

## Import library and Read Csv File

```
import pandas as pd
import numpy as np

data = pd.read_csv(r"C:\Users\Ashish\OneDrive\Project 1 - Weather Dataset.csv")

data.head()
```

	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

```
data.shape
(8784, 8)

data.index
RangeIndex(start=0, stop=8784, step=1)

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

data.dtypes
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

data["Weather"].unique()

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)

data.nunique()

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

data.count()

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
```

```
data["Weather"].value_counts()
```

```
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

```

```
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
```

```
data.describe()
```

	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h \
count	8784.000000	8784.000000	8784.000000	8784.000000
mean	8.798144	2.555294	67.431694	14.945469
std	11.687883	10.883072	16.918881	8.688696
min	-23.300000	-28.500000	18.000000	0.000000
25%	0.100000	-5.900000	56.000000	9.000000
50%	9.300000	3.300000	68.000000	13.000000
75%	18.800000	11.800000	81.000000	20.000000
max	33.000000	24.400000	100.000000	83.000000

	Visibility_km	Press_kPa
count	8784.000000	8784.000000
mean	27.664447	101.051623
std	12.622688	0.844005
min	0.200000	97.520000
25%	24.100000	100.560000
50%	25.000000	101.070000
75%	25.000000	101.590000
max	48.300000	103.650000

```
data.head(2)
```

	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
0	8.0	101.24	Fog
1	8.0	101.24	Fog

***Find all the "unique wind speed" values in the data?***

*# 1- Check the whole dataframe unique value*

```
data.nunique()
```

```
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
```

*# 2- Check for the any specific coloumn*

```
data["Wind Speed_km/h"].unique() #Answer
```

```
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)
```

***Find the number of time the "weather is exactly clear"?***

```
data.head(2)
```

	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
--	---------------	-----------	---------

0	8.0	101.24	Fog
1	8.0	101.24	Fog

```
# Value_counts Method
# data.head(2)
```

```
data.Weather.value_counts()
```

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

```

```

# Filtring Method
# data.head(2)

```

```
data[data.Weather == "Clear"]
```

	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]

```
# Groupby Method
# data.head(2)
```

```
data.groupby("Weather").get_group("Clear")
```

	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]



***Find the number of time when the "Wind Speed was Exactly 4 km/h"?***

```
data.head(2)
```

	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
0	8.0	101.24	Fog
1	8.0	101.24	Fog

```
data[data["Wind Speed_km/h"] == 4]
```

	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]

## ***Find all the null value in data?***

```
data.isnull().sum()
```

```
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
```

```
data.notnull().sum()
```

```
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
```

## ***Rename the coloumn name "Weather" of the dataframe to "Weather Condition"?***

```
data.head(2)
```

	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
0	8.0	101.24	Fog
1	8.0	101.24	Fog

```
data.rename(columns = {"Weather" : "Weather Condition"}, inplace =
True)
```

```
data
```

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind
Speed_kmh \					
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 Condition		
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]
```

## What is the mean "Visiblity"?

```
data.head(2)
```

	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

```
data.Visibility_km.mean().round(2)
```

27.66

***What is the standard deviation of "Pressure" in this data?***

```
data.head(2)
```

	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

```
data.Press_kPa.std()
```

0.8440047459486474

***What is the variance of "relative Humidity" in this data?***

```
data["Rel Hum_%"].var()
```

286.2485501984998

## *Find all instance when "Snow" was recorded?*

```
data.head(2)
```

	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

```
# Value_counts()
```

```
data["Weather Condition"].value_counts()
```

Weather Condition	
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

```

#### #Filtering

```
data[data["Weather Condition"] == "Snow"]
```

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind
Speed_km/h \					
55	1/3/2012 7:00	-14.0	-19.5	63	
19					
84	1/4/2012 12:00	-13.7	-21.7	51	
11					
86	1/4/2012 14:00	-11.3	-19.0	53	
7					
87	1/4/2012 15:00	-10.2	-16.3	61	
11					
88	1/4/2012 16:00	-9.4	-15.5	61	
13					
...	...	...	...	...	
...					
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 Condition

```

55	25.0	100.95	Snow
84	24.1	101.25	Snow
86	19.3	100.97	Snow
87	9.7	100.89	Snow
88	19.3	100.79	Snow
...	...	...	...
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

