04_notebook

April 2, 2019

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

1 Line Graphs

1.1 Helper functions

```
In [2]: # %load ../helper_funcs/get_df.py
        def get_df(yr):
            return pd.read_csv("../../inputs/Environmental_Data_Deep_Moor_{}.csv".format(yr))
```

```
In [3]: # %load ../helper_funcs/line_helpers.py
        def monthly_avg_calc(mo,col):
            return df[df['date'].str.contains('201[2345]_[0]?'+ str(mo))][col].mean()
```

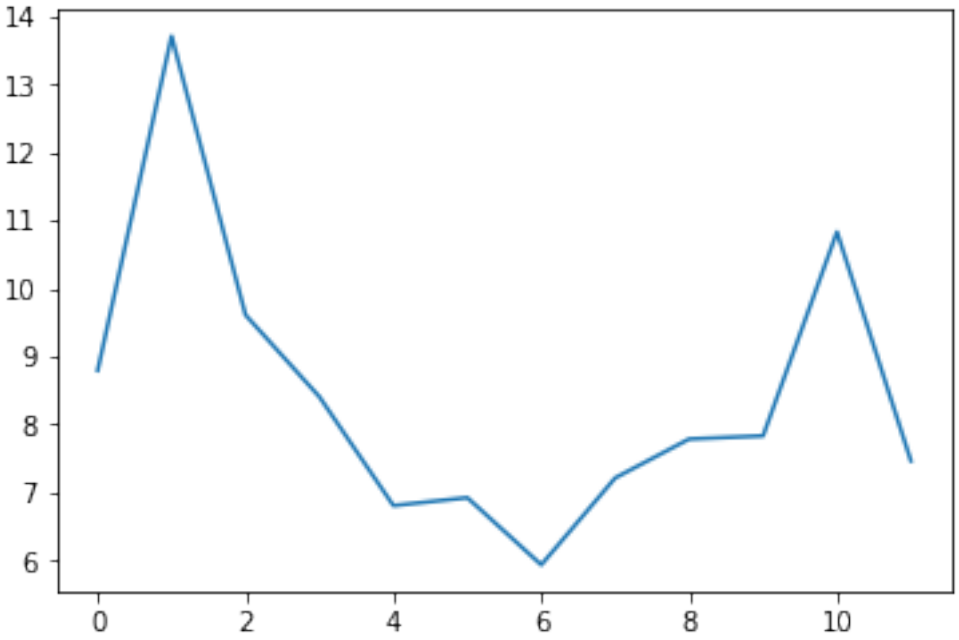
```
In [4]: def yearly_avg(category):
            return list(map(lambda m: monthly_avg_calc(m, category),range(1,13)))
```

1.1.1 Read date into the dataframe

```
In [19]: df = get_df('2014')
```

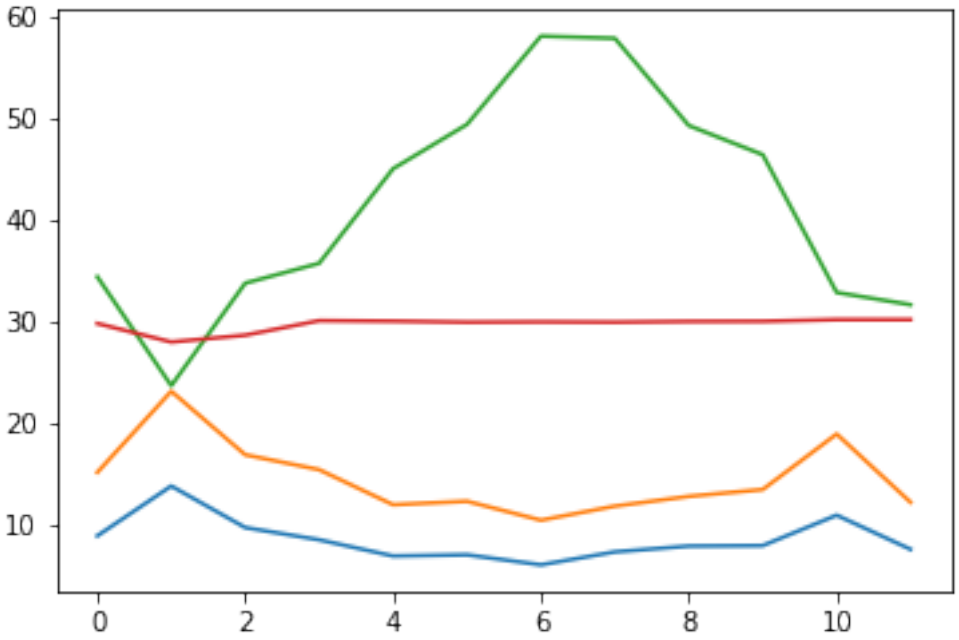
1.2 Plot Wind Speed

```
In [26]: plt.plot(yearly_avg('Wind_Speed'))
         plt.show()
```



