Jupyter notebook‘e nubraižyti:

1. Line grafiką kiekvieno mėnesio 2013 metų oro temperatūros vidurkį.
2. Line grafiką kiekvieno mėnesio 2014 metų oro temperatūros vidurkį.
3. Line grafiką kiekvieno mėnesio 2015 metų oro temperatūros vidurkį.
4. Bar grafiką metinio 2013-2015 metų oro temperatūros vidurkį.
5. Lentelėje atvaizduoti karščiausią kiekvienų metų dieną ir temperatūrą.
6. Lentelėje atvaizduoti šalčiausią kiekvienų metų dieną ir temperatūrą.

Used libraries

In [4]:

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

Get data from file

In [4]:

```
def get_df(year):
    return pd.read_csv('Environmental_Data_Deep_Moor_{}.csv'.format(year))
```

In [5]:

```
def monthly_avg_calc(month, column):
    return df[df['date'].str.contains('201[2345]_[0]?' + str(month))][column].mean
```

In [6]:

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

In [7]:

```
df = get_df('2013')
```

In [9]:

```
df.head()
```

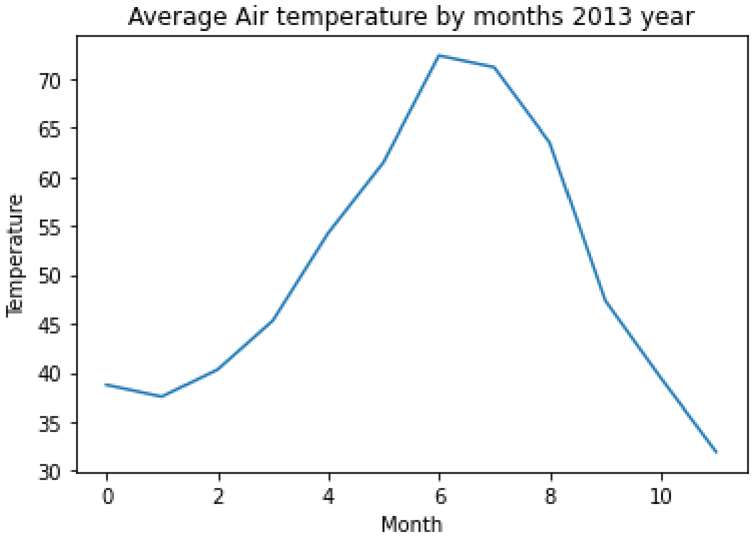
Out[9]:

	date	time	Air_Temp	Barometric_Press	Dew_Point	Relative_Humidity	Wind_Dir	Wir
0	2013_01_01	0:03:23	30.8	28.3	21.3	67.4	98.6	
1	2013_01_01	6:29:08	28.0	28.4	24.2	85.2	61.8	
2	2013_01_01	6:35:16	28.1	28.4	24.6	86.6	52.2	
3	2013_01_01	6:41:25	28.1	28.4	24.6	86.4	62.8	
4	2013_01_01	6:47:33	28.0	28.4	24.3	85.6	45.6	

Average Air temp by months 2013 year

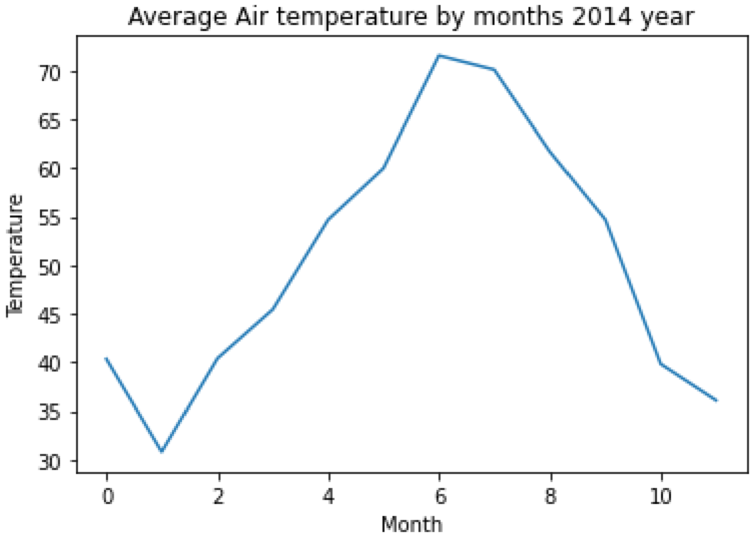
In [9]:

```
plt.plot(yearly_avg('Air_Temp'))
plt.title('Average Air temperature by months 2013 year')
plt.xlabel("Month")
plt.ylabel("Temperature")
plt.show()
```



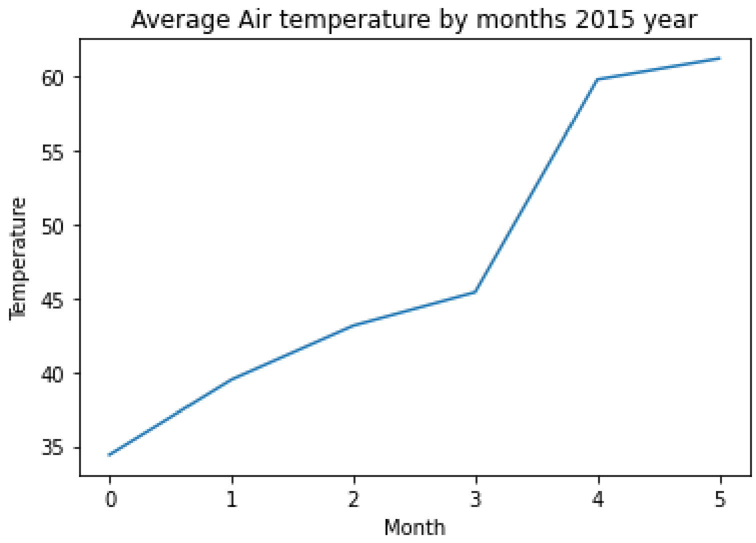
Average Air temp by months 2014 year

In [10]:
```
df = get_df('2014')
plt.plot(yearly_avg('Air_Temp'))
plt.title('Average Air temperature by months 2014 year')
plt.xlabel("Month")
plt.ylabel("Temperature")
plt.show()
```



Average Air temp by months 2015 year

In [12]:
```
df = get_df('2015')
plt.plot(yearly_avg('Air_Temp'))
plt.title('Average Air temperature by months 2015 year')
plt.xlabel("Month")
plt.ylabel("Temperature")
plt.show()
```



In [60]:

```
def get_df(year):
    return pd.read_csv('Environmental_Data_Deep_Moor_{}.csv'.format(year))
```

Bar char Average temperature 2013-2015 year

In [14]:

```
def get_years(year1, year2, year3):
    df1 = get_df(year1)
    df2 = get_df(year2)
    df3 = get_df(year3)
    return [df1[df1['date'].between('{}_01_01'.format(year1), '{}_12_31'.format(yea
            df2[df2['date'].between('{}_01_01'.format(year2), '{}_12_31'.format(yea
            df3[df3['date'].between('{}_01_01'.format(year3), '{}_12_31'.format(yea
```

In [15]:

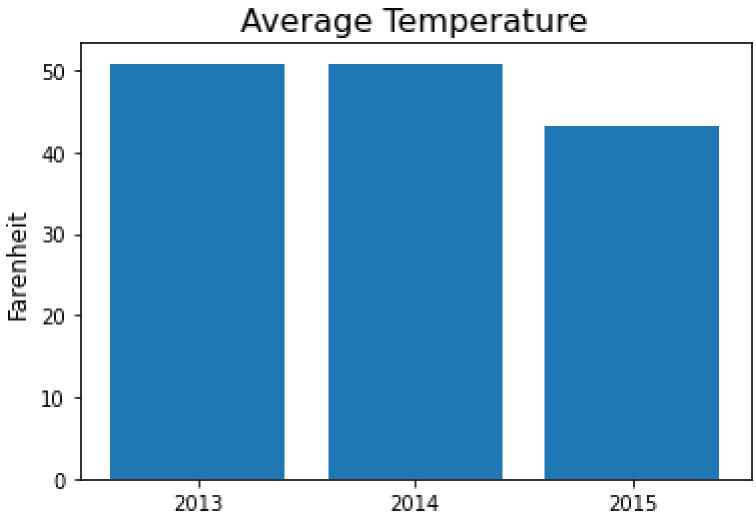
```
heights = [year['Air_Temp'].mean() for year in get_years('2013', '2014', '2015')]
```

In [16]:

```
years = ['2013', '2014', '2015']
```

In [17]:

```
plt.bar(years, heights)
plt.title('Average Temperature', fontsize=16)
plt.ylabel('Farenheit', fontsize=12)
plt.show()
```



Bar char Average temperature 2013-2015 year and table with min max

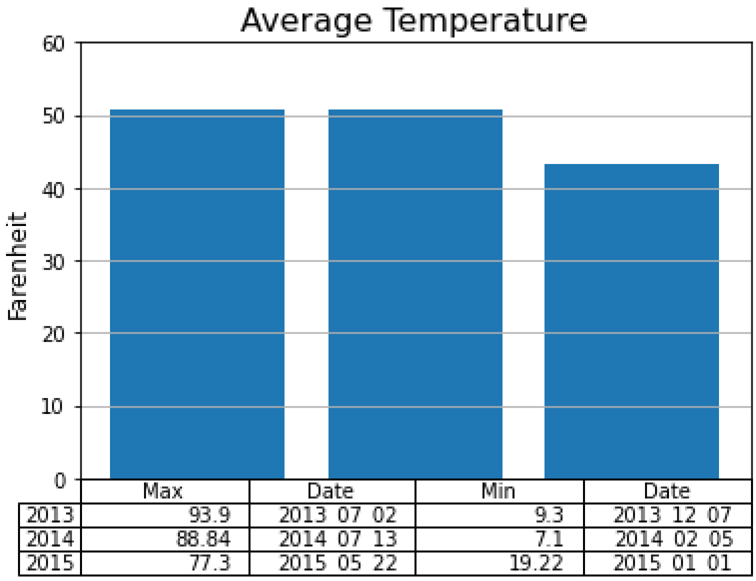
In [18]:
```
def max_temp(year):
    return year[year['Air_Temp']==year['Air_Temp'].max()]
```

In [19]:
```
def min_temp(year):
    return year[year['Air_Temp']==year['Air_Temp'].min()]
```

In [20]:
```
def min_man_temps(year1, year2, year3):
    return [(max_temp(s)['Air_Temp'].values[0],
             max_temp(s)['date'].values[0],
             min_temp(s)['Air_Temp'].values[0],
             min_temp(s)['date'].values[0]
        ) for s in get_years(year1, year2, year3)]
```

In [21]:
```
years = ['2013', '2014', '2015']
heights = [season['Air_Temp'].mean() for season in get_years('2013', '2014', '2015
```

In [24]:
```
plt.bar(years, heights)
plt.ylabel('Farenheit', fontsize=12)
plt.title('Average Temperature', fontsize=16)
rows = ['2013', '2014', '2015',]
columns = ['Max', 'Date', 'Min', 'Date']
plt.table(cellText=min_man_temps('2013', '2014', '2015'),
         rowLabels=rows,
         colLabels=columns)
plt.xticks([])
plt.ylim(0,60)
plt.grid(True)
plt.show()
```



	Max	Date	Min	Date
2013	93.9	2013 07 02	9.3	2013 12 07
2014	88.84	2014 07 13	7.1	2014 02 05
2015	77.3	2015 05 22	19.22	2015 01 01