In [151…
```
import numpy as np
import pandas as pd
```

In [152…
```
data=pd.read_csv("weather.csv")
```

In [153…
```
data.head()
```

Out[153]:

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

In [154…
```
data.shape
```

Out[154]:
```
(8784, 8)
```

In [155…
```
data.head()
```

Out[155]:

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

In [156…
```
data.index
```

Out[156]:
```
RangeIndex(start=0, stop=8784, step=1)
```

In [157…
```
data.columns
```

Out[157]:
```
Index(['Date/Time', 'Temp_C', 'Dew Point Temp_C', 'Rel Hum_%',
       'Wind Speed_km/h', 'Visibility_km', 'Press_kPa', 'Weather'],
      dtype='object')
```

In [158…
```
data.dtypes
```

Out[158]:
```
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 [159…
```
data['Weather'].unique()
```

Out[159]:
```
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)
```

In [160…
```
data.count()
```

Out[160]:
```
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 [161…
```
data["Weather"].value_counts()
```

Out[161]:
```
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
```

In [162…
```
data.head()
```

Out[162]:

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

All unique "Wind Speed" values in the data.

In [163…
```
data.head(2)
```

Out[163]:

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

In [164…
```
data.nunique()
```

Out[164]:
```
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 [165…
```
data['Wind Speed_km/h'].nunique()
```

Out[165]:
```
34
```

In [166…
```
data['Wind Speed_km/h'].unique()
```

Out[166]:
```
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],
                  int64)
```

Find the number of times when "Weather is exactly Clear".

In [167…
```
data.head(2)
```

Out[167]:

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

In [168…
```
data['Weather'].value_counts()
```

Out[168]:
```
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
```

In [169…
```
data.head(2)
```

Out[169]:

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

In [170…
```
data[data.Weather =='Clear']
```

Out[170]:

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

1326 rows × 8 columns

In [171…
```
data.groupby('Weather').get_group('Clear')
```

Out[171]:

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

1326 rows × 8 columns

Find the number of times when "Wind Speed was exactlly 4km/h".

In [172…
```
data.head(2)
```

Out[172]:

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

In [173…
```
data[data['Wind Speed_km/h'] == 4]
```

Out[173]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	
96	1/5/2012 0:00	-8.8	-11.7	79	4	9.7	100.32	
101	1/5/2012 5:00	-7.0	-9.5	82	4	4.0	100.19	
146	1/7/2012 2:00	-8.1	-11.1	79	4	19.3	100.15	
...	...	...	...	...	...	...	...	
8768	12/31/2012 8:00	-8.6	-10.3	87	4	3.2	101.14	Sl
8769	12/31/2012 9:00	-8.1	-9.6	89	4	2.4	101.09	
8770	12/31/2012 10:00	-7.4	-8.9	89	4	6.4	101.05	Sn
8772	12/31/2012 12:00	-5.8	-7.5	88	4	12.9	100.78	
8773	12/31/2012 13:00	-4.6	-6.6	86	4	12.9	100.63	

474 rows × 8 columns

Find out Null values in the data.

In [174…
```
data.isnull().sum()
```

Out[174]:
```
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 [175…
```
data.notnull().sum()
```