1.3 Plot Wind Speed, Wind Gust, Dew Point, and Barometric Pressure

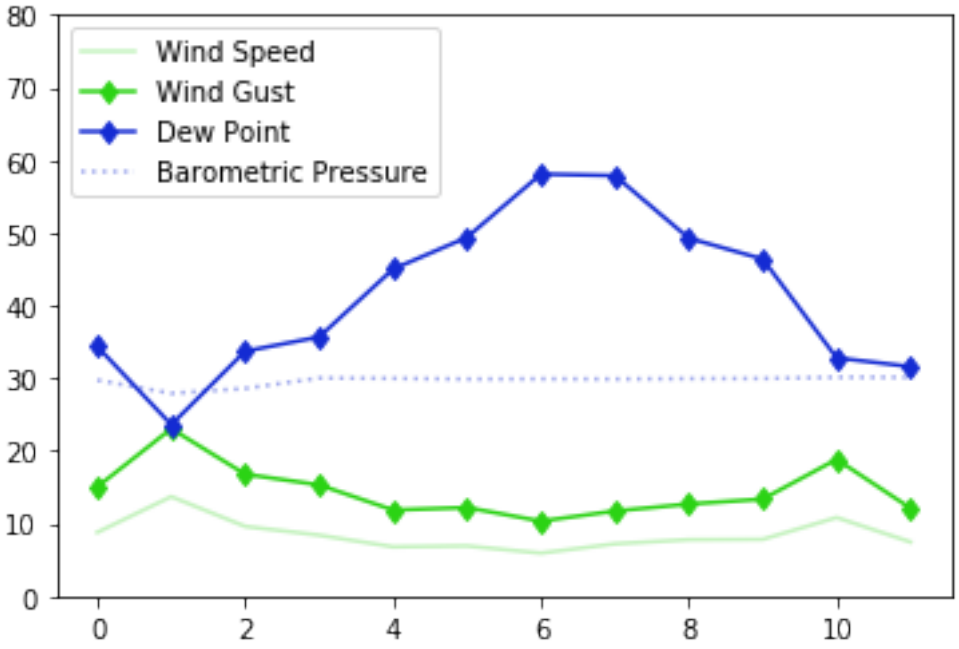
```
In [27]: plt.plot(yearly_avg('Wind_Speed'))
         plt.plot(yearly_avg('Wind_Gust'))
         plt.plot(yearly_avg('Dew_Point'))
         plt.plot(yearly_avg('Barometric_Press'))
         plt.show()
```



1.4 Make a few adjustments

- Add labels
- Add legend
- Add colors
- Add format string

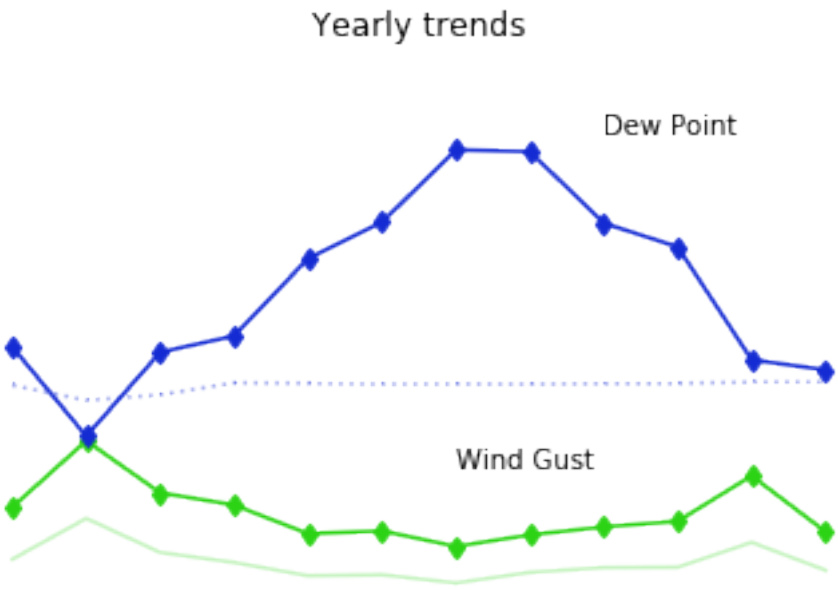
```
In [21]: plt.plot(yearly_avg('Wind_Speed'),label='Wind Speed',color="#2BD31444")
         plt.plot(yearly_avg('Wind_Gust'),'d-',label='Wind Gust',color="#2BD314FF")
         plt.plot(yearly_avg('Dew_Point'),'d-',label='Dew Point',color='#142BD3FF')
         plt.plot(yearly_avg('Barometric_Press'),':',label='Barometric Pressure',color="#142BD3
         plt.ylim(0,80)
         plt.legend()
         plt.show()
```



1.5 Alternate Styling Options

A slightly cleaner format

```
In [22]: plt.plot(yearly_avg('Wind_Speed'),label='Wind Speed',color="#2BD31444")
         plt.plot(yearly_avg('Wind_Gust'),'d-',label='Wind Gust',color="#2BD314FF")
         plt.plot(yearly_avg('Dew_Point'),'d-',label='Dew Point',color='#142BD3FF')
         plt.plot(yearly_avg('Barometric_Press'),',:',label='Barometric Pressure',color="#142BI
         plt.ylim(0,70)
         plt.title('Yearly trends')
         plt.axis('off')
         plt.text(8,60, 'Dew Point')
         plt.text(6,20, 'Wind Gust')
         plt.show()
```


Yearly trends
Dew Point
Wind Gust