

# DATA ANALYSIS REPORT

## 1) Find all the unique 'Wind Speed' values in the data.

```
import pandas as pd
```

```
data=pd.read.csv(r"C:\Users\merug\Downloads\Weather_Data.csv")
```

```
data
```

output:

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	-1.3	-3.5	18	9	25.0	98.67	Clear
1	1/1/2012 1:00	7.4	2.8	20	24	24.1	99.37	Rain
2	1/1/2012 2:00	15.7	13.4	21	26	25.0	99.84	Cloudy
3	1/1/2012 3:00	4.9	-2.6	27	15	24.1	100.94	Mainly Clear
4	1/1/2012 4:00	-13.4	-19.7	30	4	25.0	102.32	Mostly Cloudy
...	...	...	...	...	...	...	...	...
8779	9/30/2012 5:00	1.4	-3.7	97	22	48.3	100.16	Cloudy
8780	9/30/2012 6:00	-4.6	-9.5	98	11	48.3	101.46	Mostly Cloudy
8781	9/30/2012 7:00	1.5	-6.3	99	30	24.1	101.48	Clear
8782	9/30/2012 8:00	-6.3	-13.5	99	15	24.1	101.90	Cloudy

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather	
8783	9/30/2012 9:00	24.5	14.7	100	11	25.0	102.98	Mostly Cloudy

Input:

output:

- This is the unique wind speeds (km/h) in dataset.

**Input:**

output:

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather	
8735	9/28/2012 9:00	14.2	12.9	80	4	25.0	102.47	Clear
8743	9/29/2012 15:00	17.7	7.8	81	9	25.0	100.95	Clear
8768	9/30/2012 16:00	18.2	8.8	90	4	25.0	101.26	Clear
8770	9/30/2012 18:00	24.6	12.6	90	15	24.1	101.78	Clear
8781	9/30/2012 7:00	1.5	-6.3	99	30	24.1	101.48	Clear

1326 rows x 8 columns

**3.Find the number of times when the 'Wind Speed was exactly 4 km/h'.**

**Input:**

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

**output:**

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather	
4	1/1/2012 4:00	-13.4	-19.7	30	4	25.0	102.32	Mostly Cloudy
23	1/1/2012 23:00	29.5	16.8	45	4	48.3	101.07	Mainly Clear
49	3/1/2012 1:00	13.4	9.2	56	4	25.0	101.48	Mainly Clear
84	4/1/2012 12:00	4.1	-10.1	66	4	48.3	100.88	Mostly Cloudy
95	4/1/2012 23:00	23.1	11.8	68	4	48.3	100.65	Mainly Clear

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather
...	...	...	...	...	...	...	...
8736	9/29/2012 0:00	-1.9	-3.8	80	4	25.0	100.21 Mainly Clear
8744	9/29/2012 16:00	30.9	10.7	81	4	48.3	101.44 Mainly Clear
8754	9/29/2012 4:00	16.5	10.4	85	4	25.0	101.40 Mainly Clear
8758	9/29/2012 8:00	5.8	-9.8	86	4	48.3	101.16 Cloudy
8768	9/30/2012 16:00	18.2	8.8	90	4	25.0	101.26 Clear

474 rows x 8 columns

- 474 times the Weather is exactly 4km/h.

#### 4. Find out all the Null Values in the data. [1](#)

##### Input:

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

##### output:

```
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
```

- NO null values are present in this dataset.

## 5) Rename the column name 'Weather' of the dataframe to 'Weather Condition'.[¶](#)

### Input:

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

```
data.head( )
```

### output:

	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	-1.3	-3.5	18	9	25.0	98.67	Clear
1	1/1/2012 1:00	7.4	2.8	20	24	24.1	99.37	Rain
2	1/1/2012 2:00	15.7	13.4	21	26	25.0	99.84	Cloudy
3	1/1/2012 3:00	4.9	-2.6	27	15	24.1	100.94	Mainly Clear
4	1/1/2012 4:00	-13.4	-19.7	30	4	25.0	102.32	Mostly Cloudy

- *rename function changes the column name weather to weather condition*

## 6) What is the mean 'Visibility' ?

### Input:

```
data.Visibility_km.mean()
```

### output:

```
27.6644446721311478
```

- The mean 'visibility' is 27.6644446721311478.

## 7) What is the Standard Deviation of 'Pressure' in this data?[¶](#)

### Input:

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

### output:

```
0.8440047459486483
```

- The standard deviation of 'Pressure ' in this data is 0.8440047459486483.

## 8) What is the Variance of 'Relative Humidity' in this data?

### Input:

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

### output:

```
286.248550198502
```

- The variance of 'Relative Humidity ' in this data is 286.24855019850196.

## 9) Find all instances when 'Snow' was recorded.

### Input:

```
#1:value_counts()  
#data.head()
```

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

### output:

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
Freezing Drizzle, Fog	6
Snow, Ice Pellets	6
Snow, Haze	5
Moderate Snow	4
Rain, Snow, Ice Pellets	4
Freezing Rain, Fog	4
Snow Showers, Fog	4
Freezing Fog	4
Thunderstorms, Rain	3
Thunderstorms, Rain Showers, Fog	3
Rain, Haze	3

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

**Input:**

## #2: Filtering

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

output:

[illegible]

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_kmh	Visibility_km	Press_kPa	Weather Condition	
8573	9/22/2012 13:00	-6.0	-10.2	82	19	16.1	101.71	Snow
8650	9/25/2012 18:00	-4.6	-6.6	52	4	12.9	100.48	Snow
8671	9/26/2012 15:00	-5.9	-10.5	60	13	16.1	101.01	Snow
8713	9/28/2012 1:00	-5.2	-7.8	72	33	4.0	101.33	Snow
8734	9/28/2012 8:00	0.7	-1.2	79	30	8.0	101.22	Snow

390 rows x 8 columns

- *There are 390 instances when snow was recorded*

**10) Find all instances when 'Wind Speed is above 24' and 'Visibility is 25'.**

**Input:**

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

**output:**

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition	
2	1/1/2012 2:00	15.7	13.4	21	26	25.0	99.84	Cloudy
73	4/1/2012 1:00	2.3	-3.4	64	35	25.0	103.43	Snow



Date/Ti me	Temp_ C	Dew Point Temp_ C	Rel Hum_ %	Wind Speed_ km /h	Visibility_ k m	Press_ k Pa	Weather Conditio n	
126	6/1/2012 6:00	10.0	5.4	77	39	25.0	101.30	Cloudy
158	7/1/2012 14:00	1.9	-2.1	87	26	25.0	100.87	Rain,Sno w Grains
184	8/1/2012 16:00	14.2	9.2	35	44	25.0	99.49	Mostly Cloudy
...	...	...	...	...	...	...	...	...
8707	9/27/201 2 5:00	-1.0	-6.0	70	33	25.0	98.56	Mostly Cloudy
8714	9/28/201 2 10:00	2.6	0.3	72	26	25.0	101.60	Rain
8738	9/29/201 2 10:00	22.8	12.3	80	28	25.0	101.60	Mostly Cloudy
8745	9/29/201 2 17:00	-10.3	-12.9	82	28	25.0	102.16	Cloudy
8776	9/30/201 2 23:00	19.2	13.2	93	43	25.0	101.60	Mainly Clear

308 rows x 8 columns

- *There are 308 instances when 'Wind Speed is above 24' and 'Visibility is 25'.*

## 12) What is the Minimum & Maximum value of each column against each 'Weather Condition' ?

### Input:

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

### output:

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	
Weather Condition								
	Clear	1/1/2012 0:00	-23.3	-28.5	18	0	11.3	97.75
	Cloudy	1/1/2012 10:00	-21.4	-26.8	20	0	11.3	97.52
	Drizzle	1/18/2012 16:00	1.1	-0.2	37	0	6.4	98.29
	Drizzle,Fog	1/28/2012 12:00	0.0	-1.6	38	0	1.0	98.32
	Drizzle,Ice Pellets,Fog	7/24/2012 5:00	0.4	-0.7	52	20	4.0	99.44
	Drizzle,Snow	3/17/2012 1:00	0.9	0.1	39	9	9.7	100.27
	Drizzle,Snow,Fog	1/25/2012 1:00	0.3	-0.1	46	7	2.4	99.26
	Fog	1/1/2012 13:00	-16.0	-17.2	21	0	0.2	97.97
	Freezing Drizzle	2/29/2012 3:00	-9.0	-12.2	43	6	4.8	99.75
	Freezing Drizzle,Fog	10/15/201 2 4:00	-6.4	-9.0	31	6	3.6	98.81
	Freezing Drizzle,Haze	1/6/2012 0:00	-5.8	-8.3	32	9	2.0	100.55
	Freezing Drizzle,Snow	1/19/2012 15:00	-8.3	-10.4	37	6	2.4	99.74
	Freezing Fog	12/31/201 2 2:00	-19.0	-22.9	34	0	0.2	100.66
	Freezing Rain	1/17/2012 23:00	-6.5	-9.0	40	7	2.8	100.92

	Date/Time	Temp_C	Dew Point Temp_ C	Rel Hum_ %	Wind Speed_km/ h	Visibility_k m	Press_kP a
Weather Condition							
Freezing Rain,Fog	12/6/2012 8:00	-6.1	-8.7	35	7	2.8	99.45
Freezing Rain,Haze	11/23/201 2 7:00	-4.9	-7.5	57	6	2.0	100.2 3
Freezing Rain,Ice Pellets,Fog	8/16/2012 23:00	-2.6	-3.7	65	28	8.0	98.33
Freezing Rain,Snow Grains	4/2/2012 7:00	-5.0	-7.3	92	32	4.8	102.5 2
Haze	1/18/2012 20:00	-11.5	-16.0	37	0	4.8	99.27
Mainly Clear	1/1/2012 17:00	-22.8	-28.0	20	0	12.9	97.84
Moderate Rain,Fog	8/20/2012 16:00	1.7	0.8	89	17	6.4	100.4 5
Moderate Snow	10/11/201 2 22:00	-6.3	-7.6	29	26	0.6	99.93
Moderate Snow,Blowing Snow	6/26/2012 2:00	-5.5	-6.6	67	39	0.6	101.9 7
Mostly Cloudy	1/1/2012 12:00	-23.2	-28.5	18	0	11.3	97.56
Rain	1/1/2012 14:00	0.3	-5.7	20	0	4.0	98.06
Rain Showers	1/11/2012 9:00	1.6	-7.2	24	0	6.4	97.93
Rain Showers,Fog	12/17/201 2 16:00	12.8	12.1	31	13	6.4	99.80
Rain Showers,Snow Showers	8/31/2012 11:00	2.1	-1.8	67	17	19.3	100.5 4
Rain,Fog	1/10/2012 20:00	0.0	-1.2	23	0	2.0	98.70
Rain,Haze	1/2/2012 19:00	4.0	1.0	40	7	4.0	99.89
Rain,Ice Pellets	10/3/2012 1:00	0.6	-0.6	54	24	9.7	101.8 8
Rain,Snow	10/11/201 2 13:00	0.6	-1.7	31	13	2.4	100.0 3
Rain,Snow Grains	7/1/2012 14:00	1.9	-2.1	87	26	25.0	100.8 7

	Date/Time	Temp_C	Dew Point Temp_ C	Rel Hum_ %	Wind Speed_km/ h	Visibility_k m	Press_kP a	
Weather Condition								
	Rain,Snow,Fog	5/10/2012 3:00	0.8	0.3	61	9	6.4	102.4 8
	Rain,Snow,Ice Pellets	2/9/2012 11:00	0.9	-0.7	53	17	4.8	100.3 0
	Snow	1/1/2012 11:00	-16.7	-24.6	20	0	1.0	97.99
	Snow Pellets	7/19/2012 2:00	0.7	-6.4	66	35	2.4	99.56
	Snow Showers	1/13/2012 4:00	-13.3	-19.3	31	0	2.4	99.09
	Snow Showers,Fog	1/20/2012 3:00	-11.3	-12.7	56	7	4.0	100.3 3
	Snow,Blowing Snow	1/9/2012 10:00	-12.0	-16.2	44	24	0.6	99.23
	Snow,Fog	1/2/2012 9:00	-10.1	-12.0	38	4	1.2	99.60
	Snow,Haze	1/6/2012 17:00	-4.3	-7.2	48	0	4.0	98.58
	Snow,Ice Pellets	1/14/2012 15:00	-4.3	-5.9	50	19	2.8	100.1 3
	Thunderstorms	11/29/201 2 16:00	21.6	19.4	56	0	24.1	100.8 6
	Thunderstorms,Heavy Rain Showers	11/5/2012 12:00	10.9	9.0	82	9	2.4	101.4 0
	Thunderstorms,Moderate Rain Showers,Fog	10/1/2012 14:00	19.6	18.5	58	15	3.2	99.94
	Thunderstorms,Rain	10/23/201 2 4:00	19.4	18.2	64	4	16.1	100.5 6
	Thunderstorms,Rain Showers	1/11/2012 11:00	11.0	7.0	44	7	6.4	99.40
	Thunderstorms,Rain Showers,Fog	4/17/2012 3:00	19.5	16.1	34	7	9.7	99.33
	Thunderstorms,Rain,Fog	11/4/2012 16:00	20.6	18.6	42	19	4.8	100.4 5

## Input:

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

## output:

	Date/Time	Temp_C	Dew Point Temp_ C	Rel Hum_ %	Wind Speed_km/ h	Visibility_k m	Press_kP a	
Weather Condition								
	Clear	9/9/2012 4:00	32.8	20.4	100	33	48.3	103.6 3
	Cloudy	9/9/2012 6:00	30.5	22.6	100	54	48.3	103.5 2
	Drizzle	9/15/2012 22:00	18.8	17.7	97	30	25.0	103.5 8
	Drizzle,Fog	9/6/2012 10:00	19.9	19.1	98	28	9.7	103.5 6
	Drizzle,Ice Pellets,Fog	7/24/2012 5:00	0.4	-0.7	52	20	4.0	99.44
	Drizzle,Snow	5/2/2012 9:00	1.2	0.2	49	19	11.3	100.7 1
	Drizzle,Snow,Fog	9/21/2012 12:00	1.1	0.6	94	32	9.7	102.4 7
	Fog	9/8/2012 5:00	20.8	19.6	99	22	9.7	103.2 2
	Freezing Drizzle	8/21/2012 5:00	-2.3	-3.3	89	26	12.9	101.7 8
	Freezing Drizzle,Fog	7/26/2012 6:00	-0.3	-2.3	80	33	8.0	103.0 1
	Freezing Drizzle,Haze	5/21/2012 4:00	-5.0	-7.7	81	11	4.0	101.8 3

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	
Weather Condition								
Freezing Drizzle,Snow	8/18/2012 4:00	-3.3	-4.6	90	24	12.9	101.15	
Freezing Fog	5/14/2012 9:00	-0.1	-0.3	86	9	0.8	101.64	
Freezing Rain	9/11/2012 6:00	0.3	-1.7	100	28	16.1	102.45	
Freezing Rain,Fog	7/5/2012 15:00	0.1	-0.9	77	26	9.7	101.21	
Freezing Rain,Haze	3/25/2012 23:00	-4.9	-7.4	69	9	2.8	100.30	
Freezing Rain,Ice Pellets,Fog	8/16/2012 23:00	-2.6	-3.7	65	28	8.0	98.33	
Freezing Rain,Snow Grains	4/2/2012 7:00	-5.0	-7.3	92	32	4.8	102.52	
Haze	9/3/2012 15:00	14.1	11.1	98	17	9.7	103.29	
Mainly Clear	9/9/2012 8:00	33.0	21.2	100	63	48.3	103.65	
Moderate Rain,Fog	8/20/2012 16:00	1.7	0.8	89	17	6.4	100.45	
Moderate Snow	6/17/2012 14:00	-4.9	-6.7	85	39	0.8	101.96	
Moderate Snow,Blowing Snow	6/7/2012 8:00	-5.4	-6.4	96	41	0.6	102.46	
Mostly Cloudy	9/9/2012 7:00	32.4	24.4	100	83	48.3	103.63	

	Date/Time	Temp_C	Dew Point Temp_ C	Rel Hum_ %	Wind Speed_km/ h	Visibility_k m	Press_kPa	
Weather Condition								
	Rain	9/9/2012 22:00	22.8	20.4	97	52	48.3	103.5 9
	Rain Showers	9/9/2012 20:00	26.4	23.0	99	41	48.3	103.6 5
	Rain Showers,Fog	12/17/201 2 16:00	12.8	12.1	31	13	6.4	99.80
	Rain Showers,Snow Showers	8/31/2012 7:00	2.2	-1.2	70	28	24.1	101.6 2
	Rain,Fog	9/9/2012 9:00	21.7	19.5	93	46	9.7	102.7 1
	Rain,Haze	3/4/2012 22:00	5.5	2.9	75	17	9.7	101.5 2
	Rain,Ice Pellets	10/3/2012 1:00	0.6	-0.6	54	24	9.7	101.8 8
	Rain,Snow	9/26/2012 11:00	1.7	0.5	93	52	25.0	102.2 1
	Rain,Snow Grains	7/1/2012 14:00	1.9	-2.1	87	26	25.0	100.8 7
	Rain,Snow,Fog	5/10/2012 3:00	0.8	0.3	61	9	6.4	102.4 8
	Rain,Snow,Ice Pellets	7/19/2012 22:00	1.3	0.1	86	28	6.4	101.9 0
	Snow	9/9/2012 1:00	3.7	0.3	100	57	25.0	103.6 5
	Snow Pellets	7/19/2012 2:00	0.7	-6.4	66	35	2.4	99.56

	Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	
Weather Condition								
	Snow Showers	9/9/2012 5:00	2.9	-0.7	95	37	48.3	102.45
	Snow Showers,Fog	7/19/2012 13:00	-10.0	-11.1	76	22	9.7	101.48
	Snow,Blowing Snow	9/4/2012 21:00	-1.4	-2.9	97	48	9.7	103.59
	Snow,Fog	9/22/2012 12:00	1.1	0.8	99	35	9.7	103.51
	Snow,Haze	12/13/2012 14:00	-3.6	-6.4	83	15	6.4	101.90
	Snow,Ice Pellets	9/23/2012 20:00	0.8	-1.7	92	33	11.3	101.73
	Thunderstorms	9/25/2012 5:00	26.7	20.1	57	15	25.0	101.89
	Thunderstorms,Heavy Rain Showers	11/5/2012 12:00	10.9	9.0	82	9	2.4	101.40
	Thunderstorms,Moderate Rain Showers,Fog	10/1/2012 14:00	19.6	18.5	58	15	3.2	99.94
	Thunderstorms,Rain	9/19/2012 14:00	21.3	19.1	80	30	24.1	102.82
	Thunderstorms,Rain Showers	9/17/2012 13:00	25.5	23.1	95	32	25.0	102.55
	Thunderstorms,Rain Showers,Fog	8/15/2012 9:00	22.9	21.3	82	35	9.7	101.77
	Thunderstorms,Rain,Fog	11/4/2012 16:00	20.6	18.6	42	19	4.8	100.45



- *these are the minimum & maximum values of each column against 50 each weather conditions*

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

#### Input:

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

#### output:

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_kmh	Visibility_km	Press_kPa	Weather Condition	
13	1/1/2012 13:00	9.5	7.8	40	13	6.4	100.90	Fog
53	3/1/2012 5:00	-3.6	-4.3	57	7	9.7	101.32	Fog
136	6/1/2012 16:00	14.8	13.5	80	19	9.7	100.86	Fog
197	9/1/2012 5:00	2.1	0.7	43	11	8.0	101.44	Fog
278	12/1/2012 14:00	1.2	0.6	70	13	6.4	103.22	Fog
...	...	...	...	...	...	...	...	...
8475	9/18/2012 11:00	6.2	5.4	56	7	4.8	102.03	Fog
8511	9/19/2012 22:00	15.7	15.4	66	7	8.0	101.93	Fog
8518	9/19/2012 8:00	-2.9	-4.5	68	6	6.4	100.41	Fog
8537	9/20/2012 3:00	-0.5	-2.1	74	7	4.0	100.81	Fog
8771	9/30/2012 19:00	12.8	12.2	91	19	4.8	100.60	Fog

150 rows × 8 columns

- *There are 150 records where Weather Condition is Fog.*

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

### Input:

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

### output:

	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	-1.3	-3.5	18	9	25.0	98.67	Clear
9	1/1/2012 9:00	20.0	3.8	35	17	48.3	100.11	Clear
16	1/1/2012 16:00	23.8	17.6	42	9	25.0	100.52	Clear
17	1/1/2012 17:00	-6.8	-9.8	42	20	48.3	100.76	Mainly Clear
18	1/1/2012 18:00	2.3	-2.4	42	6	48.3	101.05	Cloudy
...	...	...	...	...	...	...	...	...
8774	9/30/2012 21:00	23.0	14.7	92	13	48.3	101.93	Mostly Cloudy
8777	9/30/2012 3:00	9.3	5.8	95	9	48.3	101.25	Mainly Clear
8779	9/30/2012 5:00	1.4	-3.7	97	22	48.3	100.16	Cloudy
8780	9/30/2012 6:00	-4.6	-9.5	98	11	48.3	101.46	Mostly Cloudy
8781	9/30/2012 7:00	1.5	-6.3	99	30	24.1	101.48	Clear

3027 rows × 8 columns

- There are 3027 instances when 'Weather is Clear' or 'Visibility is above 40'.

## 15.Find all instances when :

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

*or*

*B. 'Visibility is above 40'*

### Input:

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

output:

Date/Time	Temp_C	Dew Point Temp_C	Rel Hum_%	Wind Speed_km/h	Visibility_km	Press_kPa	Weather Condition	
9	1/1/2012 9:00	20.0	3.8	35	17	48.3	100.11	Clear
17	1/1/2012 17:00	-6.8	-9.8	42	20	48.3	100.76	Mainly Clear
18	1/1/2012 18:00	2.3	-2.4	42	6	48.3	101.05	Cloudy
19	1/1/2012 19:00	-12.7	-17.2	43	17	48.3	101.16	Clear
23	1/1/2012 23:00	29.5	16.8	45	4	48.3	101.07	Mainly Clear
...	...	...	...	...	...	...	...	...
8774	9/30/2012 21:00	23.0	14.7	92	13	48.3	101.93	Mostly Cloudy
8777	9/30/2012 3:00	9.3	5.8	95	9	48.3	101.25	Mainly Clear
8779	9/30/2012 5:00	1.4	-3.7	97	22	48.3	100.16	Cloudy
8780	9/30/2012 6:00	-4.6	-9.5	98	11	48.3	101.46	Mostly Cloudy
8781	9/30/2012 7:00	1.5	-6.3	99	30	24.1	101.48	Clear

2864 rows × 8 columns

- *There are 2864 instances when 'Weather is Clear' and 'Relative Humidity is greater than 50' and Visibility is above 40.*