Out[175]:
```
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 Column "Weather" into "Weather Condition"

In [176…
```
data.rename(columns ={"Weather":"Weather Condition"}, inplace=True)
```

In [177…
```
data.head()
```

Out[177]:

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

What is Mean value of 'visibility' column .

In [178…
```
data['Rel Hum_%'].mean()
```

Out[178]:
```
67.43169398907104
```

What is the standard deviation of Pressure Column "Press_kPa".

In [179…
```
data['Press_kPa'].std()
```

Out[179]:
```
0.8440047459486483
```

What is Variance of Relative Humidity column "Rel Hum_%".

In [180…
```
data['Rel Hum_%'].var()
```

Out[180]: 286.24855019850196

Find all the instances when "Snow" was recorded.

In [181…
```
data.head(2)
```

Out[181]:

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

In [182…
```
data['Weather Condition'].value_counts()
```

Out[182]:
```
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
```

In [183…
```
data[data["Weather Condition"] == "Snow"]
```

Out[183]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
55	1/3/2012 7:00	-14.0	-19.5	63	19	25.0	100.95	
84	1/4/2012 12:00	-13.7	-21.7	51	11	24.1	101.25	
86	1/4/2012 14:00	-11.3	-19.0	53	7	19.3	100.97	
87	1/4/2012 15:00	-10.2	-16.3	61	11	9.7	100.89	
88	1/4/2012 16:00	-9.4	-15.5	61	13	19.3	100.79	
...	...	...	...	...	...	...	...	
8779	12/31/2012 19:00	0.1	-2.7	81	30	9.7	100.13	
8780	12/31/2012 20:00	0.2	-2.4	83	24	9.7	100.03	
8781	12/31/2012 21:00	-0.5	-1.5	93	28	4.8	99.95	
8782	12/31/2012 22:00	-0.2	-1.8	89	28	9.7	99.91	
8783	12/31/2012 23:00	0.0	-2.1	86	30	11.3	99.89	

390 rows × 8 columns

In [184…

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

Out[184]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
41	1/2/2012 17:00	-2.1	-9.5	57	22	25.0	99.66	S
44	1/2/2012 20:00	-5.6	-13.4	54	24	25.0	100.07	S
45	1/2/2012 21:00	-5.8	-12.8	58	26	25.0	100.15	S
47	1/2/2012 23:00	-7.4	-14.1	59	17	19.3	100.27	S
48	1/3/2012 0:00	-9.0	-16.0	57	28	25.0	100.35	S
...	...	...	...	...	...	...	...	
8779	12/31/2012 19:00	0.1	-2.7	81	30	9.7	100.13	
8780	12/31/2012 20:00	0.2	-2.4	83	24	9.7	100.03	
8781	12/31/2012 21:00	-0.5	-1.5	93	28	4.8	99.95	
8782	12/31/2012 22:00	-0.2	-1.8	89	28	9.7	99.91	
8783	12/31/2012 23:00	0.0	-2.1	86	30	11.3	99.89	

583 rows × 8 columns

Find all instances when "wind speed " is above 24 and visibility is 25.

In [185…

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

Out[185]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
23	1/1/2012 23:00	5.3	2.0	79	30	25.0	99.31	
24	1/2/2012 0:00	5.2	1.5	77	35	25.0	99.26	S
25	1/2/2012 1:00	4.6	0.0	72	39	25.0	99.26	
26	1/2/2012 2:00	3.9	-0.9	71	32	25.0	99.26	
27	1/2/2012 3:00	3.7	-1.5	69	33	25.0	99.30	
...	...	...	...	...	...	...	...	
8705	12/28/2012 17:00	-8.6	-12.0	76	26	25.0	101.34	
8753	12/30/2012 17:00	-12.1	-15.8	74	28	25.0	101.26	
8755	12/30/2012 19:00	-13.4	-16.5	77	26	25.0	101.47	
8759	12/30/2012 23:00	-12.1	-15.1	78	28	25.0	101.52	
8760	12/31/2012 0:00	-11.1	-14.4	77	26	25.0	101.51	

308 rows × 8 columns

What is Mean value of each columns against each "weather Condition".

In [186…
```
data.head(2)
```

Out[186]:

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

In [187…
```
numeric_columns = data.select_dtypes(include=[float, int]).columns
data.groupby("Weather Condition")[numeric_columns].mean()
```

Out[187]:

Weather Condition	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	
Clear	6.825716	0.089367	64.497738	10.557315	30.153243	1
Cloudy	7.970544	2.375810	69.592593	16.127315	26.625752	1
Drizzle	7.353659	5.504878	88.243902	16.097561	17.931707	1
Drizzle,Fog	8.067500	7.033750	93.275000	11.862500	5.257500	1
Drizzle,Ice Pellets,Fog	0.400000	-0.700000	92.000000	20.000000	4.000000	1
Drizzle,Snow	1.050000	0.150000	93.500000	14.000000	10.500000	1
Drizzle,Snow,Fog	0.693333	0.120000	95.866667	15.533333	5.513333	
Fog	4.303333	3.159333	92.286667	7.946667	6.248000	1
Freezing Drizzle	-5.657143	-8.000000	83.571429	16.571429	9.200000	1
Freezing Drizzle,Fog	-2.533333	-4.183333	88.500000	17.000000	5.266667	1
Freezing Drizzle,Haze	-5.433333	-8.000000	82.000000	10.333333	2.666667	1
Freezing Drizzle,Snow	-5.109091	-7.072727	86.090909	16.272727	5.872727	1
Freezing Fog	-7.575000	-9.250000	87.750000	4.750000	0.650000	1
Freezing Rain	-3.885714	-6.078571	84.642857	19.214286	8.242857	
Freezing Rain,Fog	-2.225000	-3.750000	89.500000	15.500000	7.550000	
Freezing Rain,Haze	-4.900000	-7.450000	82.500000	7.500000	2.400000	1
Freezing Rain,Ice Pellets,Fog	-2.600000	-3.700000	92.000000	28.000000	8.000000	1
Freezing Rain,Snow Grains	-5.000000	-7.300000	84.000000	32.000000	4.800000	
Haze	-0.200000	-2.975000	81.625000	10.437500	7.831250	1
Mainly Clear	12.558927	4.581671	60.667142	14.144824	34.264862	1
Moderate Rain,Fog	1.700000	0.800000	94.000000	17.000000	6.400000	
Moderate Snow	-5.525000	-7.250000	87.750000	33.750000	0.750000	1
Moderate Snow,Blowing Snow	-5.450000	-6.500000	92.500000	40.000000	0.600000	1
Mostly Cloudy	10.574287	3.131174	62.102465	15.813920	31.253842	1
Rain	9.786275	7.042810	83.624183	19.254902	18.856536	1
Rain Showers	13.722340	9.187766	75.159574	17.132979	22.816489	1
Rain Showers,Fog	12.800000	12.100000	96.000000	13.000000	6.400000	
Rain Showers,Snow Showers	2.150000	-1.500000	76.500000	22.500000	21.700000	1
Rain,Fog	8.273276	7.219828	93.189655	14.793103	6.873276	1

Weather Condition	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km
Rain,Haze	4.633333	2.066667	83.333333	11.666667	6.700000
Rain,Ice Pellets	0.600000	-0.600000	92.000000	24.000000	9.700000
Rain,Snow	1.055556	-0.566667	89.000000	28.388889	11.672222
Rain,Snow Grains	1.900000	-2.100000	75.000000	26.000000	25.000000
Rain,Snow,Fog	0.800000	0.300000	96.000000	9.000000	6.400000
Rain,Snow,Ice Pellets	1.100000	-0.175000	91.500000	23.250000	6.000000
Snow	-4.524103	-7.623333	79.307692	20.038462	11.171795
Snow Pellets	0.700000	-6.400000	59.000000	35.000000	2.400000
Snow Showers	-3.506667	-7.866667	72.350000	19.233333	20.158333
Snow Showers,Fog	-10.675000	-11.900000	90.750000	13.750000	7.025000
Snow,Blowing Snow	-5.410526	-7.621053	84.473684	34.842105	4.105263
Snow,Fog	-5.075676	-6.364865	90.675676	17.324324	4.537838
Snow,Haze	-4.020000	-6.860000	80.600000	5.000000	4.640000
Snow,Ice Pellets	-1.883333	-3.666667	87.666667	23.833333	7.416667
Thunderstorms	24.150000	19.750000	77.000000	7.500000	24.550000
Thunderstorms,Heavy Rain Showers	10.900000	9.000000	88.000000	9.000000	2.400000
Thunderstorms,Moderate Rain Showers,Fog	19.600000	18.500000	93.000000	15.000000	3.200000
Thunderstorms,Rain	20.433333	18.533333	89.000000	15.666667	19.833333
Thunderstorms,Rain Showers	20.037500	17.618750	86.375000	18.312500	15.893750
Thunderstorms,Rain Showers,Fog	21.600000	18.700000	84.000000	19.666667	9.700000
Thunderstorms,Rain,Fog	20.600000	18.600000	88.000000	19.000000	4.800000

In [188…
```
numeric_columns
```

Out[188]:
```
Index(['Temp_C', 'Dew Point Temp_C', 'Rel Hum_%', 'Wind Speed_km/h',
       'Visibility_km', 'Press_kPa'],
      dtype='object')
```

What is Min and Max value of each column against each "Weather Condition".

In [189…
```
data.groupby("Weather Condition").min().head()
```

Out[189]:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kP
Clear	1/11/2012 1:00	-23.3	-28.5	20	0	11.3	99.5
Cloudy	1/1/2012 17:00	-21.4	-26.8	18	0	11.3	98.3
Drizzle	1/23/2012 21:00	1.1	-0.2	74	0	6.4	97.8
Drizzle,Fog	1/23/2012 20:00	0.0	-1.6	85	0	1.0	98.6
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	100.7

In [190…

