In [1]:
```
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

# import os
# for dirname, _, filenames in os.walk('/kaggle/input'):
#     for filename in filenames:
#         print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version using "Save & Run All"
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session
```

In [2]:
```
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
%matplotlib inline
```

Loading the data set

In [3]:
```
df = pd.read_csv('dataset[652].csv')
```

In [4]:
```
df.head()
```

Out[4]:

	Humidity	Temperature
0	0.596606	13.182462
1	0.656572	8.156680
2	0.141856	32.713142
3	0.757360	6.282035
4	0.613228	12.675158

Checking for missing/Null values

In [5]:
```
df.isnull().sum()
```

Out[5]:
```
Humidity       0
Temperature    0
dtype: int64
```

no none values present.

In [6]:
```
df.isna().sum()
```

Out[6]:
```
Humidity       0
Temperature    0
dtype: int64
```

no na values present.

In [7]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 300 entries, 0 to 299
Data columns (total 2 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   Humidity     300 non-null    float64
 1   Temperature  300 non-null    float64
dtypes: float64(2)
memory usage: 4.8 KB
```

Some statistics of the data

In [8]:
```
df.describe()
```

Out[8]:

	Humidity	Temperature
count	300.000000	300.000000
mean	0.535887	14.981862
std	0.169164	11.144964
min	0.000000	-21.684834
25%	0.424500	8.290974
50%	0.537120	14.907001
75%	0.649772	22.408376
max	1.000000	43.825049

Splitting of Dataset

In [9]:
```
from sklearn.model_selection import train_test_split
df_train, df_test = train_test_split(df, train_size=0.8,
test_size = 0.2, random_state = 32) # here test size is 20% of
original dataset
```

In [10]:
```
df_train.head()
```

Out[10]:

	Humidity	Temperature
156	0.187995	36.457018
294	0.455106	17.081201
184	0.542374	16.613381
130	0.615996	12.977813
15	0.556324	18.576819

In [11]:
```
df_test.head()
```

Out[11]:

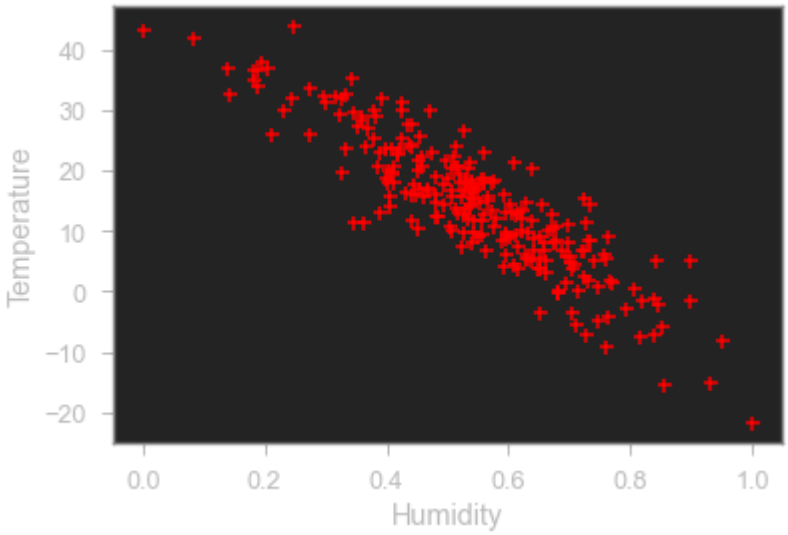
	Humidity	Temperature
265	0.473704	26.027498
255	0.562434	9.664922
286	0.928479	-4.872044
19	0.485101	16.762489

	Humidity	Temperature
212	0.473949	14.142821

Plotting

In [12]:
```
plt.xlabel('Humidity')
plt.ylabel('Temperature')
plt.scatter(df_train.Humidity, df_train.Temperature,
color='red',marker='+')
```

Out[12]:
```
<matplotlib.collections.PathCollection at 0x243b1e6b6d0>
```



In [13]:
```
from sklearn import linear_model
reg = linear_model.LinearRegression()
reg.fit(df_train[['Humidity']].values, df_train.Temperature)
```

Out[13]:
```
LinearRegression()
```

In [14]:
```
reg.predict([[0.4]]) # testing a random value
```

Out[14]:
```
array([22.97569844])
```

The Relationship

In [15]:
```
reg.coef_
```

Out[15]:
```
array([-59.25588616])
```

In [16]:
```
reg.intercept_
```

Out[16]:
```
46.67805289888122
```

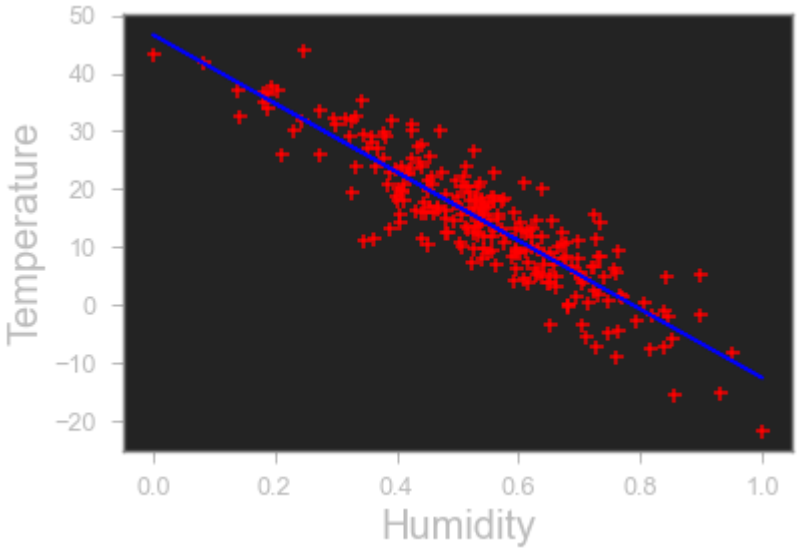
In [17]:
```
print("The relationship is : Temperature = ",
float(reg.coef_)," * Humidity + ",reg.intercept_ )
```

```
The relationship is : Temperature =  -59.25588615970043  * Humidity +  46.67805289888122
```

The best fit line

In [18]:
```
plt.xlabel('Humidity', fontsize=20)
plt.ylabel('Temperature', fontsize=20)
plt.scatter(df_train.Humidity, df_train.Temperature,
color='red',marker='+')
plt.plot(df_train.Humidity,
reg.predict(df_train[['Humidity']].values), color='blue')
```

Out[18]:
```
[<matplotlib.lines.Line2D at 0x243b2720e50>]
```



This is the best-fit line.

Prediction from test data

In [19]:
```
pred = reg.predict(df_test[['Humidity']].values)
```

Checking Accuracy

In [20]:
```
from sklearn.metrics import mean_squared_error
```

In [21]:
```
print("Model Report")
print("MSE:", mean_squared_error(df_test['Temperature'].values,
pred))
```

```
Model Report
MSE: 26.92354337018343
```

In [ ]:
```

```