

weather-data-analysis

January 30, 2024

0.1 Working On Real Project with Python

0.1.1 Weather Dataset

Here, the weather dataset is a time-series data set awith per-hour information about the weather conditions at a particular location. It records temperature, Dew point Temperature, Relative Humidity, Wind speed, Pressure and Conditions. This Data is Available as a CSV file. We are going to analyse the data set using the Pandas DataFrame.

```
[1]: import pandas as pd
```

```
[3]: data = pd.read_csv(r"D:/data analystics/Python for data analytics/Python_
↳Projects/Weather Dataset Analysis Project/file.csv")
```

```
[5]: data.head()
```

```
[5]:      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_km/h  \
0  1/1/2012 0:00    -1.8          -3.9         86             4
1  1/1/2012 1:00    -1.8          -3.7         87             4
2  1/1/2012 2:00    -1.8          -3.4         89             7
3  1/1/2012 3:00    -1.5          -3.2         88             6
4  1/1/2012 4:00    -1.5          -3.3         88             7
```

```
      Visibility_km  Press_kPa      Weather
0              8.0    101.24          Fog
1              8.0    101.24          Fog
2              4.0    101.26  Freezing Drizzle,Fog
3              4.0    101.27  Freezing Drizzle,Fog
4              4.8    101.23          Fog
```

```
[7]: data.shape
```

```
[7]: (8784, 8)
```

```
[8]: data.index
```

```
[8]: RangeIndex(start=0, stop=8784, step=1)
```

```
[9]: data.columns
```

```
[9]: Index(['Date/Time', 'Temp_C', 'Dew Point Temp_C', 'Rel Hum_%',  
         'Wind Speed_km/h', 'Visibility_km', 'Press_kPa', 'Weather'],  
         dtype='object')
```

```
[10]: data.dtypes
```

```
[10]: Date/Time          object  
      Temp_C            float64  
      Dew Point Temp_C  float64  
      Rel Hum_%         int64  
      Wind Speed_km/h   int64  
      Visibility_km     float64  
      Press_kPa         float64  
      Weather           object  
      dtype: object
```

```
[11]: data['Weather'].unique()
```

```
[11]: array(['Fog', 'Freezing Drizzle,Fog', 'Mostly Cloudy', 'Cloudy', 'Rain',  
            'Rain Showers', 'Mainly Clear', 'Snow Showers', 'Snow', 'Clear',  
            'Freezing Rain,Fog', 'Freezing Rain', 'Freezing Drizzle',  
            'Rain,Snow', 'Moderate Snow', 'Freezing Drizzle,Snow',  
            'Freezing Rain,Snow Grains', 'Snow,Blowing Snow', 'Freezing Fog',  
            'Haze', 'Rain,Fog', 'Drizzle,Fog', 'Drizzle',  
            'Freezing Drizzle,Haze', 'Freezing Rain,Haze', 'Snow,Haze',  
            'Snow,Fog', 'Snow,Ice Pellets', 'Rain,Haze', 'Thunderstorms,Rain',  
            'Thunderstorms,Rain Showers', 'Thunderstorms,Heavy Rain Showers',  
            'Thunderstorms,Rain Showers,Fog', 'Thunderstorms',  
            'Thunderstorms,Rain,Fog',  
            'Thunderstorms,Moderate Rain Showers,Fog', 'Rain Showers,Fog',  
            'Rain Showers,Snow Showers', 'Snow Pellets', 'Rain,Snow,Fog',  
            'Moderate Rain,Fog', 'Freezing Rain,Ice Pellets,Fog',  
            'Drizzle,Ice Pellets,Fog', 'Drizzle,Snow', 'Rain,Ice Pellets',  
            'Drizzle,Snow,Fog', 'Rain,Snow Grains', 'Rain,Snow,Ice Pellets',  
            'Snow Showers,Fog', 'Moderate Snow,Blowing Snow'], dtype=object)
```

```
[12]: data.nunique()
```

```
[12]: Date/Time          8784  
      Temp_C            533  
      Dew Point Temp_C  489  
      Rel Hum_%         83  
      Wind Speed_km/h   34  
      Visibility_km     24  
      Press_kPa         518  
      Weather           50  
      dtype: int64
```

```
[13]: data.count()
```

```
[13]: Date/Time      8784
      Temp_C        8784
      Dew Point Temp_C  8784
      Rel Hum_%      8784
      Wind Speed_km/h  8784
      Visibility_km   8784
      Press_kPa       8784
      Weather        8784
      dtype: int64
```

```
[14]: data['Weather'].value_counts()
```

```
[14]: Weather
      Mainly Clear      2106
      Mostly Cloudy    2069
      Cloudy            1728
      Clear             1326
      Snow              390
      Rain              306
      Rain Showers      188
      Fog               150
      Rain,Fog          116
      Drizzle,Fog       80
      Snow Showers      60
      Drizzle           41
      Snow,Fog          37
      Snow,Blowing Snow 19
      Rain,Snow         18
      Thunderstorms,Rain Showers 16
      Haze              16
      Drizzle,Snow,Fog  15
      Freezing Rain     14
      Freezing Drizzle,Snow 11
      Freezing Drizzle  7
      Snow,Ice Pellets  6
      Freezing Drizzle,Fog 6
      Snow,Haze         5
      Freezing Fog      4
      Snow Showers,Fog  4
      Moderate Snow     4
      Rain,Snow,Ice Pellets 4
      Freezing Rain,Fog 4
      Freezing Drizzle,Haze 3
      Rain,Haze         3
      Thunderstorms,Rain 3
```

```

Thunderstorms,Rain Showers,Fog      3
Freezing Rain,Haze                   2
Drizzle,Snow                         2
Rain Showers,Snow Showers            2
Thunderstorms                       2
Moderate Snow,Blowing Snow           2
Rain Showers,Fog                     1
Thunderstorms,Moderate Rain Showers,Fog 1
Snow Pellets                         1
Rain,Snow,Fog                       1
Moderate Rain,Fog                    1
Freezing Rain,Ice Pellets,Fog        1
Drizzle,Ice Pellets,Fog              1
Thunderstorms,Rain,Fog               1
Rain,Ice Pellets                     1
Rain,Snow Grains                     1
Thunderstorms,Heavy Rain Showers     1
Freezing Rain,Snow Grains            1
Name: count, dtype: int64

