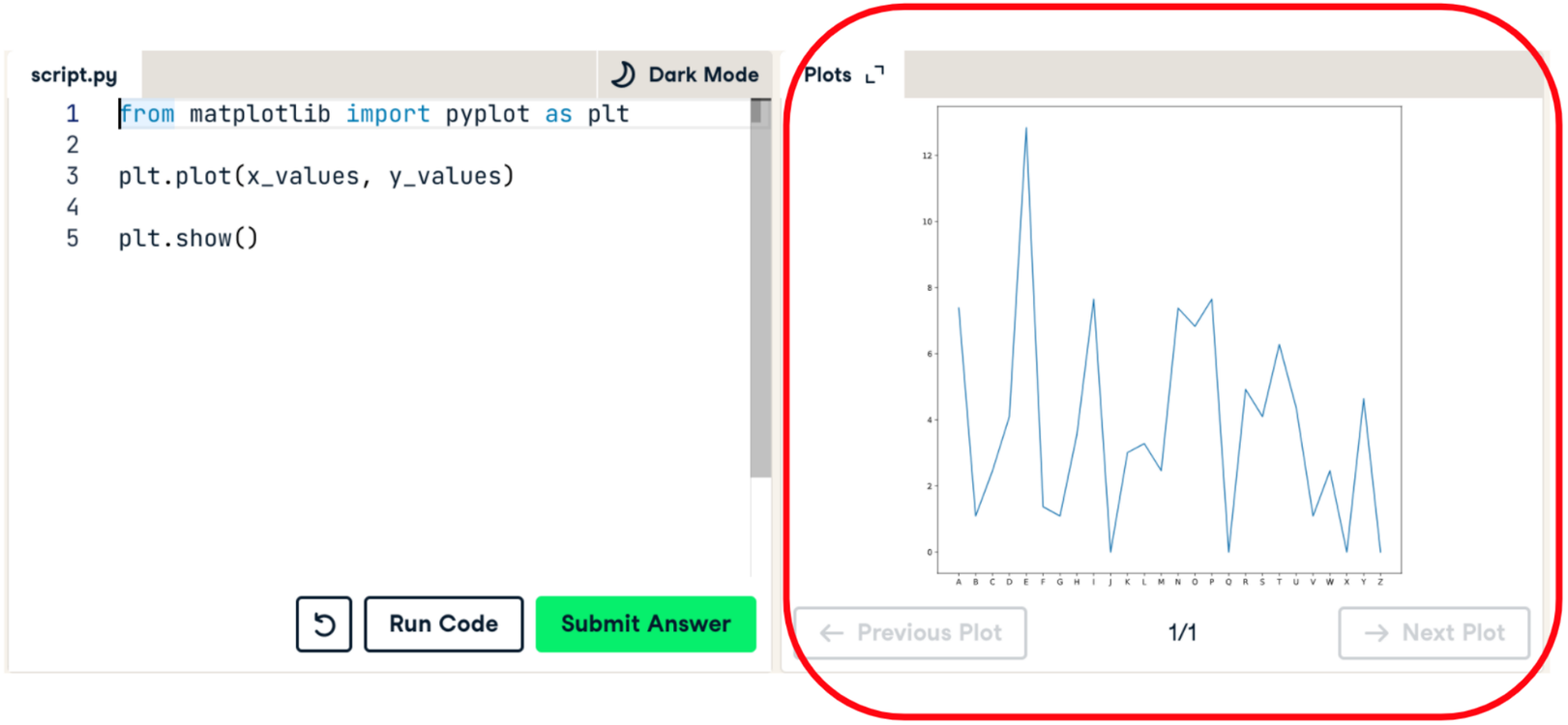


Line Plot


plt.plot(ransom.letter, ransom.frequency)
Function Name
First Positional Argument
Second Positional Argument
Parenthesis

Displaying the Results

```
plt.show()
```

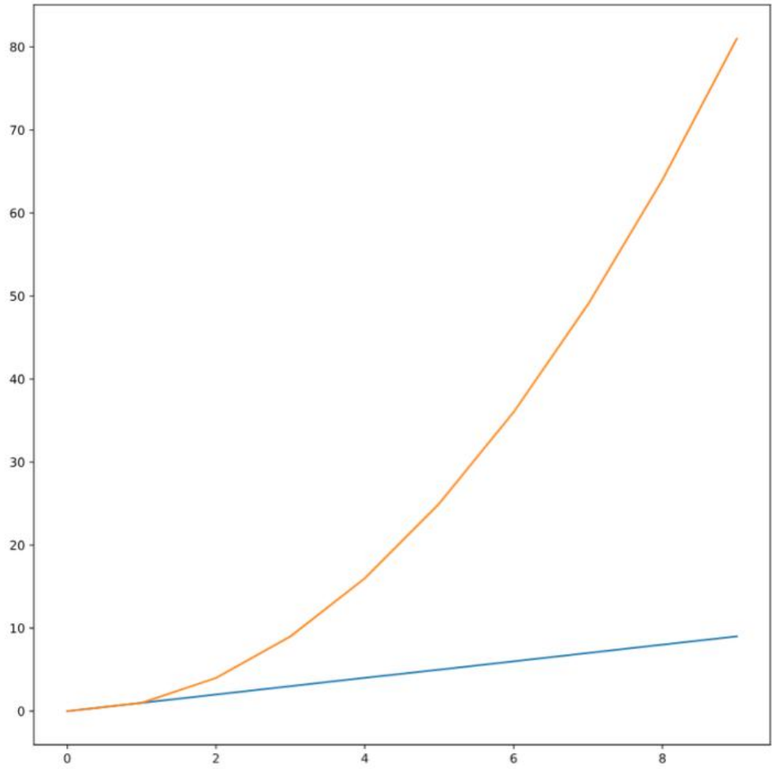


Multiple Lines

```
plt.plot(data1.x_values,
         data1.y_values)
```

```
plt.plot(data2.x_values,
         data2.y_values)
```

```
plt.show()
```



Let's practice!

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Adding labels and legends

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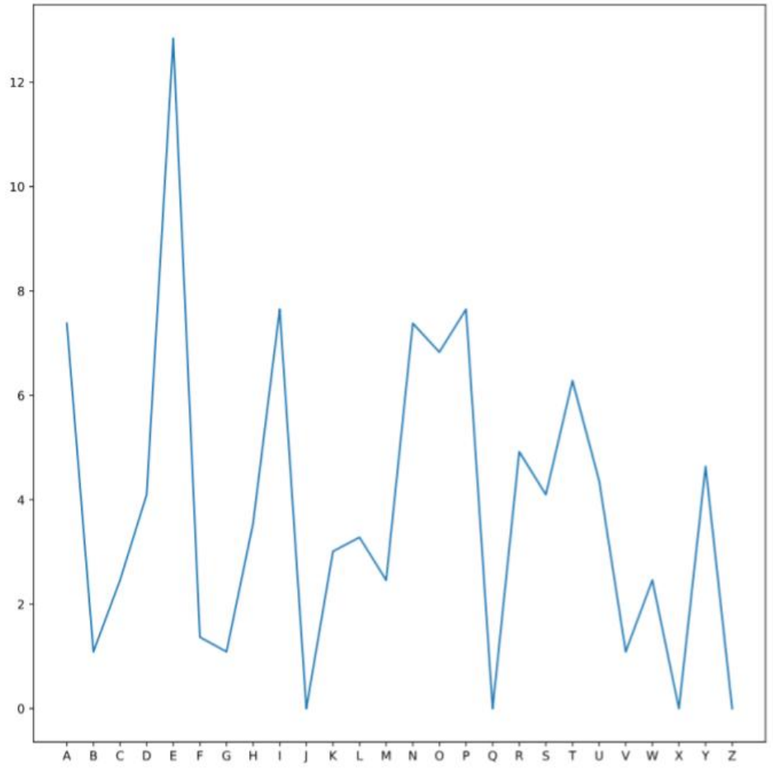
What did we just plot?

```
from matplotlib import pyplot as plt

plt.plot(ransom.letter,
         ransom.frequency)

plt.show()
```



Axes and title labels

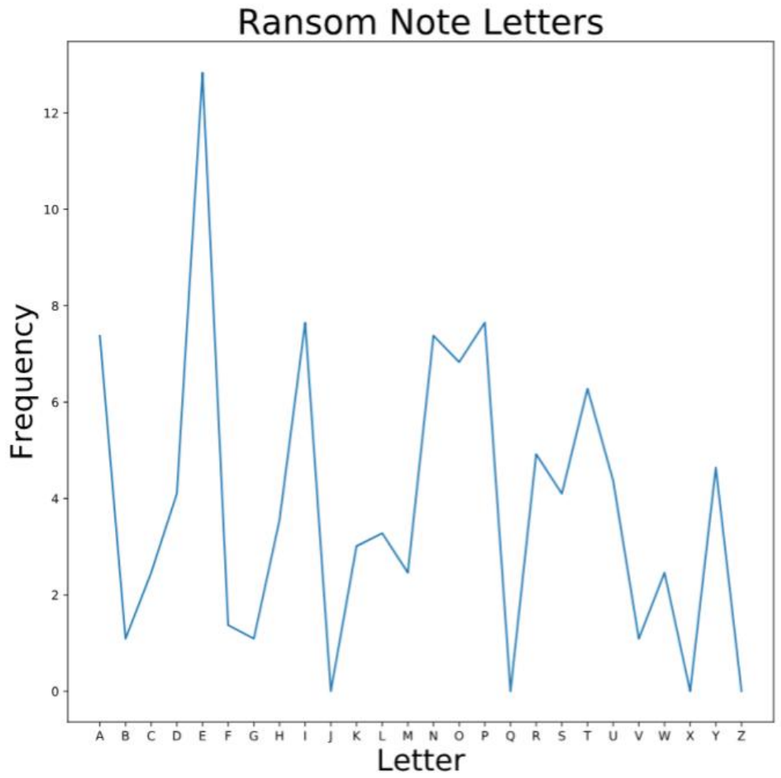
```
plt.xlabel("Letter")
```

```
plt.ylabel("Frequency")
```

```
plt.title("Ransom Note Letters")
```

Labels anywhere before

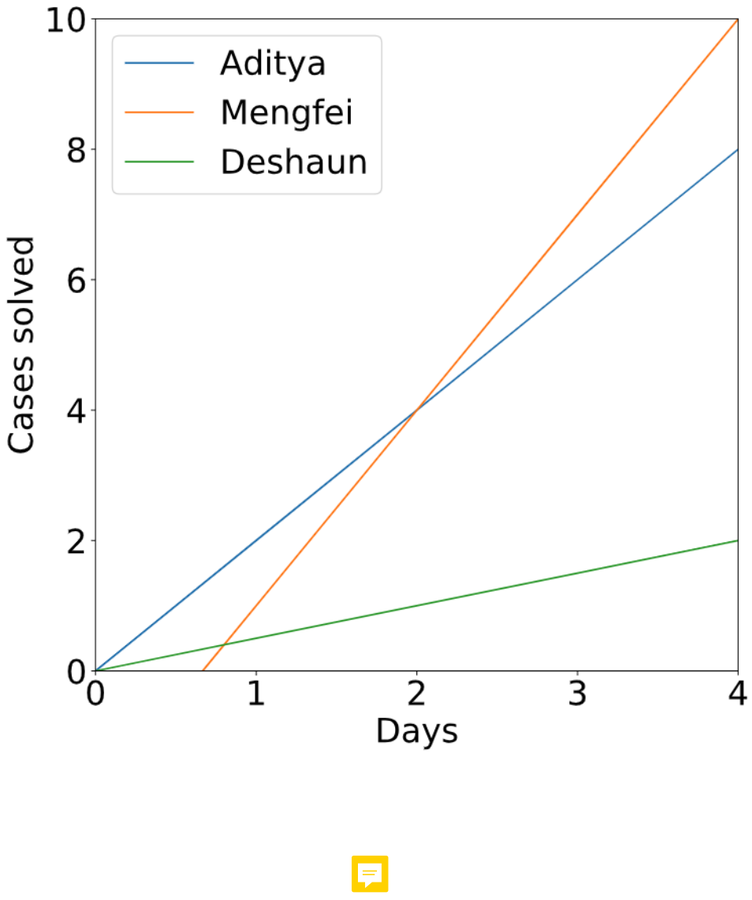
```
plt.show()
```



Legends

```
plt.plot(aditya.days,
         aditya.cases,
         label="Aditya")
plt.plot(deshaun.days,
         deshaun.cases,
         label="Deshaun")
plt.plot(mengfei.days,
         mengfei.cases,
         label="Mengfei")
```

```
plt.legend()
```



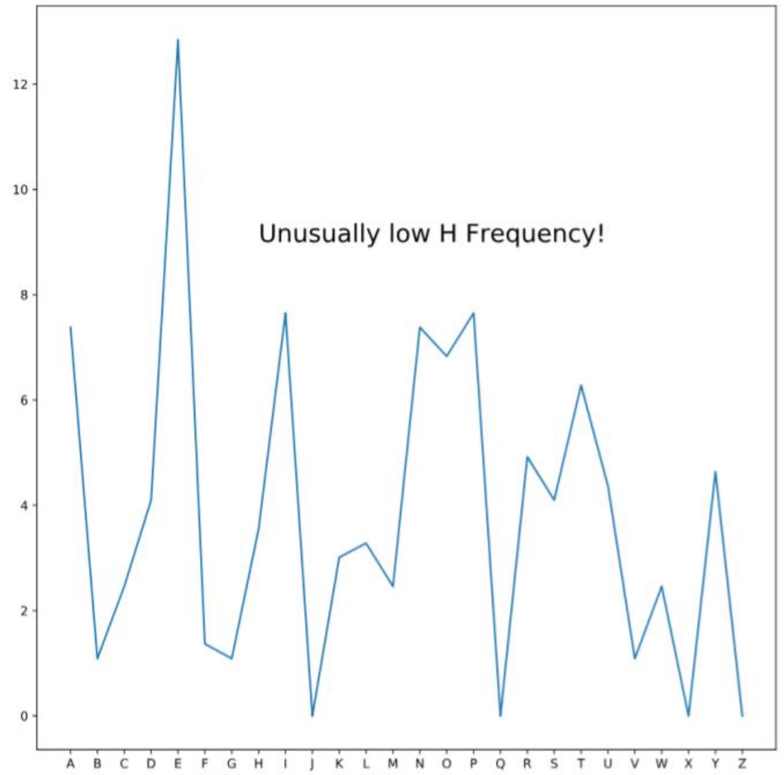
4. Legends
If we have multiple lines in the same plot, we'll want to add a legend. There are two steps for adding a legend: First, we must add the keyword argument label to each instance of plt-dot-plot. The label will be a string that we want in our legend. By adding a label to each plt-dot-plot function, we make our code easier to read. Now, if someone looks at this code, they know what each line is plotting before ever looking at the result. If we just type plt-dot-show now, we still won't see a legend. In order to add a legend, we must add a final function: plt-dot-legend. Like plt-dot-show, plt-dot-legend does not take any arguments. It just tells Matplotlib to use the labels from our plt-dot-plot functions to create a legend.

Arbitrary text

Annotation

```
plt.text(xcoord,
    ycoord,
    "Text Message")
```

```
plt.text(5,
    9,
    "Unusually low H frequency!")
```



Modifying text

- Change font size

```
plt.title("Plot title", fontsize=20)
```

- Change font color

```
plt.legend(color="green")
```

https://en.wikipedia.org/wiki/Web_colors

Let's practice!

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Adding some style

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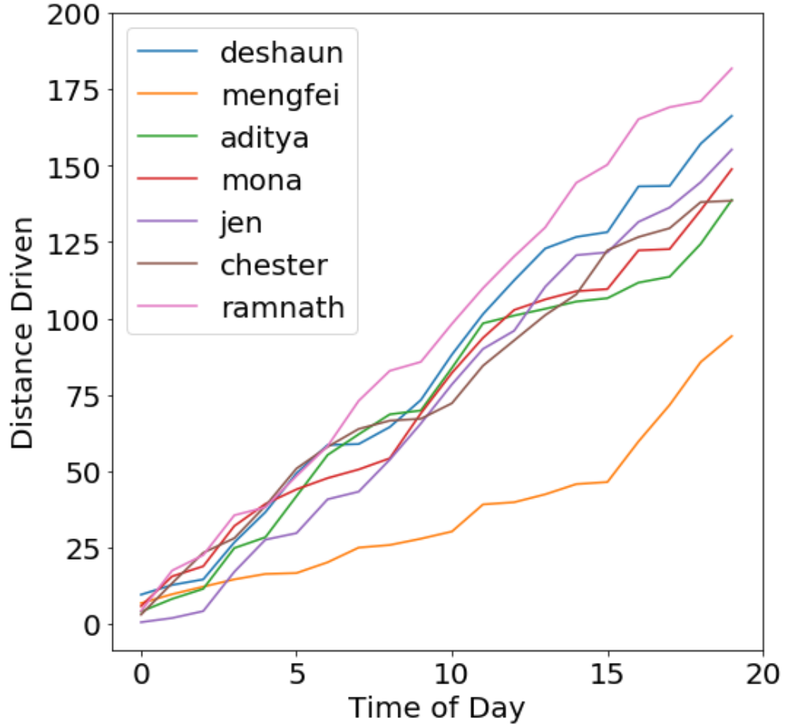
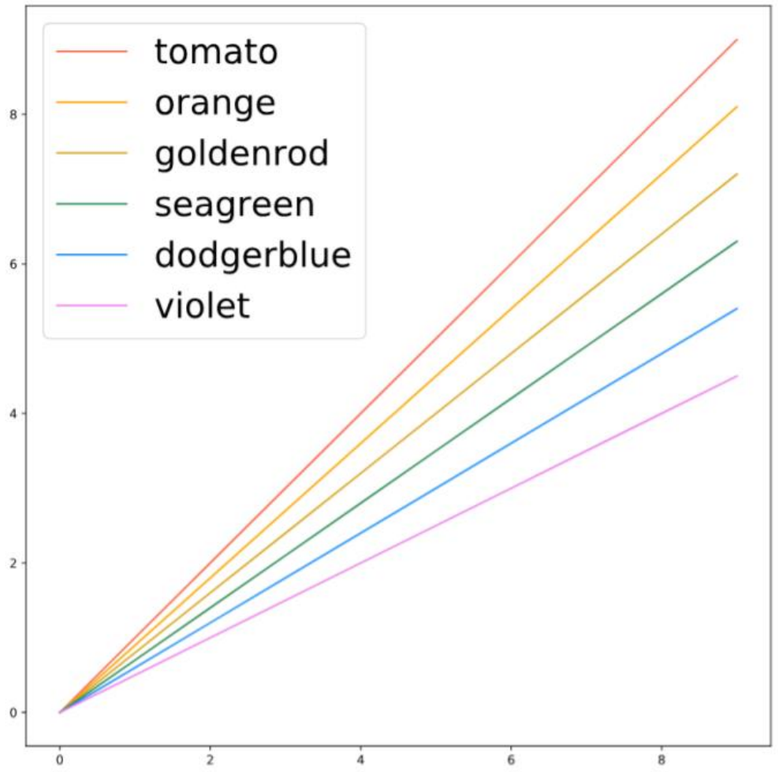
datacamp

And miles to go



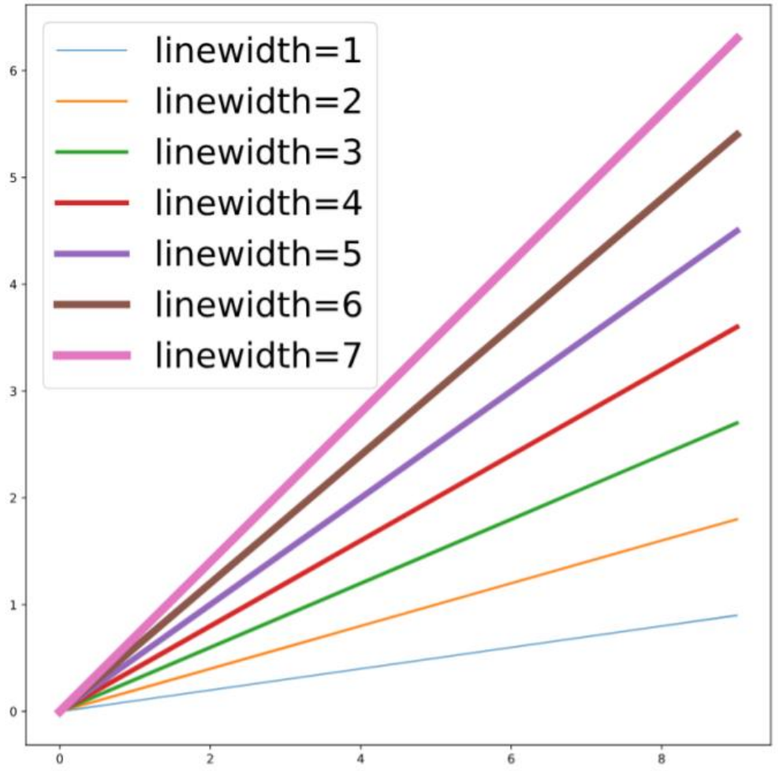
Changing line color

```
plt.plot(x, y1, color="tomato")
plt.plot(x, y2, color="orange")
plt.plot(x, y3, color="goldenrod")
plt.plot(x, y4, color="seagreen")
plt.plot(x, y5, color="dodgerblue")
plt.plot(x, y6, color="violet")
```



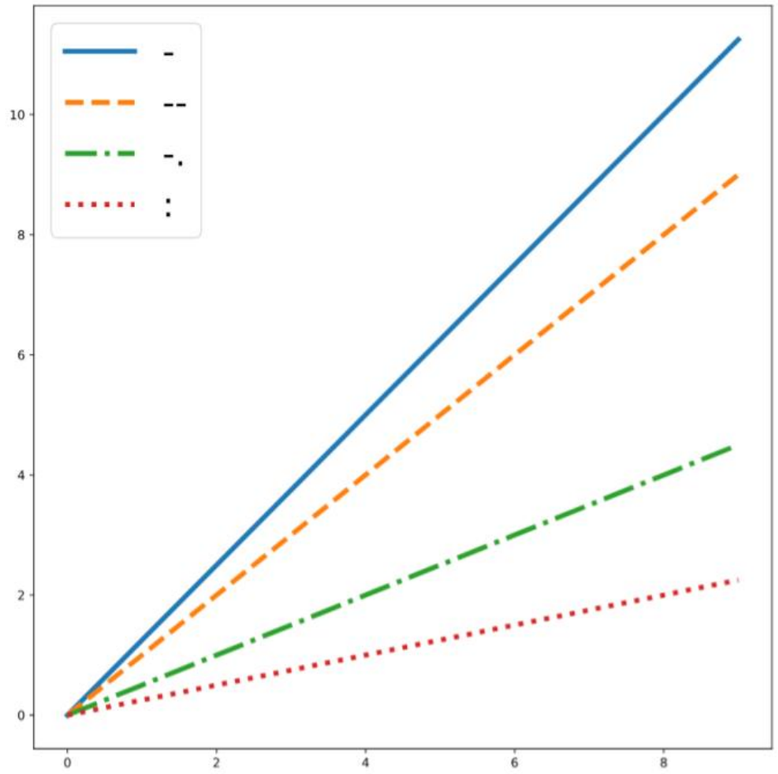
Changing line width

```
plt.plot(x, y1, linewidth=1)
plt.plot(x, y2, linewidth=2)
plt.plot(x, y3, linewidth=3)
plt.plot(x, y4, linewidth=4)
plt.plot(x, y5, linewidth=5)
plt.plot(x, y6, linewidth=6)
plt.plot(x, y7, linewidth=7)
```



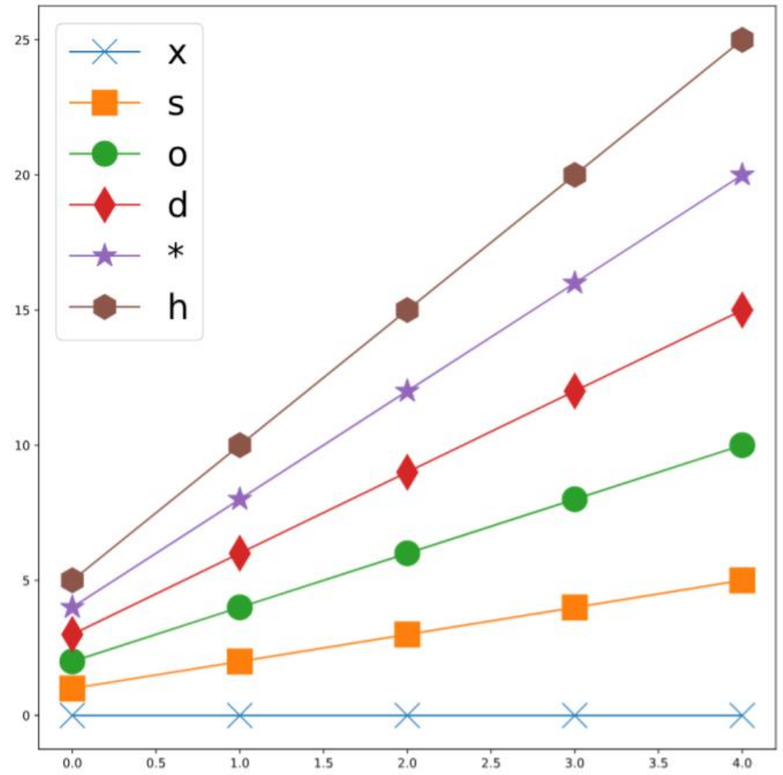
Changing line style

```
plt.plot(x, y1, linestyle='-')
plt.plot(x, y2, linestyle='--')
plt.plot(x, y3, linestyle='-.')
plt.plot(x, y4, linestyle=':')
```



Adding markers

```
plt.plot(x, y1, marker='x')
plt.plot(x, y2, marker='s')
plt.plot(x, y3, marker='o')
plt.plot(x, y4, marker='d')
plt.plot(x, y5, marker='*')
plt.plot(x, y6, marker='h')
```



Setting a style

Before any other plotting code:

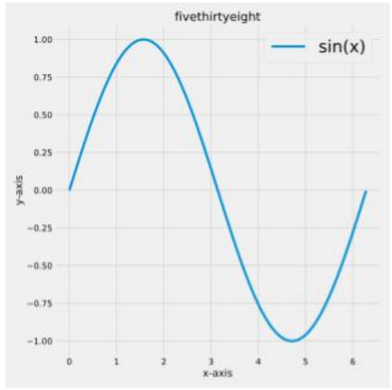
```
plt.style.use('fivethirtyeight')
```

```
plt.style.use('ggplot')
```

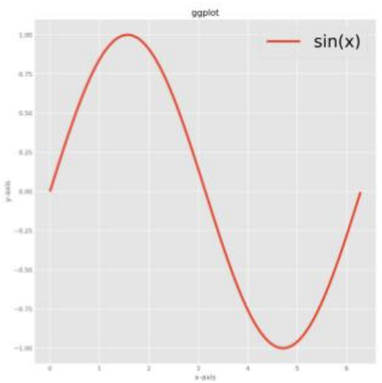
```
plt.style.use('seaborn')
```

```
plt.style.use('default')
```

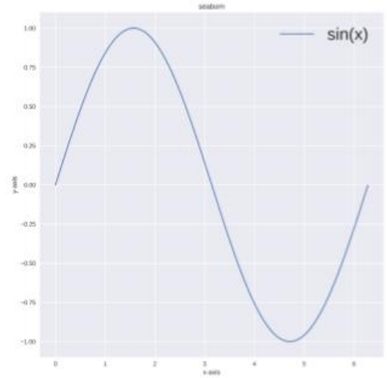
fivethirtyeight



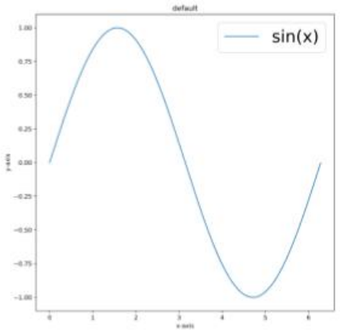
ggplot



seaborn



default



Let's practice!

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