[390 rows x 8 columns]

*#str.contains*

data[data["Weather Condition"].str.contains("Snow")].tail(50)

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h \
8680	12/27/2012 16:00	-4.5	-6.2	88	37
8681	12/27/2012 17:00	-4.2	-5.9	88	32
8682	12/27/2012 18:00	-4.0	-5.7	88	28
8683	12/27/2012 19:00	-3.9	-5.6	88	26
8684	12/27/2012 20:00	-3.7	-5.3	89	37
8685	12/27/2012 21:00	-3.7	-4.8	92	24
8686	12/27/2012 22:00	-3.8	-4.6	94	20
8687	12/27/2012 23:00	-4.0	-5.6	89	24
8688	12/28/2012 0:00	-4.2	-5.7	89	19
8689	12/28/2012 1:00	-4.4	-6.6	85	15
8690	12/28/2012 2:00	-4.3	-6.3	86	11
8691	12/28/2012 3:00	-4.6	-5.9	91	13
8692	12/28/2012 4:00	-4.9	-5.9	93	9
8723	12/29/2012 11:00	-10.9	-12.2	90	7
8724	12/29/2012 12:00	-10.5	-11.6	92	11
8725	12/29/2012 13:00	-10.0	-11.1	92	

22					
8726	12/29/2012 14:00	-9.3	-10.5	91	
22					
8727	12/29/2012 15:00	-8.8	-10.0	91	
20					
8728	12/29/2012 16:00	-8.5	-9.9	90	
24					
8729	12/29/2012 17:00	-9.0	-10.4	90	
19					
8730	12/29/2012 18:00	-9.3	-10.9	88	
26					
8731	12/29/2012 19:00	-9.5	-11.2	87	
26					
8732	12/29/2012 20:00	-9.7	-11.6	86	
24					
8733	12/29/2012 21:00	-9.8	-11.8	85	
24					
8734	12/29/2012 22:00	-10.1	-11.6	89	
15					
8735	12/29/2012 23:00	-10.0	-12.0	85	
20					
8736	12/30/2012 0:00	-9.6	-11.3	87	
13					
8737	12/30/2012 1:00	-9.4	-10.5	92	
9					
8738	12/30/2012 2:00	-9.3	-10.4	92	
9					
8739	12/30/2012 3:00	-9.1	-10.4	90	
11					
8740	12/30/2012 4:00	-9.3	-10.6	90	
13					
8741	12/30/2012 5:00	-9.1	-10.4	90	
11					
8742	12/30/2012 6:00	-9.3	-10.8	89	
17					
8767	12/31/2012 7:00	-9.3	-11.3	85	
0					
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					
8771	12/31/2012 11:00	-6.7	-7.9	91	
9					
8772	12/31/2012 12:00	-5.8	-7.5	88	
4					
8773	12/31/2012 13:00	-4.6	-6.6	86	
4					



8774 6	12/31/2012 14:00	-3.4	-5.7	84
8775 9	12/31/2012 15:00	-2.3	-4.6	84
8776 13	12/31/2012 16:00	-1.4	-4.0	82
8777 19	12/31/2012 17:00	-1.1	-3.3	85
8778 17	12/31/2012 18:00	-1.3	-3.1	88
8779 30	12/31/2012 19:00	0.1	-2.7	81
8780 24	12/31/2012 20:00	0.2	-2.4	83
8781 28	12/31/2012 21:00	-0.5	-1.5	93
8782 28	12/31/2012 22:00	-0.2	-1.8	89
8783 30	12/31/2012 23:00	0.0	-2.1	86

	Visibility_km	Press_kPa	Weather Condition
8680	2.0	100.44	Snow,Blowing Snow
8681	3.2	100.47	Snow,Blowing Snow
8682	8.0	100.49	Snow,Blowing Snow
8683	9.7	100.52	Snow,Blowing Snow
8684	16.1	100.58	Snow
8685	4.8	100.62	Freezing Drizzle,Snow
8686	4.8	100.65	Freezing Drizzle,Snow
8687	9.7	100.70	Snow
8688	8.0	100.78	Freezing Drizzle,Snow
8689	6.4	100.83	Freezing Drizzle,Snow
8690	12.9	100.93	Freezing Drizzle,Snow
8691	4.0	101.01	Snow
8692	9.7	101.00	Snow
8723	6.4	101.09	Snow Showers,Fog
8724	8.0	100.93	Snow Showers,Fog
8725	9.7	100.63	Snow Showers,Fog
8726	4.8	100.60	Snow,Fog
8727	1.2	100.55	Snow,Fog
8728	1.2	100.49	Snow,Fog
8729	2.4	100.46	Snow,Fog
8730	6.4	100.38	Snow,Fog
8731	3.2	100.33	Snow,Fog
8732	9.7	100.25	Snow,Fog
8733	8.0	100.24	Snow,Fog
8734	2.4	100.20	Snow,Fog
8735	6.4	100.19	Snow,Fog
8736	3.2	100.23	Snow,Fog

8737	2.4	100.22	Snow, Fog
8738	4.0	100.28	Snow, Fog
8739	3.6	100.30	Snow, Fog
8740	9.7	100.28	Snow, Fog
8741	4.0	100.32	Snow, Fog
8742	8.0	100.39	Snow, Fog
8767	19.3	101.19	Snow Showers
8768	3.2	101.14	Snow Showers
8769	2.4	101.09	Snow
8770	6.4	101.05	Snow, Fog
8771	9.7	100.93	Snow
8772	12.9	100.78	Snow
8773	12.9	100.63	Snow
8774	11.3	100.57	Snow
8775	9.7	100.47	Snow
8776	12.9	100.40	Snow
8777	9.7	100.30	Snow
8778	9.7	100.19	Snow
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

***Find all instance when "Wind Speed Is Above 24" and "Visiblity is 25"?***

```
data[
  (data["Wind Speed_km/h"] > 24)
  &
  (data["Visiblity_km"] == 25)
]
```

	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]

***What is the Mean value of each column against each "Weather Condition"?***

```
data.head(2)
```

```

      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

```

```
data.groupby('Weather Condition').mean(numeric_only=True)
```

```

      Temp_C  \
Weather Condition  Temp_C  Dew Point

```

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
	Rel Hum_%	Wind Speed_km/h \
Weather Condition		
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

Weather Condition	Visibility_km	Press_kPa
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

***What is the Minimum and Maximum value of each coloumn against each "Weather Condition"?***

```
data.groupby('Weather Condition').min(numeric_only=True)
```

Hum_% \ Weather Condition	Temp_C	Dew Point	Temp_C	Rel
Clear	-23.3		-28.5	
20				
Cloudy	-21.4		-26.8	
18				
Drizzle	1.1		-0.2	
74				
Drizzle,Fog	0.0		-1.6	
85				
Drizzle,Ice Pellets,Fog	0.4		-0.7	
92				
Drizzle,Snow	0.9		0.1	
92				
Drizzle,Snow,Fog	0.3		-0.1	
92				
Fog	-16.0		-17.2	
80				
Freezing Drizzle	-9.0		-12.2	
78				
Freezing Drizzle,Fog	-6.4		-9.0	
82				
Freezing Drizzle,Haze	-5.8		-8.3	
81				
Freezing Drizzle,Snow	-8.3		-10.4	
79				
Freezing Fog	-19.0		-22.9	
71				
Freezing Rain	-6.5		-9.0	
81				
Freezing Rain,Fog	-6.1		-8.7	
82				
Freezing Rain,Haze	-4.9		-7.5	



82		
Freezing Rain,Ice Pellets,Fog	-2.6	-3.7
92		
Freezing Rain,Snow Grains	-5.0	-7.3
84		
Haze	-11.5	-16.0
68		
Mainly Clear	-22.8	-28.0
20		
Moderate Rain,Fog	1.7	0.8
94		
Moderate Snow	-6.3	-7.6
83		
Moderate Snow,Blowing Snow	-5.5	-6.6
92		
Mostly Cloudy	-23.2	-28.5
18		
Rain	0.3	-5.7
40		
Rain Showers	1.6	-7.2
37		
Rain Showers,Fog	12.8	12.1
96		
Rain Showers,Snow Showers	2.1	-1.8
75		
Rain,Fog	0.0	-1.2
83		
Rain,Haze	4.0	1.0
81		
Rain,Ice Pellets	0.6	-0.6
92		
Rain,Snow	0.6	-1.7
81		
Rain,Snow Grains	1.9	-2.1
75		
Rain,Snow,Fog	0.8	0.3
96		
Rain,Snow,Ice Pellets	0.9	-0.7
88		
Snow	-16.7	-24.6
41		
Snow Pellets	0.7	-6.4
59		
Snow Showers	-13.3	-19.3
52		
Snow Showers,Fog	-11.3	-12.7
89		
Snow,Blowing Snow	-12.0	-16.2
70		

Snow,Fog 77	-10.1	-12.0
Snow,Haze 80	-4.3	-7.2
Snow,Ice Pellets 76	-4.3	-5.9
Thunderstorms 67	21.6	19.4
Thunderstorms,Heavy Rain Showers 88	10.9	9.0
Thunderstorms,Moderate Rain Showers,Fog 93	19.6	18.5
Thunderstorms,Rain 83	19.4	18.2
Thunderstorms,Rain Showers 68	11.0	7.0
Thunderstorms,Rain Showers,Fog 80	19.5	16.1
Thunderstorms,Rain,Fog 88	20.6	18.6

Visibility_km \ Weather Condition	Wind Speed_km/h
Clear 11.3	0
Cloudy 11.3	0
Drizzle 6.4	0
Drizzle,Fog 1.0	0
Drizzle,Ice Pellets,Fog 4.0	20
Drizzle,Snow 9.7	9
Drizzle,Snow,Fog 2.4	7
Fog 0.2	0
Freezing Drizzle 4.8	6
Freezing Drizzle,Fog 3.6	6
Freezing Drizzle,Haze 2.0	9
Freezing Drizzle,Snow 2.4	6

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

`data.groupby('Weather Condition').max(numeric_only=True)`

Hum_% \ Weather Condition	Temp_C	Dew Point	Temp_C	Rel
Clear	32.8		20.4	
99				
Cloudy	30.5		22.6	
99				
Drizzle	18.8		17.7	
96				
Drizzle,Fog	19.9		19.1	
100				
Drizzle,Ice Pellets,Fog	0.4		-0.7	
92				
Drizzle,Snow	1.2		0.2	
95				

Drizzle,Snow,Fog 98	1.1	0.6
Fog 100	20.8	19.6
Freezing Drizzle 93	-2.3	-3.3
Freezing Drizzle,Fog 94	-0.3	-2.3
Freezing Drizzle,Haze 83	-5.0	-7.7
Freezing Drizzle,Snow 94	-3.3	-4.6
Freezing Fog 99	-0.1	-0.3
Freezing Rain 92	0.3	-1.7
Freezing Rain,Fog 93	0.1	-0.9
Freezing Rain,Haze 83	-4.9	-7.4
Freezing Rain,Ice Pellets,Fog 92	-2.6	-3.7
Freezing Rain,Snow Grains 84	-5.0	-7.3
Haze 86	14.1	11.1
Mainly Clear 99	33.0	21.2
Moderate Rain,Fog 94	1.7	0.8
Moderate Snow 93	-4.9	-6.7
Moderate Snow,Blowing Snow 93	-5.4	-6.4
Mostly Cloudy 100	32.4	24.4
Rain 99	22.8	20.4
Rain Showers 97	26.4	23.0
Rain Showers,Fog 96	12.8	12.1
Rain Showers,Snow Showers 78	2.2	-1.2
Rain,Fog 100	21.7	19.5
Rain,Haze 86	5.5	2.9
Rain,Ice Pellets	0.6	-0.6

92		
Rain,Snow	1.7	0.5
94		
Rain,Snow Grains	1.9	-2.1
75		
Rain,Snow,Fog	0.8	0.3
96		
Rain,Snow,Ice Pellets	1.3	0.1
94		
Snow	3.7	0.3
96		
Snow Pellets	0.7	-6.4
59		
Snow Showers	2.9	-0.7
94		
Snow Showers,Fog	-10.0	-11.1
92		
Snow,Blowing Snow	-1.4	-2.9
91		
Snow,Fog	1.1	0.8
99		
Snow,Haze	-3.6	-6.4
81		
Snow,Ice Pellets	0.8	-1.7
92		
Thunderstorms	26.7	20.1
87		
Thunderstorms,Heavy Rain Showers	10.9	9.0
88		
Thunderstorms,Moderate Rain Showers,Fog	19.6	18.5
93		
Thunderstorms,Rain	21.3	19.1
93		
Thunderstorms,Rain Showers	25.5	23.1
98		
Thunderstorms,Rain Showers,Fog	22.9	21.3
91		
Thunderstorms,Rain,Fog	20.6	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

## *Show all the record where Weather Condition is Fog?*

```
data[data["Weather Condition"] == "Fog"]
```

	Date/Time	Temp_C	Dew Point	Temp_C	Rel Hum_%	Wind
Speed_kmh \						
0	1/1/2012 0:00	-1.8		-3.9	86	
4						
1	1/1/2012 1:00	-1.8		-3.7	87	
4						
4	1/1/2012 4:00	-1.5		-3.3	88	
7						
5	1/1/2012 5:00	-1.4		-3.3	87	
9						
6	1/1/2012 6:00	-1.5		-3.1	89	
7						
...	...	...		...	...	
...						
8716	12/29/2012 4:00	-16.0		-17.2	90	
6						
8717	12/29/2012 5:00	-14.8		-15.9	91	
4						
8718	12/29/2012 6:00	-13.8		-15.3	88	
4						
8719	12/29/2012 7:00	-14.8		-16.4	88	
7						
8722	12/29/2012 10:00	-12.0		-13.3	90	
7						

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

[150 rows x 8 columns]

## *Find all instance when "Weather is Clear" or "Visiblity is above 40"?*

```
data.head(2)
```

	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

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

	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
106	1/5/2012 10:00	-6.0		-10.0	73	17
107	1/5/2012 11:00	-5.6		-10.2	70	22
108	1/5/2012 12:00	-4.7		-9.6	69	20
109	1/5/2012 13:00	-4.4		-9.7	66	26
...	...	...		...	...	...
...						
8749	12/30/2012 13:00	-12.4		-16.2	73	37
8750	12/30/2012 14:00	-11.8		-16.1	70	37
8751	12/30/2012 15:00	-11.3		-15.6	70	32
8752	12/30/2012 16:00	-11.4		-15.5	72	26
8756	12/30/2012 20:00	-13.8		-16.5	80	24

	Visibility_km	Press_kPa	Weather Condition
67	25.0	101.74	Clear
106	48.3	100.45	Mainly Clear
107	48.3	100.41	Mainly Clear
108	48.3	100.38	Mainly Clear

109	48.3	100.40	Mainly Clear
...	...	...	...
8749	48.3	100.92	Mostly Cloudy
8750	48.3	100.96	Mainly Clear
8751	48.3	101.05	Mainly Clear
8752	48.3	101.15	Mainly Clear
8756	25.0	101.52	Clear

[3027 rows x 8 columns]

***Find all the instances when: A. "Weather is Clear" and "relative Humadity is greater then 50" or B. "Visiblity is above 40"?***

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

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h \
106	1/5/2012 10:00	-6.0	-10.0	73	17
107	1/5/2012 11:00	-5.6	-10.2	70	22
108	1/5/2012 12:00	-4.7	-9.6	69	20
109	1/5/2012 13:00	-4.4	-9.7	66	26
110	1/5/2012 14:00	-5.1	-10.7	65	22
...	...	...	...	...	...
...					
8749	12/30/2012 13:00	-12.4	-16.2	73	37
8750	12/30/2012 14:00	-11.8	-16.1	70	37
8751	12/30/2012 15:00	-11.3	-15.6	70	32
8752	12/30/2012 16:00	-11.4	-15.5	72	26
8756	12/30/2012 20:00	-13.8	-16.5	80	24

  

	Visibility_km	Press_kPa	Weather Condition
106	48.3	100.45	Mainly Clear
107	48.3	100.41	Mainly Clear
108	48.3	100.38	Mainly Clear

109	48.3	100.40	Mainly Clear
110	48.3	100.46	Mainly Clear
...	...	...	...
8749	48.3	100.92	Mostly Cloudy
8750	48.3	100.96	Mainly Clear
8751	48.3	101.05	Mainly Clear
8752	48.3	101.15	Mainly Clear
8756	25.0	101.52	Clear

[2921 rows x 8 columns]