```
data.groupby("Weather Condition").max().head()
```

Out[190]:

Weather Condition	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kP
Clear	9/9/2012 5:00	32.8	20.4	99	33	48.3	103.6
Cloudy	9/9/2012 23:00	30.5	22.6	99	54	48.3	103.6
Drizzle	9/30/2012 3:00	18.8	17.7	96	30	25.0	101.5
Drizzle,Fog	9/30/2012 2:00	19.9	19.1	100	28	9.7	102.0
Drizzle,Ice Pellets,Fog	12/17/2012 9:00	0.4	-0.7	92	20	4.0	100.7

Show all records where "Weather Condition " is Fog.

In [192…

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

Out[192]:

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

In [193…
```
data[data["Weather Condition"] == 'Fog']
```

Out[193]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
0	1/1/2012 0:00	-1.8	-3.9	86	4	8.0	101.24	
1	1/1/2012 1:00	-1.8	-3.7	87	4	8.0	101.24	
4	1/1/2012 4:00	-1.5	-3.3	88	7	4.8	101.23	
5	1/1/2012 5:00	-1.4	-3.3	87	9	6.4	101.27	
6	1/1/2012 6:00	-1.5	-3.1	89	7	6.4	101.29	
...	...	...	...	...	...	...	...	
8716	12/29/2012 4:00	-16.0	-17.2	90	6	9.7	101.25	
8717	12/29/2012 5:00	-14.8	-15.9	91	4	6.4	101.25	
8718	12/29/2012 6:00	-13.8	-15.3	88	4	9.7	101.25	
8719	12/29/2012 7:00	-14.8	-16.4	88	7	8.0	101.22	
8722	12/29/2012 10:00	-12.0	-13.3	90	7	6.4	101.15	

150 rows × 8 columns

Find All the instances when "Weather Condition" is clear or Visibility is above 40.

In [202…
```
data[(data["Weather Condition"] == 'Clear') | (data["Visibility_km"]>40)]
```

Out[202]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
67	1/3/2012 19:00	-16.9	-24.8	50	24	25.0	101.74	
106	1/5/2012 10:00	-6.0	-10.0	73	17	48.3	100.45	
107	1/5/2012 11:00	-5.6	-10.2	70	22	48.3	100.41	
108	1/5/2012 12:00	-4.7	-9.6	69	20	48.3	100.38	
109	1/5/2012 13:00	-4.4	-9.7	66	26	48.3	100.40	
...	...	...	...	...	...	...	...	
8749	12/30/2012 13:00	-12.4	-16.2	73	37	48.3	100.92	
8750	12/30/2012 14:00	-11.8	-16.1	70	37	48.3	100.96	
8751	12/30/2012 15:00	-11.3	-15.6	70	32	48.3	101.05	
8752	12/30/2012 16:00	-11.4	-15.5	72	26	48.3	101.15	
8756	12/30/2012 20:00	-13.8	-16.5	80	24	25.0	101.52	

3027 rows × 8 columns

Find all instances when:

A."Weather Conditin " is clear and "Relative Huminity is greater than 50"

or

"Visibility is above 40"

In [203…

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

Out[203]:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	W Co
106	1/5/2012 10:00	-6.0	-10.0	73	17	48.3	100.45	
107	1/5/2012 11:00	-5.6	-10.2	70	22	48.3	100.41	
108	1/5/2012 12:00	-4.7	-9.6	69	20	48.3	100.38	
109	1/5/2012 13:00	-4.4	-9.7	66	26	48.3	100.40	
110	1/5/2012 14:00	-5.1	-10.7	65	22	48.3	100.46	
...	...	...	...	...	...	...	...	
8749	12/30/2012 13:00	-12.4	-16.2	73	37	48.3	100.92	
8750	12/30/2012 14:00	-11.8	-16.1	70	37	48.3	100.96	
8751	12/30/2012 15:00	-11.3	-15.6	70	32	48.3	101.05	
8752	12/30/2012 16:00	-11.4	-15.5	72	26	48.3	101.15	
8756	12/30/2012 20:00	-13.8	-16.5	80	24	25.0	101.52	

2921 rows × 8 columns

In [ ]: