# predict_tempraturefromhumidity_LinearRegression

April 24, 2018

In [2]:
```
%matplotlib inline
import pandas as pd
import numpy as np
from sklearn import linear_model
from sklearn.model_selection import train_test_split
import matplotlib.pyplot as plt
```

In [3]:
```
df = pd.read_csv('weatherHistory.csv')
df.head()
```

Out[3]:

| | Formatted Date | Summary | Precip Type | Temperature (C) | Apparent Temperature (C) | Humidity | Wind Speed (km/h) | Wind Bearing (degrees) | Visibility (km) | Loud Cover | Pressure (millibars) | Daily Summary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 2006-04-01 00:00:00.000 +0200 | Partly Cloudy | rain | 9.472222 | 7.388889 | 0.89 | 14.1197 | 251.0 | 15.8263 | 0.0 | 1015.13 | Partly cloudy throughout the day. |
| 1 | 2006-04-01 01:00:00.000 +0200 | Partly Cloudy | rain | 9.355556 | 7.227778 | 0.86 | 14.2646 | 259.0 | 15.8263 | 0.0 | 1015.63 | Partly cloudy throughout the day. |
| 2 | 2006-04-01 02:00:00.000 +0200 | Mostly Cloudy | rain | 9.377778 | 9.377778 | 0.89 | 3.9284 | 204.0 | 14.9569 | 0.0 | 1015.94 | Partly cloudy throughout the day. |
| 3 | 2006-04-01 03:00:00.000 +0200 | Partly Cloudy | rain | 8.288889 | 5.944444 | 0.83 | 14.1036 | 269.0 | 15.8263 | 0.0 | 1016.41 | Partly cloudy throughout the day. |
| 4 | 2006-04-01 04:00:00.000 +0200 | Mostly Cloudy | rain | 8.755556 | 6.977778 | 0.83 | 11.0446 | 259.0 | 15.8263 | 0.0 | 1016.51 | Partly cloudy throughout the day. |

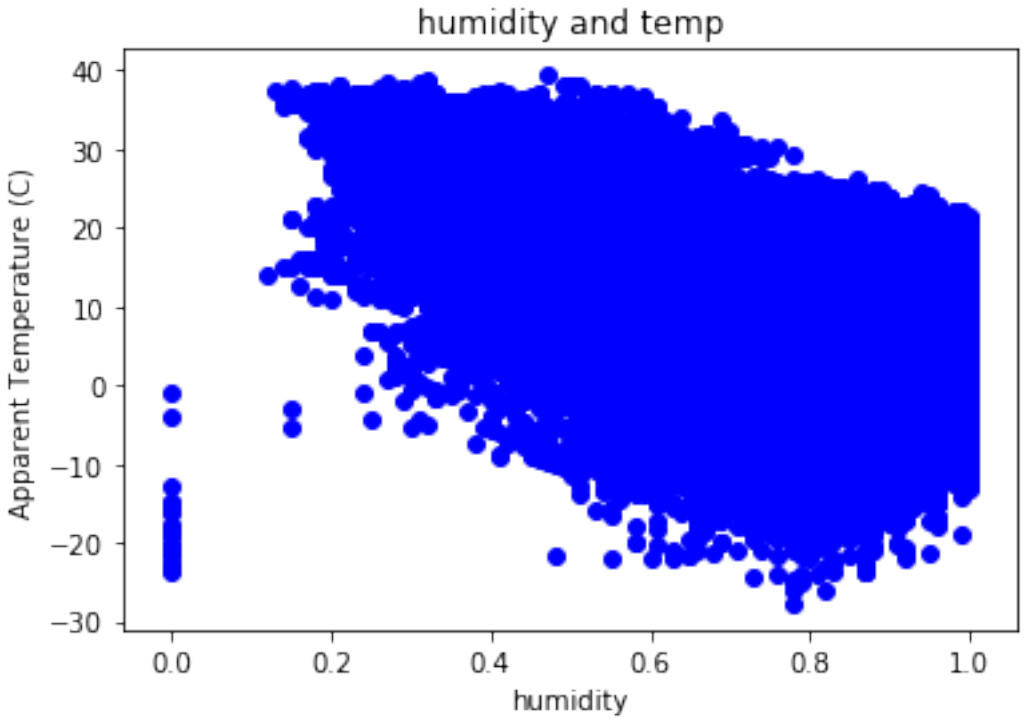
```
In [4]: y = df['Apparent Temperature (C)']#.values.reshape(-1,1)
        # 'Wind Bearing (degrees)'
        x = pd.DataFrame(df, columns=['Temperature (C)','Wind Bearing (degrees)','Pressure (mill
        x.head()
```

Out[4]:

| | Temperature (C) | Wind Bearing (degrees) | Pressure (millibars) | Humidity | \ |
|---|---|---|---|---|---|
| 0 | 9.472222 | 251.0 | 1015.13 | 0.89 | |
| 1 | 9.355556 | 259.0 | 1015.63 | 0.86 | |
| 2 | 9.377778 | 204.0 | 1015.94 | 0.89 | |
| 3 | 8.288889 | 269.0 | 1016.41 | 0.83 | |
| 4 | 8.755556 | 259.0 | 1016.51 | 0.83 | |

| | Visibility (km) | Wind Speed (km/h) | Wind Bearing (degrees) |
|---|---|---|---|
| 0 | 15.8263 | 14.1197 | 251.0 |
| 1 | 15.8263 | 14.2646 | 259.0 |
| 2 | 14.9569 | 3.9284 | 204.0 |
| 3 | 15.8263 | 14.1036 | 269.0 |
| 4 | 15.8263 | 11.0446 | 259.0 |

```
In [5]: x_train,x_test,y_train,y_test=train_test_split(x,y)

In [6]: lr = linear_model.LinearRegression()

In [7]: lr.fit(x_train,y_train)

Out[7]: LinearRegression(copy_X=True, fit_intercept=True, n_jobs=1, normalize=False)

In [8]: predicted = lr.predict(x_test)

In [9]: lr.score(x_test,y_test)

Out[9]: 0.9899560097244506

In [10]: mse = np.mean((predicted-y_test)**2)
         mse

Out[10]: 1.1636353885540038

In [12]: plt.title('humidity and temp')
         plt.xlabel('humidity')
         plt.ylabel('Apparent Temperature (C)')
         plt.scatter(x['Humidity'], y, color='blue')

Out[12]: <matplotlib.collections.PathCollection at 0x7f50aae52e10>
```


humidity and temp
Apparent Temperature (C)
40
30
20
10
0
−10
−20
−30
0.0
0.2
0.4
0.6
0.8
1.0
humidity