```

```
[15]: data.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8784 entries, 0 to 8783
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Date/Time              8784 non-null  object
1   Temp_C                 8784 non-null  float64
2   Dew Point Temp_C       8784 non-null  float64
3   Rel Hum_%              8784 non-null  int64
4   Wind Speed_km/h        8784 non-null  int64
5   Visibility_km           8784 non-null  float64
6   Press_kPa              8784 non-null  float64
7   Weather                8784 non-null  object
dtypes: float64(4), int64(2), object(2)
memory usage: 549.1+ KB

```

0.1.2 Q) 1. Find all the unique 'Wind Speed' Values in the Data?

```
[17]: data['Wind Speed_km/h'].nunique()
```

```
[17]: 34
```

```
[18]: data['Wind Speed_km/h'].unique()
```

```
[18]: array([ 4,  7,  6,  9, 15, 13, 20, 22, 19, 24, 30, 35, 39, 32, 33, 26, 44,
          43, 48, 37, 28, 17, 11,  0, 83, 70, 57, 46, 41, 52, 50, 63, 54,  2],
          dtype=int64)
```

0.1.3 Q) 2.Find the number of times when the ‘Weather is exactly Clear’?

```
[20]: data.groupby('Weather').get_group('Clear')
```

```
[20]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	Wind Speed_km/h	\
67	1/3/2012 19:00	-16.9		-24.8	50	24	
114	1/5/2012 18:00	-7.1		-14.4	56	11	
115	1/5/2012 19:00	-9.2		-15.4	61	7	
116	1/5/2012 20:00	-9.8		-15.7	62	9	
117	1/5/2012 21:00	-9.0		-14.8	63	13	
...	
8646	12/26/2012 6:00	-13.4		-14.8	89	4	
8698	12/28/2012 10:00	-6.1		-8.6	82	19	
8713	12/29/2012 1:00	-11.9		-13.6	87	11	
8714	12/29/2012 2:00	-11.8		-13.1	90	13	
8756	12/30/2012 20:00	-13.8		-16.5	80	24	
	Visibility_km	Press_kPa	Weather				
67	25.0	101.74	Clear				
114	25.0	100.71	Clear				
115	25.0	100.80	Clear				
116	25.0	100.83	Clear				
117	25.0	100.83	Clear				
...				
8646	25.0	102.47	Clear				
8698	24.1	101.27	Clear				
8713	25.0	101.31	Clear				
8714	25.0	101.33	Clear				
8756	25.0	101.52	Clear				

[1326 rows x 8 columns]

0.1.4 Q) 3.Find the number of times when the ‘Wind Speed was excatly 4km/h’.

```
[21]: data[data['Wind Speed_km/h'] == 4]
```

```
[21]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	Wind Speed_km/h	\
0	1/1/2012 0:00	-1.8		-3.9	86	4	
1	1/1/2012 1:00	-1.8		-3.7	87	4	
96	1/5/2012 0:00	-8.8		-11.7	79	4	
101	1/5/2012 5:00	-7.0		-9.5	82	4	
146	1/7/2012 2:00	-8.1		-11.1	79	4	

```

...      ...      ...      ...      ...
8768  12/31/2012 8:00    -8.6      -10.3      87      4
8769  12/31/2012 9:00    -8.1      -9.6      89      4
8770  12/31/2012 10:00   -7.4      -8.9      89      4
8772  12/31/2012 12:00   -5.8      -7.5      88      4
8773  12/31/2012 13:00   -4.6      -6.6      86      4

```

```

      Visibility_km  Press_kPa      Weather
0              8.0    101.24      Fog
1              8.0    101.24      Fog
96             9.7    100.32      Snow
101            4.0    100.19      Snow
146           19.3    100.15    Cloudy

```

```

...      ...      ...      ...
8768            3.2    101.14  Snow Showers
8769            2.4    101.09      Snow
8770            6.4    101.05  Snow,Fog
8772           12.9    100.78      Snow
8773           12.9    100.63      Snow

```

[474 rows x 8 columns]

0.1.5 Q) 4. Find outh all the Null Values in the data.

```
[24]: data.isnull().sum()
```

```

[24]: Date/Time      0
      Temp_C        0
      Dew Point Temp_C  0
      Rel Hum_%      0
      Wind Speed_km/h  0
      Visibility_km   0
      Press_kPa       0
      Weather        0
      dtype: int64

```

0.1.6 Q) 5. Rename the column name 'Weather' of the dataframe to 'Weather Condition'.

```
[25]: data.rename( columns= {'Weather' : 'Weather Condition'}, inplace= True)
```

```
[26]: data.head(2)
```

```

[26]:      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_km/h  \
0  1/1/2012 0:00    -1.8      -3.9      86      4
1  1/1/2012 1:00    -1.8      -3.7      87      4

```

	Visibility_km	Press_kPa	Weather Condition
0	8.0	101.24	Fog
1	8.0	101.24	Fog

0.1.7 Q) 6.What is the mean ‘Visibility’?

```
[29]: rounded_mean = round(data['Visibility_km'].mean(), 2)
print("Mean Visibility:", rounded_mean)
```

Mean Visibility: 27.66

0.1.8 Q) 7.What is the Standard Deviation of ‘Pressure’ in this data.

```
[31]: rounded_std = round(data['Press_kPa'].std(), 2)
print("Standard Deviation of 'Pressure':", rounded_std)
```

Standard Deviation of 'Pressure': 0.84

0.1.9 Q) 8.What is the variance of ‘Realtive Humidity’ in this data?

```
[33]: rounded_vari = round(data['Rel Hum_%'].var(), 2)
print("Relative Humidity:", rounded_vari)
```

Relative Humidity: 286.25

0.1.10 Q) 9.Find all instances when ‘Snow’ was recorded.

```
[35]: snow_counts = data[data['Weather Condition'] == 'Snow']['Weather Condition'].
      ↪value_counts()
print(snow_counts)
```

```
Weather Condition
Snow      390
Name: count, dtype: int64
```

0.1.11 Q) 10.Find all instances when ‘Wind speed is above 24’ and ‘Visibility is 25’

```
[36]: data[(data['Wind Speed_km/h'] > 24) & (data['Visibility_km'] == 25)]
```

```
[36]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	Wind Speed_km/h	\
23	1/1/2012 23:00	5.3		2.0	79	30	
24	1/2/2012 0:00	5.2		1.5	77	35	
25	1/2/2012 1:00	4.6		0.0	72	39	
26	1/2/2012 2:00	3.9		-0.9	71	32	
27	1/2/2012 3:00	3.7		-1.5	69	33	
...	

8705	12/28/2012 17:00	-8.6	-12.0	76	26
8753	12/30/2012 17:00	-12.1	-15.8	74	28
8755	12/30/2012 19:00	-13.4	-16.5	77	26
8759	12/30/2012 23:00	-12.1	-15.1	78	28
8760	12/31/2012 0:00	-11.1	-14.4	77	26

	Visibility_km	Press_kPa	Weather Condition
23	25.0	99.31	Cloudy
24	25.0	99.26	Rain Showers
25	25.0	99.26	Cloudy
26	25.0	99.26	Mostly Cloudy
27	25.0	99.30	Mostly Cloudy
...
8705	25.0	101.34	Mainly Clear
8753	25.0	101.26	Mainly Clear
8755	25.0	101.47	Mainly Clear
8759	25.0	101.52	Mostly Cloudy
8760	25.0	101.51	Cloudy

[308 rows x 8 columns]

0.1.12 Q) 11.What is the mean Value of each column against each ‘Weather Condition’?

```
[39]: data.groupby('Weather Condition').mean()
```

```
[39]:
```

Weather Condition	Date/Time \
Clear	2012-06-25 18:03:12.760180992
Cloudy	2012-07-01 16:51:29.583333376
Drizzle	2012-09-17 15:00:00.000000000
Drizzle,Fog	2012-06-30 00:44:15.000000000
Drizzle,Ice Pellets,Fog	2012-12-17 09:00:00.000000000
Drizzle,Snow	2012-12-18 16:30:00.000000000
Drizzle,Snow,Fog	2012-12-19 20:56:00.000000000
Fog	2012-06-24 21:08:00.000000000
Freezing Drizzle	2012-03-05 23:25:42.857142784
Freezing Drizzle,Fog	2012-04-30 06:20:00.000000000
Freezing Drizzle,Haze	2012-02-01 12:00:00.000000000
Freezing Drizzle,Snow	2012-06-27 12:32:43.636363520
Freezing Fog	2012-02-22 06:45:00.000000000
Freezing Rain	2012-02-14 01:34:17.142857216
Freezing Rain,Fog	2012-06-28 15:45:00.000000000
Freezing Rain,Haze	2012-02-01 14:30:00.000000000
Freezing Rain,Ice Pellets,Fog	2012-12-17 03:00:00.000000000
Freezing Rain,Snow Grains	2012-01-13 09:00:00.000000000
Haze	2012-06-06 00:37:30.000000000

Mainly Clear	2012-07-12 06:48:08.888888832
Moderate Rain,Fog	2012-12-10 08:00:00.000000000
Moderate Snow	2012-07-05 12:00:00.000000000
Moderate Snow,Blowing Snow	2012-12-27 11:00:00.000000000
Mostly Cloudy	2012-07-01 10:42:53.417109760
Rain	2012-07-02 07:18:02.352941056
Rain Showers	2012-07-14 17:25:51.063829760
Rain Showers,Fog	2012-10-20 03:00:00.000000000
Rain Showers,Snow Showers	2012-11-19 21:00:00.000000000
Rain,Fog	2012-08-17 05:19:08.275862016
Rain,Haze	2012-03-13 08:00:00.000000000
Rain,Ice Pellets	2012-12-18 05:00:00.000000000
Rain,Snow	2012-07-22 00:23:20.000000000
Rain,Snow Grains	2012-12-21 00:00:00.000000000
Rain,Snow,Fog	2012-12-08 21:00:00.000000000
Rain,Snow,Ice Pellets	2012-12-21 03:15:00.000000000
Snow	2012-04-18 19:10:36.923076864
Snow Pellets	2012-11-24 15:00:00.000000000
Snow Showers	2012-07-21 22:40:59.999999744
Snow Showers,Fog	2012-12-28 17:15:00.000000000
Snow,Blowing Snow	2012-08-08 17:44:12.631578880
Snow,Fog	2012-10-21 17:42:09.729729792
Snow,Haze	2012-02-01 19:00:00.000000000
Snow,Ice Pellets	2012-09-14 21:00:00.000000000
Thunderstorms	2012-07-10 08:30:00.000000000
Thunderstorms,Heavy Rain Showers	2012-05-29 06:00:00.000000000
Thunderstorms,Moderate Rain Showers,Fog	2012-07-17 06:00:00.000000000
Thunderstorms,Rain	2012-07-04 02:20:00.000000000
Thunderstorms,Rain Showers	2012-07-18 14:48:45.000000000
Thunderstorms,Rain Showers,Fog	2012-07-16 02:40:00.000000000
Thunderstorms,Rain,Fog	2012-07-17 05:00:00.000000000

Weather Condition	Temp_C	Dew Point	Temp_C \
Clear	6.825716	0.089367	
Cloudy	7.970544	2.375810	
Drizzle	7.353659	5.504878	
Drizzle,Fog	8.067500	7.033750	
Drizzle,Ice Pellets,Fog	0.400000	-0.700000	
Drizzle,Snow	1.050000	0.150000	
Drizzle,Snow,Fog	0.693333	0.120000	
Fog	4.303333	3.159333	
Freezing Drizzle	-5.657143	-8.000000	
Freezing Drizzle,Fog	-2.533333	-4.183333	
Freezing Drizzle,Haze	-5.433333	-8.000000	
Freezing Drizzle,Snow	-5.109091	-7.072727	
Freezing Fog	-7.575000	-9.250000	

Freezing Rain	-3.885714	-6.078571
Freezing Rain,Fog	-2.225000	-3.750000
Freezing Rain,Haze	-4.900000	-7.450000
Freezing Rain,Ice Pellets,Fog	-2.600000	-3.700000
Freezing Rain,Snow Grains	-5.000000	-7.300000
Haze	-0.200000	-2.975000
Mainly Clear	12.558927	4.581671
Moderate Rain,Fog	1.700000	0.800000
Moderate Snow	-5.525000	-7.250000
Moderate Snow,Blowing Snow	-5.450000	-6.500000
Mostly Cloudy	10.574287	3.131174
Rain	9.786275	7.042810
Rain Showers	13.722340	9.187766
Rain Showers,Fog	12.800000	12.100000
Rain Showers,Snow Showers	2.150000	-1.500000
Rain,Fog	8.273276	7.219828
Rain,Haze	4.633333	2.066667
Rain,Ice Pellets	0.600000	-0.600000
Rain,Snow	1.055556	-0.566667
Rain,Snow Grains	1.900000	-2.100000
Rain,Snow,Fog	0.800000	0.300000
Rain,Snow,Ice Pellets	1.100000	-0.175000
Snow	-4.524103	-7.623333
Snow Pellets	0.700000	-6.400000
Snow Showers	-3.506667	-7.866667
Snow Showers,Fog	-10.675000	-11.900000
Snow,Blowing Snow	-5.410526	-7.621053
Snow,Fog	-5.075676	-6.364865
Snow,Haze	-4.020000	-6.860000
Snow,Ice Pellets	-1.883333	-3.666667
Thunderstorms	24.150000	19.750000
Thunderstorms,Heavy Rain Showers	10.900000	9.000000
Thunderstorms,Moderate Rain Showers,Fog	19.600000	18.500000
Thunderstorms,Rain	20.433333	18.533333
Thunderstorms,Rain Showers	20.037500	17.618750
Thunderstorms,Rain Showers,Fog	21.600000	18.700000
Thunderstorms,Rain,Fog	20.600000	18.600000

Weather Condition	Rel Hum_%	Wind Speed_km/h \
Clear	64.497738	10.557315
Cloudy	69.592593	16.127315
Drizzle	88.243902	16.097561
Drizzle,Fog	93.275000	11.862500
Drizzle,Ice Pellets,Fog	92.000000	20.000000
Drizzle,Snow	93.500000	14.000000
Drizzle,Snow,Fog	95.866667	15.533333

Fog	92.286667	7.946667
Freezing Drizzle	83.571429	16.571429
Freezing Drizzle,Fog	88.500000	17.000000
Freezing Drizzle,Haze	82.000000	10.333333
Freezing Drizzle,Snow	86.090909	16.272727
Freezing Fog	87.750000	4.750000
Freezing Rain	84.642857	19.214286
Freezing Rain,Fog	89.500000	15.500000
Freezing Rain,Haze	82.500000	7.500000
Freezing Rain,Ice Pellets,Fog	92.000000	28.000000
Freezing Rain,Snow Grains	84.000000	32.000000
Haze	81.625000	10.437500
Mainly Clear	60.667142	14.144824
Moderate Rain,Fog	94.000000	17.000000
Moderate Snow	87.750000	33.750000
Moderate Snow,Blowing Snow	92.500000	40.000000
Mostly Cloudy	62.102465	15.813920
Rain	83.624183	19.254902
Rain Showers	75.159574	17.132979
Rain Showers,Fog	96.000000	13.000000
Rain Showers,Snow Showers	76.500000	22.500000
Rain,Fog	93.189655	14.793103
Rain,Haze	83.333333	11.666667
Rain,Ice Pellets	92.000000	24.000000
Rain,Snow	89.000000	28.388889
Rain,Snow Grains	75.000000	26.000000
Rain,Snow,Fog	96.000000	9.000000
Rain,Snow,Ice Pellets	91.500000	23.250000
Snow	79.307692	20.038462
Snow Pellets	59.000000	35.000000
Snow Showers	72.350000	19.233333
Snow Showers,Fog	90.750000	13.750000
Snow,Blowing Snow	84.473684	34.842105
Snow,Fog	90.675676	17.324324
Snow,Haze	80.600000	5.000000
Snow,Ice Pellets	87.666667	23.833333
Thunderstorms	77.000000	7.500000
Thunderstorms,Heavy Rain Showers	88.000000	9.000000
Thunderstorms,Moderate Rain Showers,Fog	93.000000	15.000000
Thunderstorms,Rain	89.000000	15.666667
Thunderstorms,Rain Showers	86.375000	18.312500
Thunderstorms,Rain Showers,Fog	84.000000	19.666667
Thunderstorms,Rain,Fog	88.000000	19.000000

	Visibility_km	Press_kPa
Weather Condition		
Clear	30.153243	101.587443

Cloudy	26.625752	100.911441
Drizzle	17.931707	100.435366
Drizzle,Fog	5.257500	100.786625
Drizzle,Ice Pellets,Fog	4.000000	100.790000
Drizzle,Snow	10.500000	100.890000
Drizzle,Snow,Fog	5.513333	99.281333
Fog	6.248000	101.184067
Freezing Drizzle	9.200000	100.202857
Freezing Drizzle,Fog	5.266667	100.441667
Freezing Drizzle,Haze	2.666667	100.316667
Freezing Drizzle,Snow	5.872727	100.520909
Freezing Fog	0.650000	102.320000
Freezing Rain	8.242857	99.647143
Freezing Rain,Fog	7.550000	99.945000
Freezing Rain,Haze	2.400000	100.375000
Freezing Rain,Ice Pellets,Fog	8.000000	100.950000
Freezing Rain,Snow Grains	4.800000	98.560000
Haze	7.831250	101.482500
Mainly Clear	34.264862	101.248832
Moderate Rain,Fog	6.400000	99.980000
Moderate Snow	0.750000	100.275000
Moderate Snow,Blowing Snow	0.600000	100.570000
Mostly Cloudy	31.253842	101.025288
Rain	18.856536	100.233333
Rain Showers	22.816489	100.404043
Rain Showers,Fog	6.400000	99.830000
Rain Showers,Snow Showers	21.700000	101.100000
Rain,Fog	6.873276	100.500862
Rain,Haze	6.700000	100.540000
Rain,Ice Pellets	9.700000	100.120000
Rain,Snow	11.672222	99.951111
Rain,Snow Grains	25.000000	100.600000
Rain,Snow,Fog	6.400000	100.730000
Rain,Snow,Ice Pellets	6.000000	100.105000
Snow	11.171795	100.536103
Snow Pellets	2.400000	99.700000
Snow Showers	20.158333	100.963500
Snow Showers,Fog	7.025000	101.292500
Snow,Blowing Snow	4.105263	99.704737
Snow,Fog	4.537838	100.688649
Snow,Haze	4.640000	100.782000
Snow,Ice Pellets	7.416667	100.548333
Thunderstorms	24.550000	100.230000
Thunderstorms,Heavy Rain Showers	2.400000	100.260000
Thunderstorms,Moderate Rain Showers,Fog	3.200000	100.010000
Thunderstorms,Rain	19.833333	100.420000
Thunderstorms,Rain Showers	15.893750	100.233750

Thunderstorms,Rain Showers,Fog	9.700000	100.063333
Thunderstorms,Rain,Fog	4.800000	100.080000

0.1.13 Q) 12.Waht is the Minimum and Maximum values of each Column against each 'Weather Condition'

```
[40]: data.groupby('Weather Condition').min()
```

```
[40]:
```

Weather Condition	Date/Time	Temp_C	\
Clear	2012-01-03 19:00:00	-23.3	
Cloudy	2012-01-01 17:00:00	-21.4	
Drizzle	2012-01-23 21:00:00	1.1	
Drizzle,Fog	2012-01-23 20:00:00	0.0	
Drizzle,Ice Pellets,Fog	2012-12-17 09:00:00	0.4	
Drizzle,Snow	2012-12-17 15:00:00	0.9	
Drizzle,Snow,Fog	2012-12-18 21:00:00	0.3	
Fog	2012-01-01 00:00:00	-16.0	
Freezing Drizzle	2012-01-07 11:00:00	-9.0	
Freezing Drizzle,Fog	2012-01-01 02:00:00	-6.4	
Freezing Drizzle,Haze	2012-02-01 11:00:00	-5.8	
Freezing Drizzle,Snow	2012-01-13 03:00:00	-8.3	
Freezing Fog	2012-01-22 06:00:00	-19.0	
Freezing Rain	2012-01-07 10:00:00	-6.5	
Freezing Rain,Fog	2012-01-07 09:00:00	-6.1	
Freezing Rain,Haze	2012-02-01 14:00:00	-4.9	
Freezing Rain,Ice Pellets,Fog	2012-12-17 03:00:00	-2.6	
Freezing Rain,Snow Grains	2012-01-13 09:00:00	-5.0	
Haze	2012-01-22 12:00:00	-11.5	
Mainly Clear	2012-01-02 12:00:00	-22.8	
Moderate Rain,Fog	2012-12-10 08:00:00	1.7	
Moderate Snow	2012-01-12 15:00:00	-6.3	
Moderate Snow,Blowing Snow	2012-12-27 10:00:00	-5.5	
Mostly Cloudy	2012-01-01 16:00:00	-23.2	
Rain	2012-01-01 18:00:00	0.3	
Rain Showers	2012-01-01 22:00:00	1.6	
Rain Showers,Fog	2012-10-20 03:00:00	12.8	
Rain Showers,Snow Showers	2012-11-04 08:00:00	2.1	
Rain,Fog	2012-01-23 18:00:00	0.0	
Rain,Haze	2012-03-13 07:00:00	4.0	
Rain,Ice Pellets	2012-12-18 05:00:00	0.6	
Rain,Snow	2012-01-10 05:00:00	0.6	
Rain,Snow Grains	2012-12-21 00:00:00	1.9	
Rain,Snow,Fog	2012-12-08 21:00:00	0.8	
Rain,Snow,Ice Pellets	2012-12-21 01:00:00	0.9	
Snow	2012-01-03 07:00:00	-16.7	
Snow Pellets	2012-11-24 15:00:00	0.7	

Snow Showers	2012-01-02 17:00:00	-13.3
Snow Showers,Fog	2012-12-26 09:00:00	-11.3
Snow,Blowing Snow	2012-01-13 21:00:00	-12.0
Snow,Fog	2012-02-10 23:00:00	-10.1
Snow,Haze	2012-02-01 17:00:00	-4.3
Snow,Ice Pellets	2012-03-03 04:00:00	-4.3
Thunderstorms	2012-07-04 16:00:00	21.6
Thunderstorms,Heavy Rain Showers	2012-05-29 06:00:00	10.9
Thunderstorms,Moderate Rain Showers,Fog	2012-07-17 06:00:00	19.6
Thunderstorms,Rain	2012-05-25 20:00:00	19.4
Thunderstorms,Rain Showers	2012-05-29 04:00:00	11.0
Thunderstorms,Rain Showers,Fog	2012-06-29 03:00:00	19.5
Thunderstorms,Rain,Fog	2012-07-17 05:00:00	20.6

Weather Condition	Dew Point Temp_C	Rel Hum_% \
Clear	-28.5	20
Cloudy	-26.8	18
Drizzle	-0.2	74
Drizzle,Fog	-1.6	85
Drizzle,Ice Pellets,Fog	-0.7	92
Drizzle,Snow	0.1	92
Drizzle,Snow,Fog	-0.1	92
Fog	-17.2	80
Freezing Drizzle	-12.2	78
Freezing Drizzle,Fog	-9.0	82
Freezing Drizzle,Haze	-8.3	81
Freezing Drizzle,Snow	-10.4	79
Freezing Fog	-22.9	71
Freezing Rain	-9.0	81
Freezing Rain,Fog	-8.7	82
Freezing Rain,Haze	-7.5	82
Freezing Rain,Ice Pellets,Fog	-3.7	92
Freezing Rain,Snow Grains	-7.3	84
Haze	-16.0	68
Mainly Clear	-28.0	20
Moderate Rain,Fog	0.8	94
Moderate Snow	-7.6	83
Moderate Snow,Blowing Snow	-6.6	92
Mostly Cloudy	-28.5	18
Rain	-5.7	40
Rain Showers	-7.2	37
Rain Showers,Fog	12.1	96
Rain Showers,Snow Showers	-1.8	75
Rain,Fog	-1.2	83
Rain,Haze	1.0	81
Rain,Ice Pellets	-0.6	92

Rain,Snow	-1.7	81
Rain,Snow Grains	-2.1	75
Rain,Snow,Fog	0.3	96
Rain,Snow,Ice Pellets	-0.7	88
Snow	-24.6	41
Snow Pellets	-6.4	59
Snow Showers	-19.3	52
Snow Showers,Fog	-12.7	89
Snow,Blowing Snow	-16.2	70
Snow,Fog	-12.0	77
Snow,Haze	-7.2	80
Snow,Ice Pellets	-5.9	76
Thunderstorms	19.4	67
Thunderstorms,Heavy Rain Showers	9.0	88
Thunderstorms,Moderate Rain Showers,Fog	18.5	93
Thunderstorms,Rain	18.2	83
Thunderstorms,Rain Showers	7.0	68
Thunderstorms,Rain Showers,Fog	16.1	80
Thunderstorms,Rain,Fog	18.6	88

Weather Condition	Wind Speed_km/h	Visibility_km \
Clear	0	11.3
Cloudy	0	11.3
Drizzle	0	6.4
Drizzle,Fog	0	1.0
Drizzle,Ice Pellets,Fog	20	4.0
Drizzle,Snow	9	9.7
Drizzle,Snow,Fog	7	2.4
Fog	0	0.2
Freezing Drizzle	6	4.8
Freezing Drizzle,Fog	6	3.6
Freezing Drizzle,Haze	9	2.0
Freezing Drizzle,Snow	6	2.4
Freezing Fog	0	0.2
Freezing Rain	7	2.8
Freezing Rain,Fog	7	2.8
Freezing Rain,Haze	6	2.0
Freezing Rain,Ice Pellets,Fog	28	8.0
Freezing Rain,Snow Grains	32	4.8
Haze	0	4.8
Mainly Clear	0	12.9
Moderate Rain,Fog	17	6.4
Moderate Snow	26	0.6
Moderate Snow,Blowing Snow	39	0.6
Mostly Cloudy	0	11.3
Rain	0	4.0

Rain Showers	0	6.4
Rain Showers,Fog	13	6.4
Rain Showers,Snow Showers	17	19.3
Rain,Fog	0	2.0
Rain,Haze	7	4.0
Rain,Ice Pellets	24	9.7
Rain,Snow	13	2.4
Rain,Snow Grains	26	25.0
Rain,Snow,Fog	9	6.4
Rain,Snow,Ice Pellets	17	4.8
Snow	0	1.0
Snow Pellets	35	2.4
Snow Showers	0	2.4
Snow Showers,Fog	7	4.0
Snow,Blowing Snow	24	0.6
Snow,Fog	4	1.2
Snow,Haze	0	4.0
Snow,Ice Pellets	19	2.8
Thunderstorms	0	24.1
Thunderstorms,Heavy Rain Showers	9	2.4
Thunderstorms,Moderate Rain Showers,Fog	15	3.2
Thunderstorms,Rain	4	16.1
Thunderstorms,Rain Showers	7	6.4
Thunderstorms,Rain Showers,Fog	7	9.7
Thunderstorms,Rain,Fog	19	4.8

Press_kPa	
Weather Condition	
Clear	99.52
Cloudy	98.39
Drizzle	97.84
Drizzle,Fog	98.65
Drizzle,Ice Pellets,Fog	100.79
Drizzle,Snow	100.63
Drizzle,Snow,Fog	97.79
Fog	98.31
Freezing Drizzle	98.44
Freezing Drizzle,Fog	98.74
Freezing Drizzle,Haze	100.28
Freezing Drizzle,Snow	99.19
Freezing Fog	101.97
Freezing Rain	98.22
Freezing Rain,Fog	98.32
Freezing Rain,Haze	100.34
Freezing Rain,Ice Pellets,Fog	100.95
Freezing Rain,Snow Grains	98.56
Haze	100.35

Mainly Clear	98.67
Moderate Rain,Fog	99.98
Moderate Snow	99.88
Moderate Snow,Blowing Snow	100.50
Mostly Cloudy	98.36
Rain	97.52
Rain Showers	98.51
Rain Showers,Fog	99.83
Rain Showers,Snow Showers	101.09
Rain,Fog	98.61
Rain,Haze	100.50
Rain,Ice Pellets	100.12
Rain,Snow	98.18
Rain,Snow Grains	100.60
Rain,Snow,Fog	100.73
Rain,Snow,Ice Pellets	99.85
Snow	97.75
Snow Pellets	99.70
Snow Showers	99.49
Snow Showers,Fog	100.63
Snow,Blowing Snow	98.11
Snow,Fog	99.38
Snow,Haze	100.61
Snow,Ice Pellets	99.40
Thunderstorms	99.84
Thunderstorms,Heavy Rain Showers	100.26
Thunderstorms,Moderate Rain Showers,Fog	100.01
Thunderstorms,Rain	100.19
Thunderstorms,Rain Showers	99.65
Thunderstorms,Rain Showers,Fog	99.71
Thunderstorms,Rain,Fog	100.08

```
[41]: data.groupby('Weather Condition').max()
```

```
[41]:
```

Weather Condition	Date/Time	Temp_C	\
Clear	2012-12-30 20:00:00	32.8	
Cloudy	2012-12-31 06:00:00	30.5	
Drizzle	2012-12-22 01:00:00	18.8	
Drizzle,Fog	2012-12-19 10:00:00	19.9	
Drizzle,Ice Pellets,Fog	2012-12-17 09:00:00	0.4	
Drizzle,Snow	2012-12-19 18:00:00	1.2	
Drizzle,Snow,Fog	2012-12-22 03:00:00	1.1	
Fog	2012-12-29 10:00:00	20.8	
Freezing Drizzle	2012-12-17 00:00:00	-2.3	
Freezing Drizzle,Fog	2012-12-10 05:00:00	-0.3	
Freezing Drizzle,Haze	2012-02-01 13:00:00	-5.0	

Freezing Drizzle,Snow	2012-12-28 02:00:00	-3.3
Freezing Fog	2012-03-17 06:00:00	-0.1
Freezing Rain	2012-12-17 02:00:00	0.3
Freezing Rain,Fog	2012-12-17 01:00:00	0.1
Freezing Rain,Haze	2012-02-01 15:00:00	-4.9
Freezing Rain,Ice Pellets,Fog	2012-12-17 03:00:00	-2.6
Freezing Rain,Snow Grains	2012-01-13 09:00:00	-5.0
Haze	2012-12-13 12:00:00	14.1
Mainly Clear	2012-12-30 22:00:00	33.0
Moderate Rain,Fog	2012-12-10 08:00:00	1.7
Moderate Snow	2012-12-27 09:00:00	-4.9
Moderate Snow,Blowing Snow	2012-12-27 12:00:00	-5.4
Mostly Cloudy	2012-12-31 03:00:00	32.4
Rain	2012-12-21 21:00:00	22.8
Rain Showers	2012-12-14 11:00:00	26.4
Rain Showers,Fog	2012-10-20 03:00:00	12.8
Rain Showers,Snow Showers	2012-12-05 10:00:00	2.2
Rain,Fog	2012-12-10 17:00:00	21.7
Rain,Haze	2012-03-13 09:00:00	5.5
Rain,Ice Pellets	2012-12-18 05:00:00	0.6
Rain,Snow	2012-12-21 09:00:00	1.7
Rain,Snow Grains	2012-12-21 00:00:00	1.9
Rain,Snow,Fog	2012-12-08 21:00:00	0.8
Rain,Snow,Ice Pellets	2012-12-21 05:00:00	1.3
Snow	2012-12-31 23:00:00	3.7
Snow Pellets	2012-11-24 15:00:00	0.7
Snow Showers	2012-12-31 08:00:00	2.9
Snow Showers,Fog	2012-12-29 13:00:00	-10.0
Snow,Blowing Snow	2012-12-27 19:00:00	-1.4
Snow,Fog	2012-12-31 10:00:00	1.1
Snow,Haze	2012-02-01 21:00:00	-3.6
Snow,Ice Pellets	2012-12-17 06:00:00	0.8
Thunderstorms	2012-07-16 01:00:00	26.7
Thunderstorms,Heavy Rain Showers	2012-05-29 06:00:00	10.9
Thunderstorms,Moderate Rain Showers,Fog	2012-07-17 06:00:00	19.6
Thunderstorms,Rain	2012-07-23 18:00:00	21.3
Thunderstorms,Rain Showers	2012-09-14 20:00:00	25.5
Thunderstorms,Rain Showers,Fog	2012-07-31 20:00:00	22.9
Thunderstorms,Rain,Fog	2012-07-17 05:00:00	20.6

Weather Condition	Dew Point Temp_C	Rel Hum_% \
Clear	20.4	99
Cloudy	22.6	99
Drizzle	17.7	96
Drizzle,Fog	19.1	100
Drizzle,Ice Pellets,Fog	-0.7	92

Drizzle,Snow	0.2	95
Drizzle,Snow,Fog	0.6	98
Fog	19.6	100
Freezing Drizzle	-3.3	93
Freezing Drizzle,Fog	-2.3	94
Freezing Drizzle,Haze	-7.7	83
Freezing Drizzle,Snow	-4.6	94
Freezing Fog	-0.3	99
Freezing Rain	-1.7	92
Freezing Rain,Fog	-0.9	93
Freezing Rain,Haze	-7.4	83
Freezing Rain,Ice Pellets,Fog	-3.7	92
Freezing Rain,Snow Grains	-7.3	84
Haze	11.1	86
Mainly Clear	21.2	99
Moderate Rain,Fog	0.8	94
Moderate Snow	-6.7	93
Moderate Snow,Blowing Snow	-6.4	93
Mostly Cloudy	24.4	100
Rain	20.4	99
Rain Showers	23.0	97
Rain Showers,Fog	12.1	96
Rain Showers,Snow Showers	-1.2	78
Rain,Fog	19.5	100
Rain,Haze	2.9	86
Rain,Ice Pellets	-0.6	92
Rain,Snow	0.5	94
Rain,Snow Grains	-2.1	75
Rain,Snow,Fog	0.3	96
Rain,Snow,Ice Pellets	0.1	94
Snow	0.3	96
Snow Pellets	-6.4	59
Snow Showers	-0.7	94
Snow Showers,Fog	-11.1	92
Snow,Blowing Snow	-2.9	91
Snow,Fog	0.8	99
Snow,Haze	-6.4	81
Snow,Ice Pellets	-1.7	92
Thunderstorms	20.1	87
Thunderstorms,Heavy Rain Showers	9.0	88
Thunderstorms,Moderate Rain Showers,Fog	18.5	93
Thunderstorms,Rain	19.1	93
Thunderstorms,Rain Showers	23.1	98
Thunderstorms,Rain Showers,Fog	21.3	91
Thunderstorms,Rain,Fog	18.6	88

Wind Speed_km/h Visibility_km \

Weather Condition		
Clear	33	48.3
Cloudy	54	48.3
Drizzle	30	25.0
Drizzle,Fog	28	9.7
Drizzle,Ice Pellets,Fog	20	4.0
Drizzle,Snow	19	11.3
Drizzle,Snow,Fog	32	9.7
Fog	22	9.7
Freezing Drizzle	26	12.9
Freezing Drizzle,Fog	33	8.0
Freezing Drizzle,Haze	11	4.0
Freezing Drizzle,Snow	24	12.9
Freezing Fog	9	0.8
Freezing Rain	28	16.1
Freezing Rain,Fog	26	9.7
Freezing Rain,Haze	9	2.8
Freezing Rain,Ice Pellets,Fog	28	8.0
Freezing Rain,Snow Grains	32	4.8
Haze	17	9.7
Mainly Clear	63	48.3
Moderate Rain,Fog	17	6.4
Moderate Snow	39	0.8
Moderate Snow,Blowing Snow	41	0.6
Mostly Cloudy	83	48.3
Rain	52	48.3
Rain Showers	41	48.3
Rain Showers,Fog	13	6.4
Rain Showers,Snow Showers	28	24.1
Rain,Fog	46	9.7
Rain,Haze	17	9.7
Rain,Ice Pellets	24	9.7
Rain,Snow	52	25.0
Rain,Snow Grains	26	25.0
Rain,Snow,Fog	9	6.4
Rain,Snow,Ice Pellets	28	6.4
Snow	57	25.0
Snow Pellets	35	2.4
Snow Showers	37	48.3
Snow Showers,Fog	22	9.7
Snow,Blowing Snow	48	9.7
Snow,Fog	35	9.7
Snow,Haze	15	6.4
Snow,Ice Pellets	33	11.3
Thunderstorms	15	25.0
Thunderstorms,Heavy Rain Showers	9	2.4
Thunderstorms,Moderate Rain Showers,Fog	15	3.2

Thunderstorms,Rain	30	24.1
Thunderstorms,Rain Showers	32	25.0
Thunderstorms,Rain Showers,Fog	35	9.7
Thunderstorms,Rain,Fog	19	4.8

	Press_kPa
Weather Condition	
Clear	103.63
Cloudy	103.65
Drizzle	101.56
Drizzle,Fog	102.07
Drizzle,Ice Pellets,Fog	100.79
Drizzle,Snow	101.15
Drizzle,Snow,Fog	100.15
Fog	103.04
Freezing Drizzle	101.02
Freezing Drizzle,Fog	101.27
Freezing Drizzle,Haze	100.36
Freezing Drizzle,Snow	101.18
Freezing Fog	102.85
Freezing Rain	101.00
Freezing Rain,Fog	101.01
Freezing Rain,Haze	100.41
Freezing Rain,Ice Pellets,Fog	100.95
Freezing Rain,Snow Grains	98.56
Haze	102.97
Mainly Clear	103.59
Moderate Rain,Fog	99.98
Moderate Snow	100.67
Moderate Snow,Blowing Snow	100.64
Mostly Cloudy	103.65
Rain	102.26
Rain Showers	102.31
Rain Showers,Fog	99.83
Rain Showers,Snow Showers	101.11
Rain,Fog	101.77
Rain,Haze	100.61
Rain,Ice Pellets	100.12
Rain,Snow	101.07
Rain,Snow Grains	100.60
Rain,Snow,Fog	100.73
Rain,Snow,Ice Pellets	100.47
Snow	102.73
Snow Pellets	99.70
Snow Showers	102.50
Snow Showers,Fog	102.52
Snow,Blowing Snow	100.62

Snow,Fog	102.07
Snow,Haze	100.99
Snow,Ice Pellets	100.96
Thunderstorms	100.62
Thunderstorms,Heavy Rain Showers	100.26
Thunderstorms,Moderate Rain Showers,Fog	100.01
Thunderstorms,Rain	100.83
Thunderstorms,Rain Showers	101.06
Thunderstorms,Rain Showers,Fog	100.64
Thunderstorms,Rain,Fog	100.08

0.1.14 Q) 13.Show all the Records where Weather Condition is Fog.

```
[44]: data[data['Weather Condition'] == "Fog"]
```

```
[44]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	\
0	2012-01-01 00:00:00	-1.8		-3.9	86	
1	2012-01-01 01:00:00	-1.8		-3.7	87	
4	2012-01-01 04:00:00	-1.5		-3.3	88	
5	2012-01-01 05:00:00	-1.4		-3.3	87	
6	2012-01-01 06:00:00	-1.5		-3.1	89	
...	
8716	2012-12-29 04:00:00	-16.0		-17.2	90	
8717	2012-12-29 05:00:00	-14.8		-15.9	91	
8718	2012-12-29 06:00:00	-13.8		-15.3	88	
8719	2012-12-29 07:00:00	-14.8		-16.4	88	
8722	2012-12-29 10:00:00	-12.0		-13.3	90	

	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	4	8.0	101.24	Fog
1	4	8.0	101.24	Fog
4	7	4.8	101.23	Fog
5	9	6.4	101.27	Fog
6	7	6.4	101.29	Fog
...
8716	6	9.7	101.25	Fog
8717	4	6.4	101.25	Fog
8718	4	9.7	101.25	Fog
8719	7	8.0	101.22	Fog
8722	7	6.4	101.15	Fog

```
[150 rows x 8 columns]
```

0.1.15 Q) 14. Find all instances when 'Weather is Clear' or 'Visibility is above 40'.

```
[46]: data[(data['Weather Condition'] == "Clear") | (data['Visibility_km'] > 40)]
```

```
[46]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	\
67	2012-01-03 19:00:00	-16.9		-24.8	50	
106	2012-01-05 10:00:00	-6.0		-10.0	73	
107	2012-01-05 11:00:00	-5.6		-10.2	70	
108	2012-01-05 12:00:00	-4.7		-9.6	69	
109	2012-01-05 13:00:00	-4.4		-9.7	66	
...		
8749	2012-12-30 13:00:00	-12.4		-16.2	73	
8750	2012-12-30 14:00:00	-11.8		-16.1	70	
8751	2012-12-30 15:00:00	-11.3		-15.6	70	
8752	2012-12-30 16:00:00	-11.4		-15.5	72	
8756	2012-12-30 20:00:00	-13.8		-16.5	80	

	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
67	24	25.0	101.74	Clear
106	17	48.3	100.45	Mainly Clear
107	22	48.3	100.41	Mainly Clear
108	20	48.3	100.38	Mainly Clear
109	26	48.3	100.40	Mainly Clear
...
8749	37	48.3	100.92	Mostly Cloudy
8750	37	48.3	100.96	Mainly Clear
8751	32	48.3	101.05	Mainly Clear
8752	26	48.3	101.15	Mainly Clear
8756	24	25.0	101.52	Clear

[3027 rows x 8 columns]

0.1.16 Q) 15. Find all instances when:

A. 'Weather is Clear' and 'Relative Humidity is greater than 50'

0.1.17 OR

B. 'Visibility is above 40'

```
[47]: data[(data['Weather Condition'] == 'Clear') & (data['Rel Hum_%'] > 50) |
        (data['Visibility_km'] > 40)]
```

```
[47]:
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	\
106	2012-01-05 10:00:00	-6.0		-10.0	73	
107	2012-01-05 11:00:00	-5.6		-10.2	70	
108	2012-01-05 12:00:00	-4.7		-9.6	69	
109	2012-01-05 13:00:00	-4.4		-9.7	66	
110	2012-01-05 14:00:00	-5.1		-10.7	65	

...
8749	2012-12-30 13:00:00	-12.4	-16.2	73
8750	2012-12-30 14:00:00	-11.8	-16.1	70
8751	2012-12-30 15:00:00	-11.3	-15.6	70
8752	2012-12-30 16:00:00	-11.4	-15.5	72
8756	2012-12-30 20:00:00	-13.8	-16.5	80

	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
106	17	48.3	100.45	Mainly Clear
107	22	48.3	100.41	Mainly Clear
108	20	48.3	100.38	Mainly Clear
109	26	48.3	100.40	Mainly Clear
110	22	48.3	100.46	Mainly Clear
...
8749	37	48.3	100.92	Mostly Cloudy
8750	37	48.3	100.96	Mainly Clear
8751	32	48.3	101.05	Mainly Clear
8752	26	48.3	101.15	Mainly Clear
8756	24	25.0	101.52	Clear

[2921 rows x 8 columns]