```
In [1]: import pandas as pd
        df = pd.read_csv(r"H:\DATA ANALYST AND SCIENCE SOFTWARE\PYTHON\Python P
        rojects\Project 2 - Weather Forcasting analysis\1. Weather Data.csv")
        df
```

Out[1]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
2	1/1/2012 2:00	-1.8	-3.4	89	7	4.0	101.26	Freezing Drizzle,Fog
3	1/1/2012 3:00	-1.5	-3.2	88	6	4.0	101.27	Freezing Drizzle,Fog
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog
...	...	...	...	...	...	...	...	...
8779	12/31/2012 19:00	0.1	-2.7	81	30	9.7	100.13	Snow
8780	12/31/2012 20:00	0.2	-2.4	83	24	9.7	100.03	Snow
8781	12/31/2012 21:00	-0.5	-1.5	93	28	4.8	99.95	Snow
8782	12/31/2012 22:00	-0.2	-1.8	89	28	9.7	99.91	Snow
8783	12/31/2012 23:00	0.0	-2.1	86	30	11.3	99.89	Snow

8784 rows × 8 columns

```
In [2]: df.head()
```

Out[2]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
2	1/1/2012 2:00	-1.8	-3.4	89	7	4.0	101.26	Freezing Drizzle,Fog
3	1/1/2012 3:00	-1.5	-3.2	88	6	4.0	101.27	Freezing Drizzle,Fog
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog

```
In [3]: df.shape
```

Out[3]: (8784, 8)

```
In [4]: df.index
```

Out[4]: RangeIndex(start=0, stop=8784, step=1)

```
In [5]: df.columns
```

Out[5]: Index(['Date/Time', 'Temp_C', 'Dew Point Temp_C', 'Rel Hum_%',
       'Wind Speed_km/h', 'Visibility_km', 'Press_kPa', 'Weather'],
      dtype='object')

```
In [6]: df.dtypes
```

Out[6]:
```
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
```

In [7]:
```python
df['Weather'].unique()
```

Out[7]:
```
array(['Fog', 'Freezing Drizzle,Fog', 'Mostly Cloudy', 'Cloudy', 'Rai
n',
       '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 Fo
g',
       'Haze', 'Rain,Fog', 'Drizzle,Fog', 'Drizzle',
       'Freezing Drizzle,Haze', 'Freezing Rain,Haze', 'Snow,Haze',
       'Snow,Fog', 'Snow,Ice Pellets', 'Rain,Haze', 'Thunderstorms,Rai
n',
       'Thunderstorms,Rain Showers', 'Thunderstorms,Heavy Rain Shower
s',
       '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)
```

In [8]:
```python
df.nunique()
```

Out[8]:
```
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
```

In [9]: `df['Weather'].nunique()`

Out[9]: 50

In [10]: `df.count()`

Out[10]:
```
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
```

In [11]: `df['Weather'].count()`

Out[11]: 8784

In [12]: `df['Weather'].value_counts()`

Out[12]:
```
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
Haze                                            16
Thunderstorms,Rain Showers                      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
Rain,Snow,Ice Pellets                            4
Snow Showers,Fog                                 4
Freezing Fog                                     4
Freezing Rain,Fog                                4
Moderate Snow                                    4
Thunderstorms,Rain Showers,Fog                   3
Rain,Haze                                        3
Freezing Drizzle,Haze                            3
Thunderstorms,Rain                               3
Rain Showers,Snow Showers                        2
Thunderstorms                                    2
Freezing Rain,Haze                               2
Drizzle,Snow                                     2
Moderate Snow,Blowing Snow                       2
Thunderstorms,Moderate Rain Showers,Fog          1
Freezing Rain,Snow Grains                        1
Rain Showers,Fog                                 1
Snow Pellets                                     1
Thunderstorms,Rain,Fog                           1
Rain,Snow Grains                                 1
Freezing Rain,Ice Pellets,Fog                    1
Thunderstorms,Heavy Rain Showers                 1
Rain,Snow,Fog                                    1
Moderate Rain,Fog                                1
Drizzle,Ice Pellets,Fog                          1
Rain,Ice Pellets                                 1
Name: Weather, dtype: int64
```

```
In [13]: df.info()
```

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

```
In [14]: df['Wind Speed_km/h'].nunique()      # all unique windspeed of data
```

```
Out[14]: 34
```

```
In [15]: df.nunique()
```

```
Out[15]: 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
```

```
In [16]: # Weather is Clear

         df[df['Weather'] == 'Clear'].count()
```

```
Out[16]: Date/Time           1326
         Temp_C              1326
         Dew Point Temp_C    1326
```

```
            Rel Hum_%              1326
            Wind Speed_km/h        1326
            Visibility_km          1326
            Press_kPa              1326
            Weather               1326
            dtype: int64
```

In [17]: `df['Weather'].value_counts()`

Out[17]:
```
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
Haze                                    16
Thunderstorms,Rain Showers              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
Rain,Snow,Ice Pellets                    4
Snow Showers,Fog                         4
Freezing Fog                             4
Freezing Rain,Fog                        4
Moderate Snow                            4

Thunderstorms,Rain Showers,Fog           3
```

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

In [18]:
```python
df.groupby('Weather').get_group('Clear')
```

Out[18]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
67	1/3/2012 19:00	-16.9	-24.8	50	24	25.0	101.74	Clear
114	1/5/2012 18:00	-7.1	-14.4	56	11	25.0	100.71	Clear
115	1/5/2012 19:00	-9.2	-15.4	61	7	25.0	100.80	Clear
116	1/5/2012 20:00	-9.8	-15.7	62	9	25.0	100.83	Clear

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
117	1/5/2012 21:00	-9.0	-14.8	63	13	25.0	100.83	Clear
...	...	...	...	...	...	...	...	...
8646	12/26/2012 6:00	-13.4	-14.8	89	4	25.0	102.47	Clear
8698	12/28/2012 10:00	-6.1	-8.6	82	19	24.1	101.27	Clear
8713	12/29/2012 1:00	-11.9	-13.6	87	11	25.0	101.31	Clear
8714	12/29/2012 2:00	-11.8	-13.1	90	13	25.0	101.33	Clear
8756	12/30/2012 20:00	-13.8	-16.5	80	24	25.0	101.52	Clear

1326 rows × 8 columns

```
In [19]: df.groupby('Weather').get_group('Clear').count()
```

```
Out[19]: Date/Time            1326
         Temp_C              1326
         Dew Point Temp_C    1326
         Rel Hum_%           1326
         Wind Speed_km/h     1326
         Visibility_km       1326
         Press_kPa           1326
         Weather             1326
         dtype: int64
```

```
In [20]: df.head()
```

Out[20]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
2	1/1/2012 2:00	-1.8	-3.4	89	7	4.0	101.26	Freezing Drizzle,Fog
3	1/1/2012 3:00	-1.5	-3.2	88	6	4.0	101.27	Freezing Drizzle,Fog
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog

In [21]:
```python
df[df['Wind Speed_km/h'] == 4 ].count()
```

Out[21]:
```
Date/Time           474
Temp_C              474
Dew Point Temp_C    474
Rel Hum_%           474
Wind Speed_km/h     474
Visibility_km       474
Press_kPa           474
Weather             474
dtype: int64
```

In [22]:
```python
df[df['Wind Speed_km/h'] == 4 ]
```

Out[22]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
96	1/5/2012 0:00	-8.8	-11.7	79	4	9.7	100.32	Snow
101	1/5/2012 5:00	-7.0	-9.5	82	4	4.0	100.19	Snow
146	1/7/2012 2:00	-8.1	-11.1	79	4	19.3	100.15	Cloudy
...	...	...	...	...	...	...	...	...
8768	12/31/2012 8:00	-8.6	-10.3	87	4	3.2	101.14	Snow Showers
8769	12/31/2012 9:00	-8.1	-9.6	89	4	2.4	101.09	Snow
8770	12/31/2012 10:00	-7.4	-8.9	89	4	6.4	101.05	Snow,Fog
8772	12/31/2012 12:00	-5.8	-7.5	88	4	12.9	100.78	Snow
8773	12/31/2012 13:00	-4.6	-6.6	86	4	12.9	100.63	Snow

474 rows × 8 columns

In [23]: `df.isnull()`

Out[23]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
4	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...
8779	False	False	False	False	False	False	False	False
8780	False	False	False	False	False	False	False	False
8781	False	False	False	False	False	False	False	False
8782	False	False	False	False	False	False	False	False
8783	False	False	False	False	False	False	False	False

8784 rows × 8 columns

```
In [24]: df.isnull().sum()
```

```
Out[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
```

```
In [25]: df.notnull().sum()
```

```
Out[25]: 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
```

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

Out[26]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
2	1/1/2012 2:00	-1.8	-3.4	89	7	4.0	101.26	Freezing Drizzle,Fog
3	1/1/2012 3:00	-1.5	-3.2	88	6	4.0	101.27	Freezing Drizzle,Fog
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog

In [42]:
```python
# rename the column name of 'Weather' to "Weather Condition"

df.rename(columns = {'Weather' : 'Weather Condition'}, inplace = True)
df.head(2)
```

Out[42]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

In [43]:
```python
df.rename(index = {0 : 'a', 1 : 'b', 2 : 'c'})
df.head(2)
```

Out[43]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

In [45]:
```python
df['Visibility_km'].mean()    # mean visibility
```

Out[45]: 27.66444672131151

In [46]:
```python
# standard Deviation of "Pressure"

df.Press_kPa.std()
```

Out[46]: 0.8440047459486474

In [48]:
```python
#or

df['Press_kPa'].std()
```

Out[48]: 0.8440047459486474

In [53]:
```python
# What is the variance of " Relative Humidity" in this data ?

df['Rel Hum_%'].var()
```

Out[53]: 286.2485501984998

In [57]:
```python
# find all instances when snow was recorded ?

df.head(2)
```

Out[57]:
```
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
Haze                                           16
Thunderstorms,Rain Showers                     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
Rain,Snow,Ice Pellets                           4
Snow Showers,Fog                                4
Freezing Fog                                    4
Freezing Rain,Fog                               4
Moderate Snow                                   4
Thunderstorms,Rain Showers,Fog                  3
Rain,Haze                                       3
Freezing Drizzle,Haze                           3
Thunderstorms,Rain                              3
Rain Showers,Snow Showers                       2
Thunderstorms                                   2
Freezing Rain,Haze                              2
Drizzle,Snow                                    2
Moderate Snow,Blowing Snow                      2
Thunderstorms,Moderate Rain Showers,Fog         1
Freezing Rain,Snow Grains                       1
Rain Showers,Fog                                1
Snow Pellets                                    1
Thunderstorms,Rain,Fog                          1
```

```
                 Rain,Snow Grains                                    1
                 Freezing Rain,Ice Pellets,Fog                       1
                 Thunderstorms,Heavy Rain Showers                    1
                 Rain,Snow,Fog                                       1
                 Moderate Rain,Fog                                   1
                 Drizzle,Ice Pellets,Fog                             1
                 Rain,Ice Pellets                                    1
                 Name: Weather Condition, dtype: int64
```

In [62]: `df[df['Weather Condition'] == 'Snow'].count()`

Out[62]:
```
         Date/Time            390
         Temp_C               390
         Dew Point Temp_C     390
         Rel Hum_%            390
         Wind Speed_km/h      390
         Visibility_km        390
         Press_kPa            390
         Weather Condition    390
         dtype: int64
```

In [63]: `df[df['Weather Condition'] == 'Snow']`

Out[63]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
55	1/3/2012 7:00	-14.0	-19.5	63	19	25.0	100.95	Snow
84	1/4/2012 12:00	-13.7	-21.7	51	11	24.1	101.25	Snow
86	1/4/2012 14:00	-11.3	-19.0	53	7	19.3	100.97	Snow
87	1/4/2012 15:00	-10.2	-16.3	61	11	9.7	100.89	Snow
88	1/4/2012 16:00	-9.4	-15.5	61	13	19.3	100.79	Snow

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
...	...	...	...	...	...	...	...	...
8779	12/31/2012 19:00	0.1	-2.7	81	30	9.7	100.13	Snow
8780	12/31/2012 20:00	0.2	-2.4	83	24	9.7	100.03	Snow
8781	12/31/2012 21:00	-0.5	-1.5	93	28	4.8	99.95	Snow
8782	12/31/2012 22:00	-0.2	-1.8	89	28	9.7	99.91	Snow
8783	12/31/2012 23:00	0.0	-2.1	86	30	11.3	99.89	Snow

390 rows × 8 columns

In [85]:
```python
df[df['Weather Condition'].str.contains('Snow')].head(20)
```

Out[85]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
41	1/2/2012 17:00	-2.1	-9.5	57	22	25.0	99.66	Snow Showers
44	1/2/2012 20:00	-5.6	-13.4	54	24	25.0	100.07	Snow Showers
45	1/2/2012 21:00	-5.8	-12.8	58	26	25.0	100.15	Snow Showers
47	1/2/2012 23:00	-7.4	-14.1	59	17	19.3	100.27	Snow Showers
48	1/3/2012 0:00	-9.0	-16.0	57	28	25.0	100.35	Snow Showers
50	1/3/2012 2:00	-10.5	-15.8	65	22	12.9	100.53	Snow Showers

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
51	1/3/2012 3:00	-11.3	-18.7	54	33	25.0	100.61	Snow Showers
53	1/3/2012 5:00	-12.9	-19.1	60	22	25.0	100.76	Snow Showers
54	1/3/2012 6:00	-13.3	-19.3	61	19	25.0	100.85	Snow Showers
55	1/3/2012 7:00	-14.0	-19.5	63	19	25.0	100.95	Snow
84	1/4/2012 12:00	-13.7	-21.7	51	11	24.1	101.25	Snow
86	1/4/2012 14:00	-11.3	-19.0	53	7	19.3	100.97	Snow
87	1/4/2012 15:00	-10.2	-16.3	61	11	9.7	100.89	Snow
88	1/4/2012 16:00	-9.4	-15.5	61	13	19.3	100.79	Snow
89	1/4/2012 17:00	-8.9	-13.2	71	9	4.8	100.76	Snow
90	1/4/2012 18:00	-8.9	-12.6	75	11	9.7	100.69	Snow
91	1/4/2012 19:00	-8.4	-12.7	71	9	16.1	100.65	Snow
92	1/4/2012 20:00	-7.8	-12.1	71	9	16.1	100.61	Snow
93	1/4/2012 21:00	-7.6	-11.6	73	7	11.3	100.54	Snow
94	1/4/2012 22:00	-9.5	-12.7	77	6	9.7	100.50	Snow

In [68]: `df.head(2)`

Out[68]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

Wind speed is above 24 and visibility is 25

```
In [73]: df[(df['Wind Speed_km/h'] > 24) & (df['Visibility_km'] == 25)]
```

Out[73]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
23	1/1/2012 23:00	5.3	2.0	79	30	25.0	99.31	Cloudy
24	1/2/2012 0:00	5.2	1.5	77	35	25.0	99.26	Rain Showers
25	1/2/2012 1:00	4.6	0.0	72	39	25.0	99.26	Cloudy
26	1/2/2012 2:00	3.9	-0.9	71	32	25.0	99.26	Mostly Cloudy
27	1/2/2012 3:00	3.7	-1.5	69	33	25.0	99.30	Mostly Cloudy
...	...	...	...	...	...	...	...	...
8705	12/28/2012 17:00	-8.6	-12.0	76	26	25.0	101.34	Mainly Clear
8753	12/30/2012 17:00	-12.1	-15.8	74	28	25.0	101.26	Mainly Clear
8755	12/30/2012 19:00	-13.4	-16.5	77	26	25.0	101.47	Mainly Clear

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
8759	12/30/2012 23:00	-12.1	-15.1	78	28	25.0	101.52	Mostly Cloudy
8760	12/31/2012 0:00	-11.1	-14.4	77	26	25.0	101.51	Cloudy

308 rows × 8 columns

what is the mean vaue of each column against each "Weather Condition"

In [74]:
```
df.head(2)
```

Out[74]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

In [75]:
```
df.groupby('Weather Condition').mean()
```

Out[75]:

Weather Condition	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Clear	6.825716	0.089367	64.497738	10.557315	30.153243	101.587443
Cloudy	7.970544	2.375810	69.592593	16.127315	26.625752	100.911441
Drizzle	7.353659	5.504878	88.243902	16.097561	17.931707	100.435366

Weather Condition	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Drizzle,Fog	8.067500	7.033750	93.275000	11.862500	5.257500	100.786625
Drizzle,Ice Pellets,Fog	0.400000	-0.700000	92.000000	20.000000	4.000000	100.790000
Drizzle,Snow	1.050000	0.150000	93.500000	14.000000	10.500000	100.890000
Drizzle,Snow,Fog	0.693333	0.120000	95.866667	15.533333	5.513333	99.281333
Fog	4.303333	3.159333	92.286667	7.946667	6.248000	101.184067
Freezing Drizzle	-5.657143	-8.000000	83.571429	16.571429	9.200000	100.202857
Freezing Drizzle,Fog	-2.533333	-4.183333	88.500000	17.000000	5.266667	100.441667
Freezing Drizzle,Haze	-5.433333	-8.000000	82.000000	10.333333	2.666667	100.316667
Freezing Drizzle,Snow	-5.109091	-7.072727	86.090909	16.272727	5.872727	100.520909
Freezing Fog	-7.575000	-9.250000	87.750000	4.750000	0.650000	102.320000
Freezing Rain	-3.885714	-6.078571	84.642857	19.214286	8.242857	99.647143
Freezing Rain,Fog	-2.225000	-3.750000	89.500000	15.500000	7.550000	99.945000
Freezing Rain,Haze	-4.900000	-7.450000	82.500000	7.500000	2.400000	100.375000
Freezing Rain,Ice Pellets,Fog	-2.600000	-3.700000	92.000000	28.000000	8.000000	100.950000
Freezing Rain,Snow Grains	-5.000000	-7.300000	84.000000	32.000000	4.800000	98.560000
Haze	-0.200000	-2.975000	81.625000	10.437500	7.831250	101.482500
Mainly Clear	12.558927	4.581671	60.667142	14.144824	34.264862	101.248832
Moderate Rain,Fog	1.700000	0.800000	94.000000	17.000000	6.400000	99.980000
Moderate Snow	-5.525000	-7.250000	87.750000	33.750000	0.750000	100.275000
Moderate Snow,Blowing Snow	-5.450000	-6.500000	92.500000	40.000000	0.600000	100.570000
Mostly Cloudy	10.574287	3.131174	62.102465	15.813920	31.253842	101.025288

Weather Condition	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Rain	9.786275	7.042810	83.624183	19.254902	18.856536	100.233333
Rain Showers	13.722340	9.187766	75.159574	17.132979	22.816489	100.404043
Rain Showers,Fog	12.800000	12.100000	96.000000	13.000000	6.400000	99.830000
Rain Showers,Snow Showers	2.150000	-1.500000	76.500000	22.500000	21.700000	101.100000
Rain,Fog	8.273276	7.219828	93.189655	14.793103	6.873276	100.500862
Rain,Haze	4.633333	2.066667	83.333333	11.666667	6.700000	100.540000
Rain,Ice Pellets	0.600000	-0.600000	92.000000	24.000000	9.700000	100.120000
Rain,Snow	1.055556	-0.566667	89.000000	28.388889	11.672222	99.951111
Rain,Snow Grains	1.900000	-2.100000	75.000000	26.000000	25.000000	100.600000
Rain,Snow,Fog	0.800000	0.300000	96.000000	9.000000	6.400000	100.730000
Rain,Snow,Ice Pellets	1.100000	-0.175000	91.500000	23.250000	6.000000	100.105000
Snow	-4.524103	-7.623333	79.307692	20.038462	11.171795	100.536103
Snow Pellets	0.700000	-6.400000	59.000000	35.000000	2.400000	99.700000
Snow Showers	-3.506667	-7.866667	72.350000	19.233333	20.158333	100.963500
Snow Showers,Fog	-10.675000	-11.900000	90.750000	13.750000	7.025000	101.292500
Snow,Blowing Snow	-5.410526	-7.621053	84.473684	34.842105	4.105263	99.704737
Snow,Fog	-5.075676	-6.364865	90.675676	17.324324	4.537838	100.688649
Snow,Haze	-4.020000	-6.860000	80.600000	5.000000	4.640000	100.782000
Snow,Ice Pellets	-1.883333	-3.666667	87.666667	23.833333	7.416667	100.548333
Thunderstorms	24.150000	19.750000	77.000000	7.500000	24.550000	100.230000
Thunderstorms,Heavy Rain Showers	10.900000	9.000000	88.000000	9.000000	2.400000	100.260000

	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Weather Condition						
Thunderstorms,Moderate Rain Showers,Fog	19.600000	18.500000	93.000000	15.000000	3.200000	100.010000
Thunderstorms,Rain	20.433333	18.533333	89.000000	15.666667	19.833333	100.420000
Thunderstorms,Rain Showers	20.037500	17.618750	86.375000	18.312500	15.893750	100.233750
Thunderstorms,Rain Showers,Fog	21.600000	18.700000	84.000000	19.666667	9.700000	100.063333
Thunderstorms,Rain,Fog	20.600000	18.600000	88.000000	19.000000	4.800000	100.080000

what is the min and max value of each coumn against each weather condition.

In [76]: `df.head(2)`

Out[76]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

In [77]: `df.groupby('Weather Condition').min()`

Out[77]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Weather Condition							

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Clear	1/11/2012 1:00	-23.3	-28.5	20	0	11.3	9!
Cloudy	1/1/2012 17:00	-21.4	-26.8	18	0	11.3	9i
Drizzle	1/23/2012 21:00	1.1	-0.2	74	0	6.4	9i
Drizzle,Fog	1/23/2012 20:00	0.0	-1.6	85	0	1.0	9i
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	10(
Drizzle,Snow	12/17/2012 15:00	0.9	0.1	92	9	9.7	10(
Drizzle,Snow,Fog	12/18/2012 21:00	0.3	-0.1	92	7	2.4	9'
Fog	1/1/2012 0:00	-16.0	-17.2	80	0	0.2	9i
Freezing Drizzle	1/13/2012 10:00	-9.0	-12.2	78	6	4.8	9i
Freezing Drizzle,Fog	1/1/2012 2:00	-6.4	-9.0	82	6	3.6	9i
Freezing Drizzle,Haze	2/1/2012 11:00	-5.8	-8.3	81	9	2.0	10(
Freezing Drizzle,Snow	1/13/2012 3:00	-8.3	-10.4	79	6	2.4	9!
Freezing Fog	1/22/2012 6:00	-19.0	-22.9	71	0	0.2	10
Freezing Rain	1/13/2012 11:00	-6.5	-9.0	81	7	2.8	9i

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Freezing Rain,Fog	1/17/2012 23:00	-6.1	-8.7	82	7	2.8	9{
Freezing Rain,Haze	2/1/2012 14:00	-4.9	-7.5	82	6	2.0	10(
Freezing Rain,Ice Pellets,Fog	12/17/2012 3:00	-2.6	-3.7	92	28	8.0	10(
Freezing Rain,Snow Grains	1/13/2012 9:00	-5.0	-7.3	84	32	4.8	9{
Haze	1/22/2012 12:00	-11.5	-16.0	68	0	4.8	10(
Mainly Clear	1/10/2012 11:00	-22.8	-28.0	20	0	12.9	9{
Moderate Rain,Fog	12/10/2012 8:00	1.7	0.8	94	17	6.4	9{
Moderate Snow	1/12/2012 15:00	-6.3	-7.6	83	26	0.6	9{
Moderate Snow,Blowing Snow	12/27/2012 10:00	-5.5	-6.6	92	39	0.6	10(
Mostly Cloudy	1/1/2012 16:00	-23.2	-28.5	18	0	11.3	9{
Rain	1/1/2012 18:00	0.3	-5.7	40	0	4.0	9;
Rain Showers	1/1/2012 22:00	1.6	-7.2	37	0	6.4	9{
Rain Showers,Fog	10/20/2012 3:00	12.8	12.1	96	13	6.4	9{
Rain Showers,Snow Showers	11/4/2012 8:00	2.1	-1.8	75	17	19.3	10

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Rain,Fog	1/23/2012 18:00	0.0	-1.2	83	0	2.0	98
Rain,Haze	3/13/2012 7:00	4.0	1.0	81	7	4.0	100
Rain,Ice Pellets	12/18/2012 5:00	0.6	-0.6	92	24	9.7	100
Rain,Snow	1/10/2012 5:00	0.6	-1.7	81	13	2.4	98
Rain,Snow Grains	12/21/2012 0:00	1.9	-2.1	75	26	25.0	100
Rain,Snow,Fog	12/8/2012 21:00	0.8	0.3	96	9	6.4	100
Rain,Snow,Ice Pellets	12/21/2012 1:00	0.9	-0.7	88	17	4.8	99
Snow	1/10/2012 1:00	-16.7	-24.6	41	0	1.0	97
Snow Pellets	11/24/2012 15:00	0.7	-6.4	59	35	2.4	99
Snow Showers	1/12/2012 7:00	-13.3	-19.3	52	0	2.4	99
Snow Showers,Fog	12/26/2012 9:00	-11.3	-12.7	89	7	4.0	100
Snow,Blowing Snow	1/13/2012 21:00	-12.0	-16.2	70	24	0.6	9
Snow,Fog	12/16/2012 15:00	-10.1	-12.0	77	4	1.2	99
Snow,Haze	2/1/2012 17:00	-4.3	-7.2	80	0	4.0	100

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Snow,Ice Pellets	12/10/2012 3:00	-4.3	-5.9	76	19	2.8	99
Thunderstorms	7/16/2012 1:00	21.6	19.4	67	0	24.1	99
Thunderstorms,Heavy Rain Showers	5/29/2012 6:00	10.9	9.0	88	9	2.4	10(
Thunderstorms,Moderate Rain Showers,Fog	7/17/2012 6:00	19.6	18.5	93	15	3.2	10(
Thunderstorms,Rain	5/25/2012 20:00	19.4	18.2	83	4	16.1	10(
Thunderstorms,Rain Showers	5/29/2012 16:00	11.0	7.0	68	7	6.4	99
Thunderstorms,Rain Showers,Fog	6/29/2012 3:00	19.5	16.1	80	7	9.7	99
Thunderstorms,Rain,Fog	7/17/2012 5:00	20.6	18.6	88	19	4.8	10(

```
In [78]: df.groupby('Weather Condition').max()
```

Out[78]:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Clear	9/9/2012 5:00	32.8	20.4	99	33	48.3	10:
Cloudy	9/9/2012 23:00	30.5	22.6	99	54	48.3	10:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Drizzle	9/30/2012 3:00	18.8	17.7	96	30	25.0	10
Drizzle,Fog	9/30/2012 2:00	19.9	19.1	100	28	9.7	102
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	100
Drizzle,Snow	12/19/2012 18:00	1.2	0.2	95	19	11.3	10
Drizzle,Snow,Fog	12/22/2012 3:00	1.1	0.6	98	32	9.7	100
Fog	9/22/2012 0:00	20.8	19.6	100	22	9.7	103
Freezing Drizzle	2/1/2012 5:00	-2.3	-3.3	93	26	12.9	10
Freezing Drizzle,Fog	12/10/2012 5:00	-0.3	-2.3	94	33	8.0	10
Freezing Drizzle,Haze	2/1/2012 13:00	-5.0	-7.7	83	11	4.0	100
Freezing Drizzle,Snow	3/2/2012 12:00	-3.3	-4.6	94	24	12.9	10
Freezing Fog	3/17/2012 6:00	-0.1	-0.3	99	9	0.8	102
Freezing Rain	2/1/2012 7:00	0.3	-1.7	92	28	16.1	10
Freezing Rain,Fog	12/17/2012 1:00	0.1	-0.9	93	26	9.7	10
Freezing Rain,Haze	2/1/2012 15:00	-4.9	-7.4	83	9	2.8	100

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Freezing Rain,Ice Pellets,Fog	12/17/2012 3:00	-2.6	-3.7	92	28	8.0	10(
Freezing Rain,Snow Grains	1/13/2012 9:00	-5.0	-7.3	84	32	4.8	9(
Haze	3/13/2012 23:00	14.1	11.1	86	17	9.7	10:
Mainly Clear	9/9/2012 9:00	33.0	21.2	99	63	48.3	10:
Moderate Rain,Fog	12/10/2012 8:00	1.7	0.8	94	17	6.4	9(
Moderate Snow	12/27/2012 9:00	-4.9	-6.7	93	39	0.8	10(
Moderate Snow,Blowing Snow	12/27/2012 12:00	-5.4	-6.4	93	41	0.6	10(
Mostly Cloudy	9/9/2012 2:00	32.4	24.4	100	83	48.3	10:
Rain	9/5/2012 2:00	22.8	20.4	99	52	48.3	10:
Rain Showers	9/8/2012 16:00	26.4	23.0	97	41	48.3	10:
Rain Showers,Fog	10/20/2012 3:00	12.8	12.1	96	13	6.4	9(
Rain Showers,Snow Showers	12/5/2012 10:00	2.2	-1.2	78	28	24.1	10
Rain,Fog	9/30/2012 23:00	21.7	19.5	100	46	9.7	10
Rain,Haze	3/13/2012 9:00	5.5	2.9	86	17	9.7	10(

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Rain,Ice Pellets	12/18/2012 5:00	0.6	-0.6	92	24	9.7	10(
Rain,Snow	4/23/2012 3:00	1.7	0.5	94	52	25.0	10
Rain,Snow Grains	12/21/2012 0:00	1.9	-2.1	75	26	25.0	10(
Rain,Snow,Fog	12/8/2012 21:00	0.8	0.3	96	9	6.4	10(
Rain,Snow,Ice Pellets	12/21/2012 5:00	1.3	0.1	94	28	6.4	10(
Snow	4/27/2012 9:00	3.7	0.3	96	57	25.0	10:
Snow Pellets	11/24/2012 15:00	0.7	-6.4	59	35	2.4	9!
Snow Showers	3/4/2012 21:00	2.9	-0.7	94	37	48.3	10:
Snow Showers,Fog	12/29/2012 13:00	-10.0	-11.1	92	22	9.7	10:
Snow,Blowing Snow	2/25/2012 9:00	-1.4	-2.9	91	48	9.7	10(
Snow,Fog	3/14/2012 19:00	1.1	0.8	99	35	9.7	10:
Snow,Haze	2/1/2012 21:00	-3.6	-6.4	81	15	6.4	10(
Snow,Ice Pellets	3/3/2012 4:00	0.8	-1.7	92	33	11.3	10(
Thunderstorms	7/4/2012 16:00	26.7	20.1	87	15	25.0	10(

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_
Weather Condition							
Thunderstorms,Heavy Rain Showers	5/29/2012 6:00	10.9	9.0	88	9	2.4	100
Thunderstorms,Moderate Rain Showers,Fog	7/17/2012 6:00	19.6	18.5	93	15	3.2	100
Thunderstorms,Rain	7/23/2012 18:00	21.3	19.1	93	30	24.1	100
Thunderstorms,Rain Showers	9/8/2012 4:00	25.5	23.1	98	32	25.0	10
Thunderstorms,Rain Showers,Fog	7/31/2012 20:00	22.9	21.3	91	35	9.7	100
Thunderstorms,Rain,Fog	7/17/2012 5:00	20.6	18.6	88	19	4.8	100

all the records having fog weather condition

In [80]: `df[df['Weather Condition'] == 'Fog']`

Out[80]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
5	1/1/2012 5:00	-1.4	-3.3	87	9	6.4	101.27	Fog
6	1/1/2012 6:00	-1.5	-3.1	89	7	6.4	101.29	Fog
...	...	...	...	...	...	...	...	...
8716	12/29/2012 4:00	-16.0	-17.2	90	6	9.7	101.25	Fog
8717	12/29/2012 5:00	-14.8	-15.9	91	4	6.4	101.25	Fog
8718	12/29/2012 6:00	-13.8	-15.3	88	4	9.7	101.25	Fog
8719	12/29/2012 7:00	-14.8	-16.4	88	7	8.0	101.22	Fog
8722	12/29/2012 10:00	-12.0	-13.3	90	7	6.4	101.15	Fog

150 rows × 8 columns

In [87]:
```python
df[df['Weather Condition'].str.contains('Fog')]
```

Out[87]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog
2	1/1/2012 2:00	-1.8	-3.4	89	7	4.0	101.26	Freezing Drizzle,Fog
3	1/1/2012 3:00	-1.5	-3.2	88	6	4.0	101.27	Freezing Drizzle,Fog

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	Fog
...	...	...	...	...	...	...	...	...
8739	12/30/2012 3:00	-9.1	-10.4	90	11	3.6	100.30	Snow,Fog
8740	12/30/2012 4:00	-9.3	-10.6	90	13	9.7	100.28	Snow,Fog
8741	12/30/2012 5:00	-9.1	-10.4	90	11	4.0	100.32	Snow,Fog
8742	12/30/2012 6:00	-9.3	-10.8	89	17	8.0	100.39	Snow,Fog
8770	12/31/2012 10:00	-7.4	-8.9	89	4	6.4	101.05	Snow,Fog

426 rows × 8 columns

Weather is clear and visibility is above 40

In [93]:
```python
df[(df['Weather Condition'] == 'Clear') & (df['Visibility_km'] > 40)]
```

Out[93]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
351	1/15/2012 15:00	-15.4	-22.8	53	24	48.3	102.71	Clear
352	1/15/2012 16:00	-15.1	-22.8	52	24	48.3	102.79	Clear
425	1/18/2012 17:00	-11.3	-18.8	54	26	48.3	101.54	Clear

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
440	1/19/2012 8:00	-13.7	-18.4	68	19	48.3	101.84	Clear
441	1/19/2012 9:00	-12.7	-17.2	69	17	48.3	101.73	Clear
...	...	...	...	...	...	...	...	...
8384	12/15/2012 8:00	-10.7	-15.6	67	13	48.3	102.69	Clear
8385	12/15/2012 9:00	-10.4	-15.9	64	19	48.3	102.74	Clear
8389	12/15/2012 13:00	-8.4	-14.7	60	19	48.3	102.64	Clear
8631	12/25/2012 15:00	-7.1	-13.7	59	17	48.3	101.98	Clear
8632	12/25/2012 16:00	-7.5	-13.9	60	11	48.3	102.03	Clear

313 rows × 8 columns

Weather is clear or visibility is above 40

In [98]:
```python
df[(df['Weather Condition'] == 'Clear') | (df['Visibility_km'] > 40)]
```

Out[98]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
67	1/3/2012 19:00	-16.9	-24.8	50	24	25.0	101.74	Clear
106	1/5/2012 10:00	-6.0	-10.0	73	17	48.3	100.45	Mainly Clear

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
107	1/5/2012 11:00	-5.6	-10.2	70	22	48.3	100.41	Mainly Clear
108	1/5/2012 12:00	-4.7	-9.6	69	20	48.3	100.38	Mainly Clear
109	1/5/2012 13:00	-4.4	-9.7	66	26	48.3	100.40	Mainly Clear
...	...	...	...	...	...	...	...	...
8749	12/30/2012 13:00	-12.4	-16.2	73	37	48.3	100.92	Mostly Cloudy
8750	12/30/2012 14:00	-11.8	-16.1	70	37	48.3	100.96	Mainly Clear
8751	12/30/2012 15:00	-11.3	-15.6	70	32	48.3	101.05	Mainly Clear
8752	12/30/2012 16:00	-11.4	-15.5	72	26	48.3	101.15	Mainly Clear
8756	12/30/2012 20:00	-13.8	-16.5	80	24	25.0	101.52	Clear

3027 rows × 8 columns

find all instances where weather is clear and relative humidity is above 50 or

visibility is above 40

In [101]: `df.head(2)`

Out[101]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	Fog
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	Fog

In [102]:
```
df[(df['Weather Condition'] == 'Clear') & (df['Rel Hum_%'] > 50) | (df[
'Visibility_km'] > 40)]
```

Out[102]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
106	1/5/2012 10:00	-6.0	-10.0	73	17	48.3	100.45	Mainly Clear
107	1/5/2012 11:00	-5.6	-10.2	70	22	48.3	100.41	Mainly Clear
108	1/5/2012 12:00	-4.7	-9.6	69	20	48.3	100.38	Mainly Clear
109	1/5/2012 13:00	-4.4	-9.7	66	26	48.3	100.40	Mainly Clear
110	1/5/2012 14:00	-5.1	-10.7	65	22	48.3	100.46	Mainly Clear
...	...	...	...	...	...	...	...	...
8749	12/30/2012 13:00	-12.4	-16.2	73	37	48.3	100.92	Mostly Cloudy
8750	12/30/2012 14:00	-11.8	-16.1	70	37	48.3	100.96	Mainly Clear
8751	12/30/2012 15:00	-11.3	-15.6	70	32	48.3	101.05	Mainly Clear
8752	12/30/2012 16:00	-11.4	-15.5	72	26	48.3	101.15	Mainly Clear

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition
8756	12/30/2012 20:00	-13.8	-16.5	80	24	25.0	101.52	Clear

2921 rows × 8 columns

In [ ]: