In [23]: `%cd C:\Users\manoj\Downloads`

C:\Users\manoj\Downloads

In [21]: `import pandas as pd`

In [24]: `df=pd.read_csv('Weather Data (1).csv')`

In [25]: `df.head()`

Out[25]:

	Month	Rainfall	Humidity	Temperature
0	January	51.58	91.25	10.09
1	February	34.45	89.92	11.25
2	March	40.28	91.24	11.01
3	April	41.93	90.14	12.29
4	May	44.47	91.11	16.30

In [26]: `df.tail()`

Out[26]:

|	Month	Rainfall	Humidity	Temperature
7	August	55.26	94.24	24.60
8	September	51.85	95.10	18.88
9	October	66.97	94.36	13.05
10	November	57.85	93.20	13.23
11	December	51.39	91.89	11.29

In [27]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 12 entries, 0 to 11
Data columns (total 4 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   Month        12 non-null     object
 1   Rainfall     12 non-null     float64
 2   Humidity     12 non-null     float64
 3   Temperature  12 non-null     float64
dtypes: float64(3), object(1)
memory usage: 512.0+ bytes
```

In [30]: `import matplotlib.pyplot as plt`

In [33]:
```python
plt.scatter(df['Humidity'],df['Temperature'])
plt.xlabel('Humidity')
plt.ylabel('Temperature')
plt.title('Humidity vs Temperature')
```

Out[33]: `Text(0.5, 1.0, 'Humidity vs Temperature')`
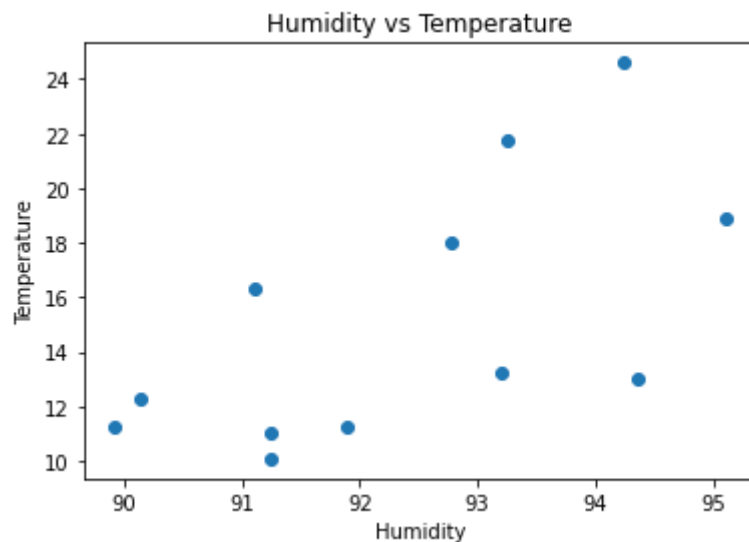
In [37]:
```python
x=df['Rainfall']
y=df['Temperature']
x.corr(y,method='spearman')
```

Out[37]: 0.3356643356643357

In [38]:
```python
import numpy as np
import scipy.stats
x=np.array(df['Rainfall'])
y=np.array(df['Temperature'])
```
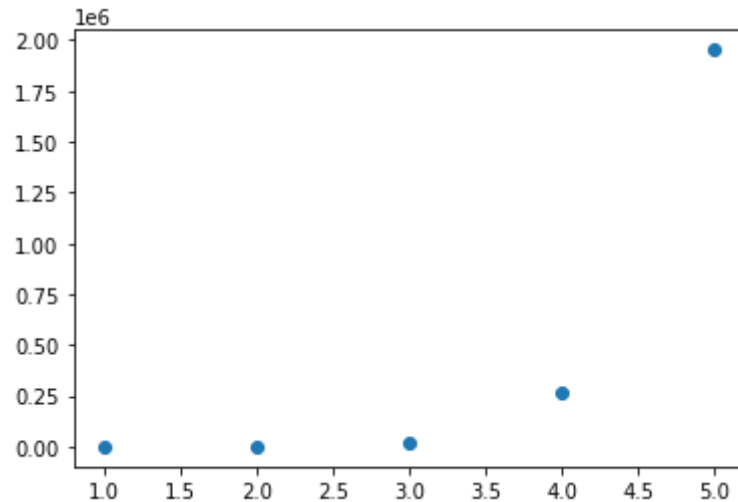
In [39]:
```python
scipy.stats.pearsonr(x,y)
```

Out[39]: (0.10222680295016229, 0.7518987901694975)

In [40]:
```python
scipy.stats.spearmanr(x,y)
```

Out[40]: SpearmanrResult(correlation=0.3356643356643357, pvalue=0.2861229029149875)

In [50]:
```python
x=np.array([1,2,3,4,5])
y=np.array([1,2,3,4,5])**9
plt.scatter(x,y)
scipy.stats.spearmanr(x,y)
```

Out[50]: SpearmanrResult(correlation=0.9999999999999999, pvalue=1.4042654220543672e-24)

In [18]:
```python
import numpy as np
```

In [19]:
```python
a=[]
```

In [20]:
```python
A=np.array([1,2,3,4,5,6])
```

In [21]:
```python
(a)
(A)
```

Out[21]: array([1, 2, 3, 4, 5, 6])

In [24]:
```python
np.arange(0,7,3)
```

Out[24]: array([0, 3, 6])

In [37]:
```python
np.arange(2,14,2)
```

Out[37]: array([2, 4, 6, 8, 10, 12])

In [38]:
```python
a=[2,4,6,8,10,12]
```

In [ ]:

In [33]:
```python
A=np.array([1,2,3,4,5,6])
A.shape
```

Out[33]: (6,)

In [39]:
```python
A.reshape(1,6)
```

Out[39]: array([[1, 2, 3, 4, 5, 6]])

In [40]:
```python
A=A.reshape(2,3)
```

In [41]:
```python
A.shape
```

Out[41]: (2, 3)

In [42]:
```python
np.zeros((4,3))
```

Out[42]: array([[0., 0., 0.],
               [0., 0., 0.],
               [0., 0., 0.],
               [0., 0., 0.]])

In [47]:
```python
2*np.eye(2)
```

Out[47]: array([[2., 0.],
               [0., 2.]])

In [49]:
```python
i=np.eye(3)
```

```
In [50]: i
```

```
Out[50]: array([[1., 0., 0.],
                [0., 1., 0.],
                [0., 0., 1.]])
```

```
In [58]: d=np.arange(1,10).reshape(3,3)
```

```
In [54]: d
```

```
Out[54]: array([[1, 2, 3],
                [4, 5, 6],
                [7, 8, 9]])
```

```
In [55]: m=np.dot(i,d)
```

```
In [56]: m
```

```
Out[56]: array([[1., 2., 3.],
                [4., 5., 6.],
                [7., 8., 9.]])
```

```
In [59]: np.sum(m)
```

```
Out[59]: 45.0
```

```
In [63]: np.sum(m,axis=0)
```

```
Out[63]: array([12., 15., 18.])
```

```
In [91]: np.random.rand(2,3)
```

```
Out[91]: array([[0.8988448 , 0.97044956, 0.23543717],
                [0.92373125, 0.02599982, 0.67140909]])
```

```
In [95]: a=np.append(m,[20,2,3,5])
```

```
In [96]:  a
```

```
Out[96]:  array([ 1.,  2.,  3.,  4.,  5.,  6.,  7.,  8.,  9., 20.,  2.,  3.,  5.])
```

```
In [103]:  a=np.diff(m,n=2)
```

```
In [101]:  a
```

```
Out[101]:  array([[0.],
                  [0.],
                  [0.]])
```

```
In [125]:  X=np.array([1,25,58,79,84])
```

```
In [126]:  Y=np.diff(X,n=1)
```

```
In [127]:  Y
```

```
Out[127]:  array([24, 33, 21,  5])
```

```
In [128]:  np.diff(Y,n=1)
```

```
Out[128]:  array([  9, -12, -16])
```

```
In [129]:  np.diff(X,n=1)
```

```
Out[129]:  array([24, 33, 21,  5])
```

```
In [130]:  a=[2,3,6]
           b=[2,4,8]
           c=[3,6,9]
```

In [131]: `np.vstack((a,b,c))`

Out[131]:
```
array([[2, 3, 6],
       [2, 4, 8],
       [3, 6, 9]])
```

In [132]: `np.column_stack((a,b,c))`

Out[132]:
```
array([[2, 2, 3],
       [3, 4, 6],
       [6, 8, 9]])
```

In [ ]: