Matplotlib_tutorial

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0.1 Matplotlib Tutorial

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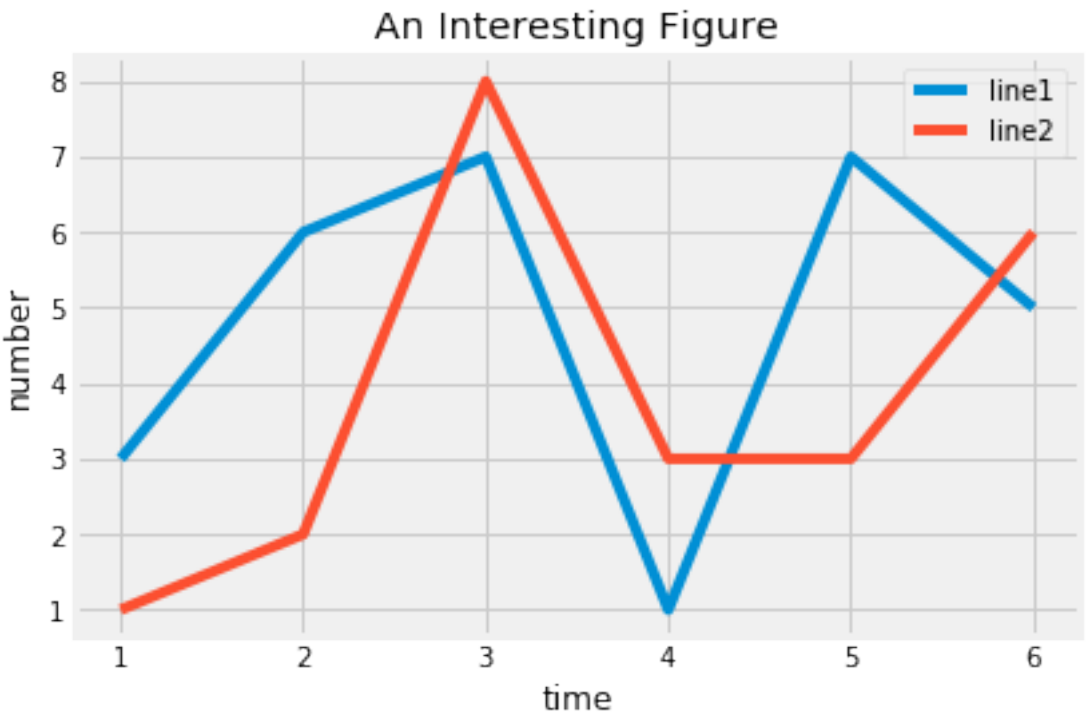
```
In [2]: # if you don't have matplotlib: pip3 install matplotlib
        import matplotlib.pyplot as plt
        from matplotlib import style
        style.use("fivethirtyeight")
```

0.2 part 1 - kinds of charts

0.2.1 line chart

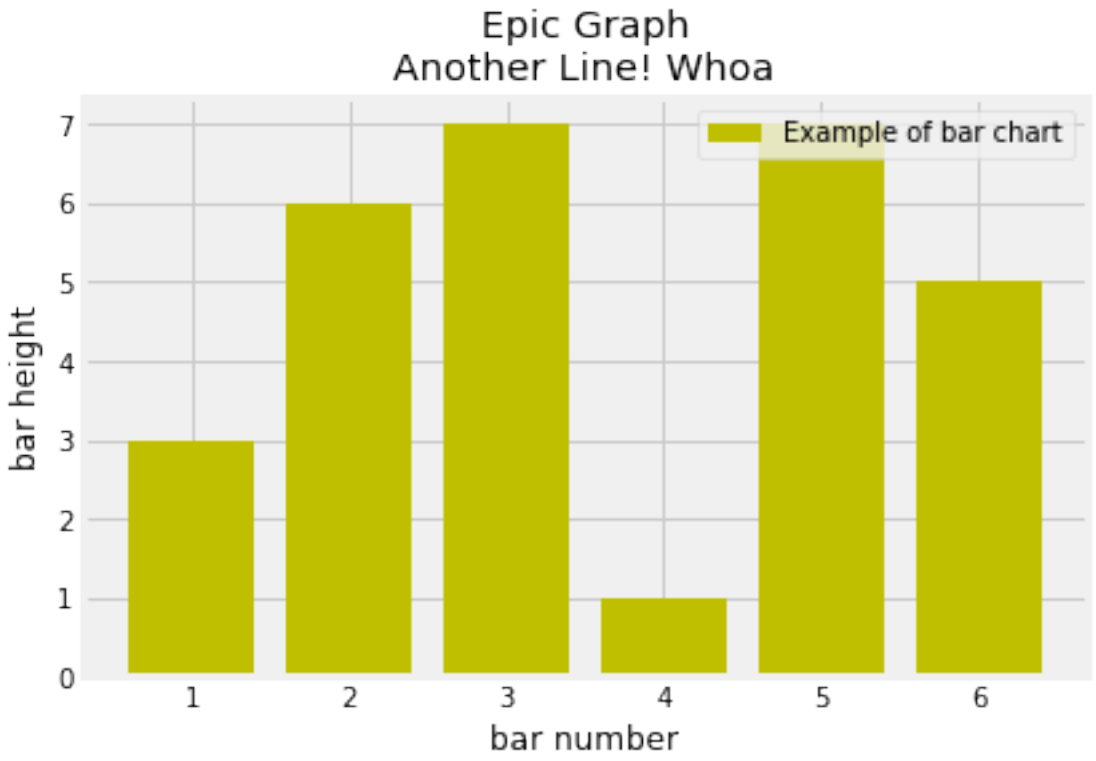
```
In [9]: x1 = [1,2,3,4,5,6]
        y1 = [3,6,7,1,7,5]

        x2 = [1,2,3,4,5,6]
        y2 = [1,2,8,3,3,6]
```

```
In [12]: plt.plot(x1, y1, label="line1")
         plt.plot(x2, y2, label="line2")

         plt.legend() # you need to call legend() function to actually show legends

         plt.title("An Interesting Figure")
         plt.xlabel("time")
         plt.ylabel("number")
         plt.show()
```



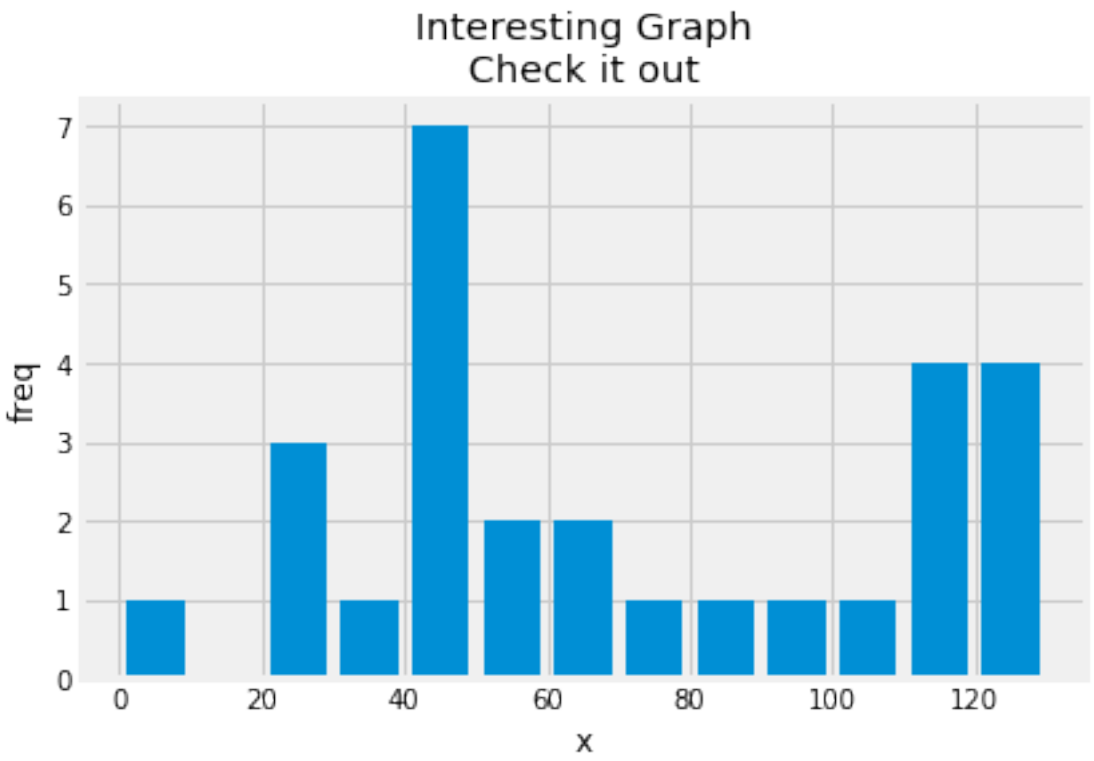
0.2.2 pie chart

```
In [21]: plt.bar(x1, y1, label="Example of bar chart", color='y') # color options: r, b, c, b, k
         plt.legend()
         plt.xlabel('bar number')
         plt.ylabel('bar height')

         plt.title('Epic Graph\nAnother Line! Whoa')

         plt.show()
```



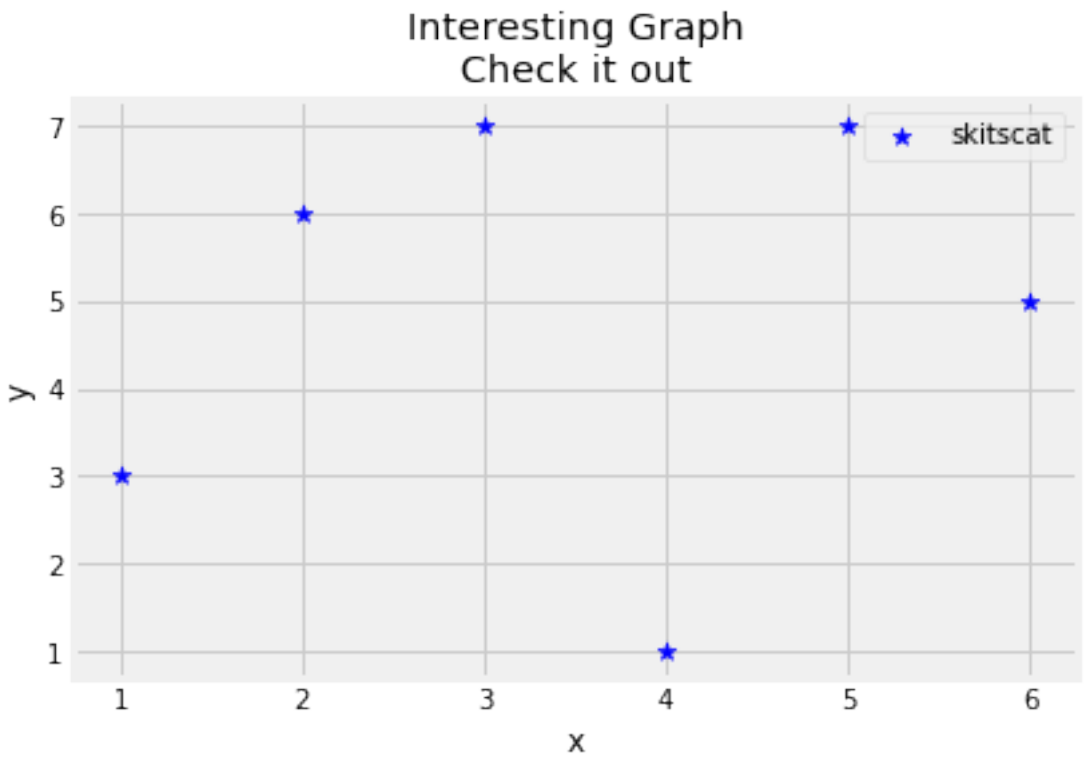
0.2.3 historgram

```
In [22]: population_ages = [22,55,62,45,21,22,34,42,42,4,99,102,110,120,121,122,130,111,115,112,

         bins = [0,10,20,30,40,50,60,70,80,90,100,110,120,130]

         plt.hist(population_ages, bins, histtype='bar', rwidth=0.8)

         plt.xlabel('x')
         plt.ylabel('freq')
         plt.title('Interesting Graph\nCheck it out')
         plt.show()
```



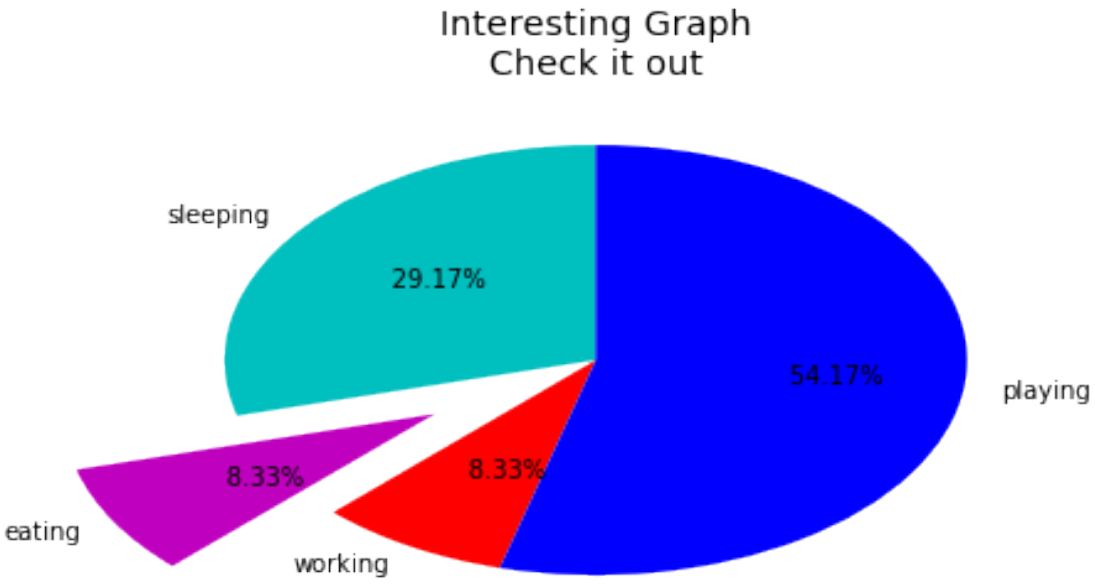
0.2.4 Scatter plot

```
In [25]: plt.scatter(x,y, label='skitscat', color='b', s=50, marker="*")

         plt.xlabel('x')
         plt.ylabel('y')
         plt.title('Interesting Graph\nCheck it out')
         plt.legend()
         plt.show()
```



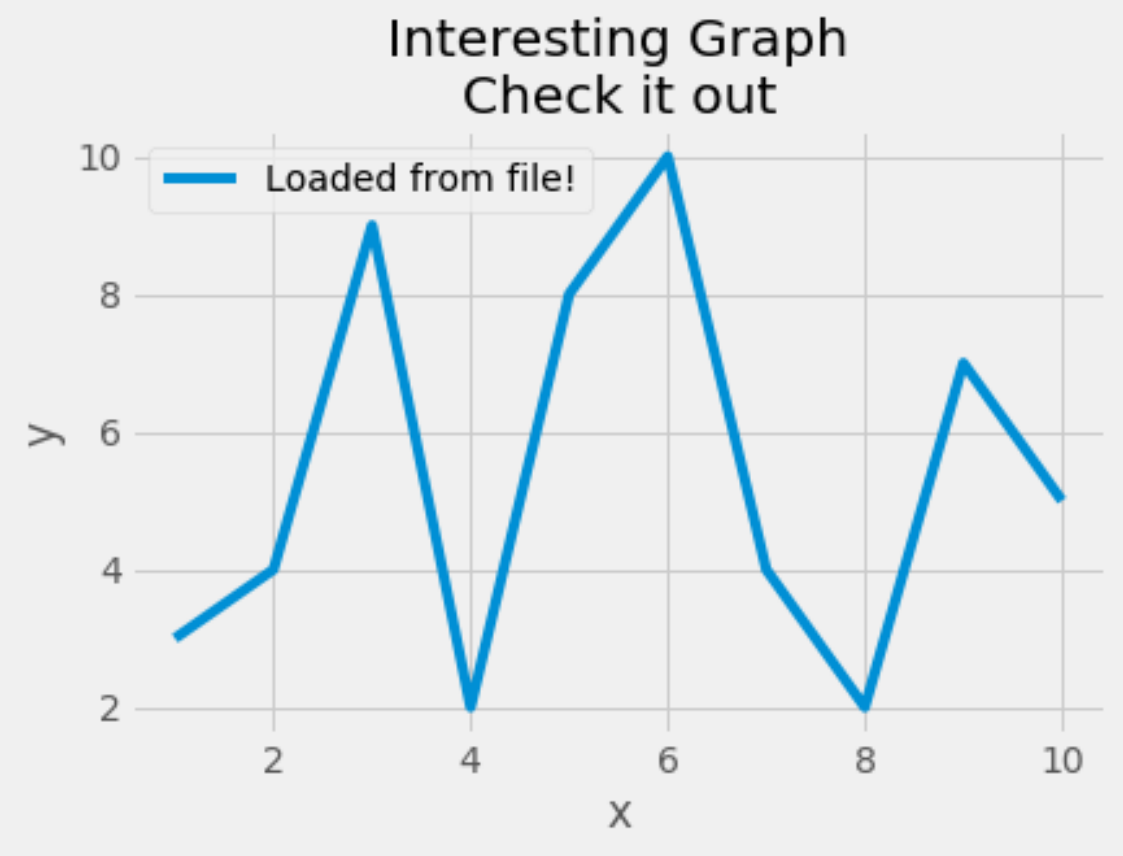
0.2.5 Pie chart

```
In [46]: slices = [7,2,2,13]
         activities = ['sleeping','eating','working','playing']
         cols = ['c','m','r','b']

         plt.pie(slices,
                 labels=activities,
                 colors=cols,
                 startangle=90,
                 shadow= False,
                 explode=(0,0.5,0,0),
                 autopct='%10.2f%%')

         plt.title('Interesting Graph\nCheck it out')
         plt.show()
```



0.3 Part 2 - loading data from files and plot them

```
In [49]: import matplotlib.pyplot as plt
         import csv

         style.use("fivethirtyeight")
         x = []
         y = []

         with open('load_file_test.txt','r') as csvfile:
             plots = csv.reader(csvfile, delimiter=',')
             for row in plots:
                 x.append(int(row[0]))
                 y.append(int(row[1]))

         plt.plot(x,y, label='Loaded from file!')
         plt.xlabel('x')
         plt.ylabel('y')
         plt.title('Interesting Graph\nCheck it out')
         plt.legend()
         plt.show()
```


Interesting Graph
Check it out
Loaded from file!
10
8
6
4
2
y
2
4
6
8
10
X