In [1]:

```
import pandas as pd
import numpy as np
```

In [2]:

```
df = pd.read_csv(r'C:\Users\Keyur Chaudhari\Downloads\wheather.csv')
```

In [3]:

```
df
```

Out[3]:

	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

ANALYZIND AND EXPLORONG DATA

In [4]:

```
df.head()
```

Out[4]:

	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 [6]:

```
df.shape
```

Out[6]:

```
(8784, 8)
```

In [7]:

```
df.size
```

Out[7]:

```
70272
```

In [8]:

```
df.columns
```

Out[8]:

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

In [10]:

```
d = df['Temp_C']
```

In [11]:

```
d
```

Out[11]:

```
0      -1.8
1      -1.8
2      -1.8
3      -1.5
4      -1.5
       ...
8779    0.1
8780    0.2
8781   -0.5
8782   -0.2
8783    0.0
Name: Temp_C, Length: 8784, dtype: float64
```

In [14]:

```
df.index
```

Out[14]:

```
RangeIndex(start=0, stop=8784, step=1)
```

In [15]:

```
df.info
```

Out[15]:

```
<bound method DataFrame.info of             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
...                ...     ...              ...        ...              ...
8779  12/31/2012 19:00     0.1             -2.7         81               30
8780  12/31/2012 20:00     0.2             -2.4         83               24
8781  12/31/2012 21:00    -0.5             -1.5         93               28
8782  12/31/2012 22:00    -0.2             -1.8         89               28
8783  12/31/2012 23:00     0.0             -2.1         86               30

      Visibility_km  Press_kPa              Weather
```

```
      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
...             ...        ...                    ...
8779            9.7     100.13                   Snow
8780            9.7     100.03                   Snow
8781            4.8      99.95                   Snow
8782            9.7      99.91                   Snow
8783           11.3      99.89                   Snow

[8784 rows x 8 columns]>
```

In [16]:

```
df.describe
```

Out[16]:

```
<bound method NDFrame.describe of              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
...                 ...     ...               ...        ...               ...
8779  12/31/2012 19:00     0.1              -2.7         81                30
8780  12/31/2012 20:00     0.2              -2.4         83                24
8781  12/31/2012 21:00    -0.5              -1.5         93                28
8782  12/31/2012 22:00    -0.2              -1.8         89                28
8783  12/31/2012 23:00     0.0              -2.1         86                30

      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
...             ...        ...                    ...
8779            9.7     100.13                   Snow
8780            9.7     100.03                   Snow
8781            4.8      99.95                   Snow
8782            9.7      99.91                   Snow
8783           11.3      99.89                   Snow

[8784 rows x 8 columns]>
```

In [18]:

```
df.dtypes
```

Out[18]:

```
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 [21]:

```
df['Weather'].unique()
```

Out[21]:

```
array(['Fog', 'Freezing Drizzle,Fog', 'Mostly Cloudy', 'Cloudy', 'Rain',
       'Rain Showers', 'Mainly Clear', 'Snow Showers', 'Snow', 'Clear',
```

```
'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)
```

In [24]:

```
df.nunique()
```

Out[24]:

```
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 [25]:

```
df.count()
```

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
```

Q . Find Unique Value in Wind Speed Column

In [26]:

```
df.head(2)
```

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

In [27]:

```
df['Wind Speed_km/h'].nunique()
```

Out[27]:

```
34
```

Q. Find Number of times when the weather is exactly clear

In [31]:

```
df.Weather.value_counts()
```

Out[31]:

```
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
Freezing Drizzle,Fog                        6
Snow,Ice Pellets                            6
Snow,Haze                                   5
Freezing Fog                                4
Snow Showers,Fog                            4
Freezing Rain,Fog                           4
Rain,Snow,Ice Pellets                       4
Moderate Snow                               4
Thunderstorms,Rain                          3
Freezing Drizzle,Haze                       3
Rain,Haze                                   3
Thunderstorms,Rain Showers,Fog              3
Freezing Rain,Haze                          2
Moderate Snow,Blowing Snow                  2
Rain Showers,Snow Showers                   2
Drizzle,Snow                                2
Thunderstorms                               2
Thunderstorms,Rain,Fog                      1
Drizzle,Ice Pellets,Fog                     1
Thunderstorms,Heavy Rain Showers            1
Snow Pellets                                1
Rain,Snow Grains                            1
Freezing Rain,Snow Grains                   1
Moderate Rain,Fog                           1
Freezing Rain,Ice Pellets,Fog               1
Thunderstorms,Moderate Rain Showers,Fog     1
Rain,Snow,Fog                               1
Rain,Ice Pellets                            1
Rain Showers,Fog                            1
Name: Weather, dtype: int64
```

In [38]:

```
dd = df[df.Weather == 'Clear']
dd.size
```

Out[38]:

```
10608
```

Q.Find the number of times when the 'Wind speed is exactly 4km/h'

In [39]:

```
df.head()
```

Out[39]:

	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 [43]:

```
gg = df[df['Wind Speed_km/h'] == 4]
```

In [44]:

```
gg.size
```

Out[44]:

```
3792
```

Q. Find out all null values in data

In [62]:

```
df.isnull().sum()
```

Out[62]:

```
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 [64]:

```
df.notnull().sum()
```

Out[64]:

```
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
```

Q. Give the column name 'Weather' as 'Weather Condition'

In [70]:

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

Q . What is the mean visiblity?

In [71]:

```
df.head(2)
```

Out[71]:

	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 [72]:

```
df['Visibility_km'].mean()
```

Out[72]:

```
27.66444672131151
```

Q. What is the standard deviation of 'Pressure' in data?

In [73]:

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

Out[73]:

```
0.8440047459486474
```

Q. What is varience of ' Relative humidity' in data?

In [74]:

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

Out[74]:

```
286.2485501984998
```

Q. Find all instances when 'snow' was recorded

In [75]:

```
df.head(2)
```

Out[75]:

	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 [76]:

```
df['Weather Condition'].value_counts()
```

Out[76]:

```
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
Freezing Drizzle,Fog                           6
Snow,Ice Pellets                               6
Snow,Haze                                      5
Freezing Fog                                   4
Snow Showers,Fog                               4
Freezing Rain,Fog                              4
Rain,Snow,Ice Pellets                          4
Moderate Snow                                  4
Thunderstorms,Rain                             3
Freezing Drizzle,Haze                          3
Rain,Haze                                      3
Thunderstorms,Rain Showers,Fog                 3
Freezing Rain,Haze                             2
Moderate Snow,Blowing Snow                     2
Rain Showers,Snow Showers                      2
Drizzle,Snow                                   2
Thunderstorms                                  2
Thunderstorms,Rain,Fog                         1
Drizzle,Ice Pellets,Fog                        1
Thunderstorms,Heavy Rain Showers               1
Snow Pellets                                   1
Rain,Snow Grains                               1
Freezing Rain,Snow Grains                      1
Moderate Rain,Fog                              1
Freezing Rain,Ice Pellets,Fog                  1
Thunderstorms,Moderate Rain Showers,Fog        1
Rain,Snow,Fog                                  1
Rain,Ice Pellets                               1
Rain Showers,Fog                               1
Name: Weather Condition, dtype: int64
```

In [77]:

```
df[df['Weather Condition'].str.contains('Snow')]
```

Out[77]:

	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
...	...	...	...	...	...	...	...	...
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
	12/31/2012							

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

583 rows × 8 columns

Q. What is mean value of mean column against each 'weather conition'

In [78]:

```
df.head(2)
```

Out[78]:

	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 [79]:

```
df.groupby('Weather Condition').mean()
```

Out[79]:

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
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	9.497766	75.159574	17.130979	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
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

Q.find minimum and maximum value against weaather column

In [82]:

```
df.groupby('Weather Condition').min()
```

Out[82]:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Clear	1/11/2012 1:00	-23.3	-28.5	20	0	11.3	99.52
Cloudy	1/1/2012 17:00	-21.4	-26.8	18	0	11.3	98.39
Drizzle	1/23/2012 21:00	1.1	-0.2	74	0	6.4	97.84
Drizzle,Fog	1/23/2012 20:00	0.0	-1.6	85	0	1.0	98.65
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	100.79
Drizzle,Snow	12/17/2012 15:00	0.9	0.1	92	9	9.7	100.63

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Drizzle,Snow,Fog	12/18/2012 21:00	0.3	0.1	92	7	2.4	97.79
Fog	1/1/2012 0:00	-16.0	-17.2	80	0	0.2	98.31
Freezing Drizzle	1/13/2012 10:00	-9.0	-12.2	78	6	4.8	98.44
Freezing Drizzle,Fog	1/1/2012 2:00	-6.4	-9.0	82	6	3.6	98.74
Freezing Drizzle,Haze	2/1/2012 11:00	-5.8	-8.3	81	9	2.0	100.28
Freezing Drizzle,Snow	1/13/2012 3:00	-8.3	-10.4	79	6	2.4	99.19
Freezing Fog	1/22/2012 6:00	-19.0	-22.9	71	0	0.2	101.97
Freezing Rain	1/13/2012 11:00	-6.5	-9.0	81	7	2.8	98.22
Freezing Rain,Fog	1/17/2012 23:00	-6.1	-8.7	82	7	2.8	98.32
Freezing Rain,Haze	2/1/2012 14:00	-4.9	-7.5	82	6	2.0	100.34
Freezing Rain,Ice Pellets,Fog	12/17/2012 3:00	-2.6	-3.7	92	28	8.0	100.95
Freezing Rain,Snow Grains	1/13/2012 9:00	-5.0	-7.3	84	32	4.8	98.56
Haze	1/22/2012 12:00	-11.5	-16.0	68	0	4.8	100.35
Mainly Clear	1/10/2012 11:00	-22.8	-28.0	20	0	12.9	98.67
Moderate Rain,Fog	12/10/2012 8:00	1.7	0.8	94	17	6.4	99.98
Moderate Snow	1/12/2012 15:00	-6.3	-7.6	83	26	0.6	99.88
Moderate Snow,Blowing Snow	12/27/2012 10:00	-5.5	-6.6	92	39	0.6	100.50
Mostly Cloudy	1/1/2012 16:00	-23.2	-28.5	18	0	11.3	98.36
Rain	1/1/2012 18:00	0.3	-5.7	40	0	4.0	97.52
Rain Showers	1/1/2012 22:00	1.6	-7.2	37	0	6.4	98.51
Rain Showers,Fog	10/20/2012 3:00	12.8	12.1	96	13	6.4	99.83
Rain Showers,Snow Showers	11/4/2012 8:00	2.1	-1.8	75	17	19.3	101.09
Rain,Fog	1/23/2012 18:00	0.0	-1.2	83	0	2.0	98.61
Rain,Haze	3/13/2012 7:00	4.0	1.0	81	7	4.0	100.50
Rain,Ice Pellets	12/18/2012 5:00	0.6	-0.6	92	24	9.7	100.12
Rain,Snow	1/10/2012 5:00	0.6	-1.7	81	13	2.4	98.18
Rain,Snow Grains	12/21/2012 0:00	1.9	-2.1	75	26	25.0	100.60
Rain,Snow,Fog	12/8/2012 21:00	0.8	0.3	96	9	6.4	100.73
Rain,Snow,Ice Pellets	12/21/2012 1:00	0.9	-0.7	88	17	4.8	99.85

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Snow	1/10/2012 1:00	-16.7	-24.6	41	0	1.0	97.75
Snow Pellets	11/24/2012 15:00	0.7	6.4	59	35	2.4	99.70
Snow Showers	1/12/2012 7:00	-13.3	-19.3	52	0	2.4	99.49
Snow Showers,Fog	12/26/2012 9:00	-11.3	-12.7	89	7	4.0	100.63
Snow,Blowing Snow	1/13/2012 21:00	-12.0	-16.2	70	24	0.6	98.11
Snow,Fog	12/16/2012 15:00	-10.1	-12.0	77	4	1.2	99.38
Snow,Haze	2/1/2012 17:00	-4.3	-7.2	80	0	4.0	100.61
Snow,Ice Pellets	12/10/2012 3:00	-4.3	-5.9	76	19	2.8	99.40
Thunderstorms	7/16/2012 1:00	21.6	19.4	67	0	24.1	99.84
Thunderstorms,Heavy Rain Showers	5/29/2012 6:00	10.9	9.0	88	9	2.4	100.26
Thunderstorms,Moderate Rain Showers,Fog	7/17/2012 6:00	19.6	18.5	93	15	3.2	100.01
Thunderstorms,Rain	5/25/2012 20:00	19.4	18.2	83	4	16.1	100.19
Thunderstorms,Rain Showers	5/29/2012 16:00	11.0	7.0	68	7	6.4	99.65
Thunderstorms,Rain Showers,Fog	6/29/2012 3:00	19.5	16.1	80	7	9.7	99.71
Thunderstorms,Rain,Fog	7/17/2012 5:00	20.6	18.6	88	19	4.8	100.08

In [83]:

```
df.groupby('Weather Condition').max()
```

Out[83]:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Clear	9/9/2012 5:00	32.8	20.4	99	33	48.3	103.63
Cloudy	9/9/2012 23:00	30.5	22.6	99	54	48.3	103.65
Drizzle	9/30/2012 3:00	18.8	17.7	96	30	25.0	101.56
Drizzle,Fog	9/30/2012 2:00	19.9	19.1	100	28	9.7	102.07
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	100.79
Drizzle,Snow	12/19/2012 18:00	1.2	0.2	95	19	11.3	101.15
Drizzle,Snow,Fog	12/22/2012 3:00	1.1	0.6	98	32	9.7	100.15
Fog	9/22/2012 0:00	20.8	19.6	100	22	9.7	103.04
Freezing Drizzle	2/1/2012 5:00	-2.3	-3.3	93	26	12.9	101.02
Freezing Drizzle,Fog	12/10/2012	-0.3	-2.3	94	33	8.0	101.27

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Freezing Drizzle,Fog	5:00						
Freezing Drizzle,Haze	2/1/2012 13:00	-5.0	-7.7	83	11	4.0	100.36
Freezing Drizzle,Snow	3/2/2012 12:00	-3.3	-4.6	94	24	12.9	101.18
Freezing Fog	3/17/2012 6:00	-0.1	-0.3	99	9	0.8	102.85
Freezing Rain	2/1/2012 7:00	0.3	-1.7	92	28	16.1	101.00
Freezing Rain,Fog	12/17/2012 1:00	0.1	-0.9	93	26	9.7	101.01
Freezing Rain,Haze	2/1/2012 15:00	-4.9	-7.4	83	9	2.8	100.41
Freezing Rain,Ice Pellets,Fog	12/17/2012 3:00	-2.6	-3.7	92	28	8.0	100.95
Freezing Rain,Snow Grains	1/13/2012 9:00	-5.0	-7.3	84	32	4.8	98.56
Haze	3/13/2012 23:00	14.1	11.1	86	17	9.7	102.97
Mainly Clear	9/9/2012 9:00	33.0	21.2	99	63	48.3	103.59
Moderate Rain,Fog	12/10/2012 8:00	1.7	0.8	94	17	6.4	99.98
Moderate Snow	12/27/2012 9:00	-4.9	-6.7	93	39	0.8	100.67
Moderate Snow,Blowing Snow	12/27/2012 12:00	-5.4	-6.4	93	41	0.6	100.64
Mostly Cloudy	9/9/2012 2:00	32.4	24.4	100	83	48.3	103.65
Rain	9/5/2012 2:00	22.8	20.4	99	52	48.3	102.26
Rain Showers	9/8/2012 16:00	26.4	23.0	97	41	48.3	102.31
Rain Showers,Fog	10/20/2012 3:00	12.8	12.1	96	13	6.4	99.83
Rain Showers,Snow Showers	12/5/2012 10:00	2.2	-1.2	78	28	24.1	101.11
Rain,Fog	9/30/2012 23:00	21.7	19.5	100	46	9.7	101.77
Rain,Haze	3/13/2012 9:00	5.5	2.9	86	17	9.7	100.61
Rain,Ice Pellets	12/18/2012 5:00	0.6	-0.6	92	24	9.7	100.12
Rain,Snow	4/23/2012 3:00	1.7	0.5	94	52	25.0	101.07
Rain,Snow Grains	12/21/2012 0:00	1.9	-2.1	75	26	25.0	100.60
Rain,Snow,Fog	12/8/2012 21:00	0.8	0.3	96	9	6.4	100.73
Rain,Snow,Ice Pellets	12/21/2012 5:00	1.3	0.1	94	28	6.4	100.47
Snow	4/27/2012 9:00	3.7	0.3	96	57	25.0	102.73
Snow Pellets	11/24/2012 15:00	0.7	-6.4	59	35	2.4	99.70
Snow Showers	3/4/2012 21:00	2.9	-0.7	94	37	48.3	102.50
Snow Showers,Fog	12/29/2012 13:00	-10.0	-11.1	92	22	9.7	102.52
	2/25/2012						

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa
Snow,Blowing Snow	9:00	-1.4	-2.9	91	48	9.7	100.62
Snow,Fog	3/14/2012 19:00	1.1	0.8	99	35	9.7	102.07
Snow,Haze	2/1/2012 21:00	-3.6	-6.4	81	15	6.4	100.99
Snow,Ice Pellets	3/3/2012 4:00	0.8	-1.7	92	33	11.3	100.96
Thunderstorms	7/4/2012 16:00	26.7	20.1	87	15	25.0	100.62
Thunderstorms,Heavy Rain Showers	5/29/2012 6:00	10.9	9.0	88	9	2.4	100.26
Thunderstorms,Moderate Rain Showers,Fog	7/17/2012 6:00	19.6	18.5	93	15	3.2	100.01
Thunderstorms,Rain	7/23/2012 18:00	21.3	19.1	93	30	24.1	100.83
Thunderstorms,Rain Showers	9/8/2012 4:00	25.5	23.1	98	32	25.0	101.06
Thunderstorms,Rain Showers,Fog	7/31/2012 20:00	22.9	21.3	91	35	9.7	100.64
Thunderstorms,Rain,Fog	7/17/2012 5:00	20.6	18.6	88	19	4.8	100.08

Q. weather is clear , relative humidity greater then or equal to 40 and visiblity is greater than 50

In [91]:

```
last = df[(df['Weather Condition']=='Clear') & (df['Rel Hum_%']>=40) & (df['Visibility_km']>=50)]
```

In [92]:

```
last
```

Out[92]:

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

In [93]:

```
last.count
```

Out[93]:

```
<bound method DataFrame.count of Empty DataFrame
Columns: [Date/Time, Temp_C, Dew Point Temp_C, Rel Hum_%, Wind Speed_km/h, Visibility_km,
Press_kPa, Weather Condition]
Index: []>
```

---------- DONE ----------

In [ ]:

```

```