

```
In [1]: import pandas as pd
In [2]: data= pd.read_csv(r"C:\Users\Yashaswini SK\Downloads\1. Weather Data.csv")
In [3]: data
Out[3]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  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           8.0    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
5  1/1/2012 5:00    -1.4        -3.3      87           9           6.4    101.27    Fog
6  1/1/2012 6:00    -1.5        -3.1      89           7           6.4    101.29    Fog
7  1/1/2012 7:00    -1.4        -3.6      85           7           8.0    101.26    Fog
8  1/1/2012 8:00    -1.4        -3.6      85           9           8.0    101.23    Fog
9  1/1/2012 9:00    -1.3        -3.1      88           15          4.0    101.20    Fog
10 1/1/2012 10:00   -1.0        -2.3      91           9           1.2    101.15    Fog
11 1/1/2012 11:00   -0.5        -2.1      89           7           4.0    100.98    Fog
12 1/1/2012 12:00   -0.2        -2.0      88           9           4.8    100.79    Fog
13 1/1/2012 13:00    0.2        -1.7      87           13          4.8    100.58    Fog
14 1/1/2012 14:00    0.8        -1.1      87           20          4.8    100.31    Fog
15 1/1/2012 15:00    1.8        0.4      85           22          6.4    100.07    Fog
16 1/1/2012 16:00    2.6        0.2      82           13          12.9   99.93    Mostly Cloudy
17 1/1/2012 17:00    3.0        0.0      81           13          16.1   99.81    Cloudy
18 1/1/2012 18:00    3.8        1.0      82           15          12.9   99.74    Rain
19 1/1/2012 19:00    3.1        1.3      88           15          12.9   99.68    Rain
20 1/1/2012 20:00    3.2        1.3      87           19          25.0   99.50    Cloudy
21 1/1/2012 21:00    4.0        1.7      85           20          25.0   99.39    Cloudy
22 1/1/2012 22:00    4.4        1.9      84           24          19.3   99.32    Rain Showers
23 1/1/2012 23:00    5.2        2.0      79           30          25.0   99.31    Cloudy
24 1/2/2012 0:00    5.3        1.5      77           35          25.0   99.26    Rain Showers
25 1/2/2012 1:00    4.6        0.0      72           39          25.0   99.26    Cloudy
26 1/2/2012 2:00    3.9        -0.9     71           32          25.0   99.28    Mostly Cloudy
27 1/2/2012 3:00    3.7        -1.5     69           33          25.0   99.30    Mostly Cloudy
28 1/2/2012 4:00    2.9        -2.3     69           32          25.0   99.26    Mostly Cloudy
29 1/2/2012 5:00    2.6        -2.3     70           32          25.0   99.21    Mostly Cloudy
... ..
8754 12/30/2012 18:00   -12.6       -16.0      76           24          25.0   101.36    Mainly Clear
8755 12/30/2012 19:00   -13.4       -16.5      77           26          25.0   101.47    Mainly Clear
8756 12/30/2012 20:00   -13.8       -16.5      80           24          25.0   101.52    Clear
8757 12/30/2012 21:00   -13.7       -16.5      80           20          25.0   101.50    Mainly Clear
8758 12/30/2012 22:00   -13.8       -16.3      81           19          25.0   101.54    Mainly Clear
8759 12/30/2012 23:00   -12.1       -15.1      78           28          25.0   101.52    Mostly Cloudy
8760 12/31/2012 0:00   -11.1       -14.4      77           26          25.0   101.51    Cloudy
8761 12/31/2012 1:00   -10.7       -14.0      77           15          25.0   101.50    Cloudy
8762 12/31/2012 2:00   -10.1       -13.4      77           9           25.0   101.45    Cloudy
8763 12/31/2012 3:00   -11.8       -14.4      81           6           25.0   101.42    Mostly Cloudy
8764 12/31/2012 4:00   -10.5       -12.8      83           11          25.0   101.24    Cloudy
8765 12/31/2012 5:00   -10.2       -12.4      84           6           25.0   101.29    Cloudy
8766 12/31/2012 6:00   -9.7       -11.7      85           4           25.0   101.23    Cloudy
8767 12/31/2012 7:00   -9.3       -11.3      85           0           19.3   101.19    Snow Showers
8768 12/31/2012 8:00   -8.6       -10.3      87           4           3.2    101.14    Snow Showers
8769 12/31/2012 9:00   -8.1        -9.6      89           4           2.4    101.09    Snow
8770 12/31/2012 10:00  -7.4        -8.9      89           4           6.4    101.05    Snow,Fog
8771 12/31/2012 11:00  -6.7       -7.9      91           9           9.7    100.93    Snow
8772 12/31/2012 12:00  -5.8       -7.5      88           4           12.9   100.78    Snow
8773 12/31/2012 13:00  -4.6       -6.6      86           4           12.9   100.63    Snow
8774 12/31/2012 14:00  -3.4       -5.7      84           6           11.3   100.57    Snow
8775 12/31/2012 15:00  -2.3       -4.6      84           9           9.7    100.47    Snow
8776 12/31/2012 16:00  -1.4       -4.0      82           13          12.9   100.40    Snow
8777 12/31/2012 17:00  -1.1       -3.3      85           19           9.7    100.30    Snow
8778 12/31/2012 18:00  -1.3       -3.1      88           17           9.7    100.19    Snow
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 x 8 columns

In [4]: # Q1 Find all the unique 'wind speed' in the data
data.head(2)
In [5]:
Out[5]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  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 [6]: data.nunique()
Out[6]: Date/Time      8784
Temp_C          533
Dew Point Temp_C  489
Rel Hum_%        83
Wind Speed_kmh   34
Visibility_km     24
Press_kPa        518
Weather          50
dtype: int64

In [7]: data['Wind Speed_kmh'].nunique()
Out[7]: 34

In [8]: data['Wind Speed_kmh'].unique() #answer
Out[8]: 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],
      )

In [9]: # Q2 Find the number of times when weather is exactly clear
data.head(2)
In [10]:
Out[10]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  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 [12]: #Filtering
data[data.Weather == 'Clear']
Out[12]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  Visibility_km  Press_kPa  Weather
67  1/9/2012 19:00   -16.9       -24.8      50           24          25.0    101.74    Clear
114 1/5/2012 18:00   -7.1       -14.4      56           11          25.0    100.71    Clear
115 1/5/2012 19:00   -9.2       -15.4      61           7           25.0    100.80    Clear
116 1/5/2012 20:00   -9.8       -15.7      62           9           25.0    100.83    Clear
117 1/5/2012 21:00   -9.0       -14.8      63           13          25.0    100.83    Clear
241 1/11/2012 1:00   -10.7       -17.6      56           17          25.0    101.49    Clear
242 1/11/2012 2:00   -12.0       -18.9      56           19          25.0    101.57    Clear
243 1/11/2012 3:00   -12.7       -19.4      57           19          25.0    101.64    Clear
244 1/11/2012 4:00   -13.4       -20.1      57           17          25.0    101.66    Clear
344 1/15/2012 8:00   -23.3       -28.5      62           7           24.1    102.45    Clear
351 1/15/2012 15:00   -15.4       -22.8      53           24          48.3    102.71    Clear
352 1/15/2012 16:00   -15.1       -22.8      52           24          48.3    102.79    Clear
353 1/15/2012 17:00   -16.2       -23.2      55           15          25.0    102.85    Clear
354 1/15/2012 18:00   -16.3       -22.9      57           17          25.0    102.89    Clear
355 1/15/2012 19:00   -16.3       -22.7      58           20          25.0    102.94    Clear
356 1/15/2012 20:00   -16.7       -22.4      61           17          25.0    102.98    Clear
357 1/15/2012 21:00   -16.9       -22.2      63           15          25.0    103.02    Clear
358 1/15/2012 22:00   -16.9       -21.7      66           17          25.0    103.07    Clear
359 1/15/2012 23:00   -16.9       -21.4      68           15          25.0    103.09    Clear
360 1/16/2012 0:00   -17.1       -21.9      66           15          25.0    103.09    Clear
361 1/16/2012 1:00   -17.8       -22.7      65           6           25.0    103.05    Clear
362 1/16/2012 2:00   -18.5       -23.0      68           6           25.0    103.06    Clear
363 1/16/2012 3:00   -19.2       -23.6      67           6           25.0    103.07    Clear
364 1/16/2012 4:00   -18.7       -23.5      66           0           25.0    103.05    Clear
365 1/16/2012 5:00   -19.1       -23.3      69           0           25.0    103.02    Clear
366 1/16/2012 6:00   -18.7       -23.2      68           0           25.0    103.01    Clear
425 1/18/2012 17:00   -11.3       -18.6      54           26          48.3    101.54    Clear
426 1/18/2012 18:00   -12.0       -18.2      60           22          25.0    101.67    Clear
427 1/18/2012 19:00   -12.7       -18.7      61           22          25.0    101.78    Clear
428 1/18/2012 20:00   -13.4       -19.2      62           17          25.0    101.83    Clear
... ..
8380 12/15/2012 4:00   -8.5       -13.8      66           15          25.0    102.42    Clear
8381 12/15/2012 5:00   -9.3       -14.2      67           20          25.0    102.47    Clear
8382 12/15/2012 6:00   -9.9       -14.5      69           17          25.0    102.58    Clear
8383 12/15/2012 7:00   -10.2       -15.1      67           19          48.3    102.63    Clear
8384 12/15/2012 8:00   -10.7       -15.6      67           13          48.3    102.69    Clear
8385 12/15/2012 9:00   -10.4       -15.9      64           19          48.3    102.74    Clear
8389 12/15/2012 13:00   -8.4       -14.7      60           19          48.3    102.64    Clear
8394 12/15/2012 18:00   -9.1       -15.1      62           17          25.0    102.54    Clear
8396 12/15/2012 20:00   -8.7       -15.1      60           20          25.0    102.50    Clear
8599 12/24/2012 7:00   -11.1       -13.9      80           13          25.0    101.23    Clear
8600 12/24/2012 8:00   -11.0       -13.9      79           13          25.0    101.32    Clear
8601 12/24/2012 9:00   -10.5       -13.7      77           13          24.1    101.41    Clear
8610 12/24/2012 18:00   -10.4       -13.6      76           9           25.0    101.45    Clear
8631 12/25/2012 15:00   -7.1       -13.7      59           17          48.3    101.98    Clear
8632 12/25/2012 16:00   -7.5       -13.9      60           11          48.3    102.03    Clear
8633 12/25/2012 17:00   -8.3       -13.4      67           13          25.0    102.10    Clear
8637 12/25/2012 21:00   -9.7       -12.5      80           4           25.0    102.28    Clear
8638 12/25/2012 22:00   -10.9       -13.2      83           4           25.0    102.34    Clear
8639 12/25/2012 23:00   -10.4       -12.7      83           11          25.0    102.45    Clear
8640 12/26/2012 0:00   -11.8       -13.5      87           4           25.0    102.41    Clear
8641 12/26/2012 1:00   -11.2       -12.9      87           6           25.0    102.42    Clear
8642 12/26/2012 2:00   -12.7       -14.4      87           4           25.0    102.45    Clear
8643 12/26/2012 3:00   -14.2       -15.8      88           6           25.0    102.52    Clear
8644 12/26/2012 4:00   -13.1       -14.7      88           6           25.0    102.55    Clear
8645 12/26/2012 5:00   -12.7       -14.1      89           4           25.0    102.48    Clear
8646 12/26/2012 6:00   -13.4       -14.8      89           4           25.0    102.47    Clear
8698 12/28/2012 10:00   -4.1        -8.6      82           19          24.1    101.27    Clear
8713 12/29/2012 1:00   -11.9       -13.6      87           11          25.0    101.31    Clear
8714 12/29/2012 2:00   -11.8       -13.1      90           13          25.0    101.33    Clear
8756 12/30/2012 20:00   -13.8       -16.5      80           24          25.0    101.52    Clear
1326 rows x 8 columns

In [15]: #groupby
data.groupby('Weather').get_group('Clear') #answer
Out[15]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  Visibility_km  Press_kPa  Weather
67  1/9/2012 19:00   -16.9       -24.8      50           24          25.0    101.74    Clear
114 1/5/2012 18:00   -7.1       -14.4      56           11          25.0    100.71    Clear
115 1/5/2012 19:00   -9.2       -15.4      61           7           25.0    100.80    Clear
116 1/5/2012 20:00   -9.8       -15.7      62           9           25.0    100.83    Clear
117 1/5/2012 21:00   -9.0       -14.8      63           13          25.0    100.83    Clear
241 1/11/2012 1:00   -10.7       -17.6      56           17          25.0    101.49    Clear
242 1/11/2012 2:00   -12.0       -18.9      56           19          25.0    101.57    Clear
243 1/11/2012 3:00   -12.7       -19.4      57           19          25.0    101.64    Clear
244 1/11/2012 4:00   -13.4       -20.1      57           17          25.0    101.66    Clear
344 1/15/2012 8:00   -23.3       -28.5      62           7           24.1    102.45    Clear
351 1/15/2012 15:00   -15.4       -22.8      53           24          48.3    102.71    Clear
352 1/15/2012 16:00   -15.1       -22.8      52           24          48.3    102.79    Clear
353 1/15/2012 17:00   -16.2       -23.2      55           15          25.0    102.85    Clear
354 1/15/2012 18:00   -16.3       -22.9      57           17          25.0    102.89    Clear
355 1/15/2012 19:00   -16.3       -22.7      58           20          25.0    102.94    Clear
356 1/15/2012 20:00   -16.7       -22.4      61           17          25.0    102.98    Clear
357 1/15/2012 21:00   -16.9       -22.2      63           15          25.0    103.02    Clear
358 1/15/2012 22:00   -16.9       -21.7      66           17          25.0    103.07    Clear
359 1/15/2012 23:00   -16.9       -21.4      68           15          25.0    103.09    Clear
360 1/16/2012 0:00   -17.1       -21.9      66           15          25.0    103.09    Clear
361 1/16/2012 1:00   -17.8       -22.7      65           6           25.0    103.05    Clear
362 1/16/2012 2:00   -18.5       -23.0      68           6           25.0    103.06    Clear
363 1/16/2012 3:00   -19.2       -23.6      67           6           25.0    103.07    Clear
364 1/16/2012 4:00   -18.7       -23.5      66           0           25.0    103.05    Clear
365 1/16/2012 5:00   -19.1       -23.3      69           0           25.0    103.02    Clear
366 1/16/2012 6:00   -18.7       -23.2      68           0           25.0    103.01    Clear
425 1/18/2012 17:00   -11.3       -18.6      54           26          48.3    101.54    Clear
426 1/18/2012 18:00   -12.0       -18.2      60           22          25.0    101.67    Clear
427 1/18/2012 19:00   -12.7       -18.7      61           22          25.0    101.78    Clear
428 1/18/2012 20:00   -13.4       -19.2      62           17          25.0    101.83    Clear
... ..
8380 12/15/2012 4:00   -8.5       -13.8      66           15          25.0    102.42    Clear
8381 12/15/2012 5:00   -9.3       -14.2      67           20          25.0    102.47    Clear
8382 12/15/2012 6:00   -9.9       -14.5      69           17          25.0    102.58    Clear
8383 12/15/2012 7:00   -10.2       -15.1      67           19          48.3    102.63    Clear
8384 12/15/2012 8:00   -10.7       -15.6      67           13          48.3    102.69    Clear
8385 12/15/2012 9:00   -10.4       -15.9      64           19          48.3    102.74    Clear
8389 12/15/2012 13:00   -8.4       -14.7      60           19          48.3    102.64    Clear
8394 12/15/2012 18:00   -9.1       -15.1      62           17          25.0    102.54    Clear
8396 12/15/2012 20:00   -8.7       -15.1      60           20          25.0    102.50    Clear
8599 12/24/2012 7:00   -11.1       -13.9      80           13          25.0    101.23    Clear
8600 12/24/2012 8:00   -11.0       -13.9      79           13          25.0    101.32    Clear
8601 12/24/2012 9:00   -10.5       -13.7      77           13          24.1    101.41    Clear
8610 12/24/2012 18:00   -10.4       -13.6      76           9           25.0    101.45    Clear
8631 12/25/2012 15:00   -7.1       -13.7      59           17          48.3    101.98    Clear
8632 12/25/2012 16:00   -7.5       -13.9      60           11          48.3    102.03    Clear
8633 12/25/2012 17:00   -8.3       -13.4      67           13          25.0    102.10    Clear
8637 12/25/2012 21:00   -9.7       -12.5      80           4           25.0    102.28    Clear
8638 12/25/2012 22:00   -10.9       -13.2      83           4           25.0    102.34    Clear
8639 12/25/2012 23:00   -10.4       -12.7      83           11          25.0    102.45    Clear
8640 12/26/2012 0:00   -11.8       -13.5      87           4           25.0    102.41    Clear
8641 12/26/2012 1:00   -11.2       -12.9      87           6           25.0    102.42    Clear
8642 12/26/2012 2:00   -12.7       -14.4      87           4           25.0    102.45    Clear
8643 12/26/2012 3:00   -14.2       -15.8      88           6           25.0    102.52    Clear
8644 12/26/2012 4:00   -13.1       -14.7      88           6           25.0    102.55    Clear
8645 12/26/2012 5:00   -12.7       -14.1      89           4           25.0    102.48    Clear
8646 12/26/2012 6:00   -13.4       -14.8      89           4           25.0    102.47    Clear
8698 12/28/2012 10:00   -4.1        -8.6      82           19          24.1    101.27    Clear
8713 12/29/2012 1:00   -11.9       -13.6      87           11          25.0    101.31    Clear
8714 12/29/2012 2:00   -11.8       -13.1      90           13          25.0    101.33    Clear
8756 12/30/2012 20:00   -13.8       -16.5      80           24          25.0    101.52    Clear
1326 rows x 8 columns

In [16]: # Q3 Find the number of times when the 'Wind Speed was exactly 4 km/h'
data.head(2)
In [17]:
Out[17]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  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 [18]: data[data['Wind Speed_kmh']==4] #answer
Out[18]:
      Date/Time  Temp_C  Dew Point Temp_C  Rel Hum_%  Wind Speed_kmh  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
96  1/5/2012 0:00   -8.8       -11.7      79           4           9.7    100.32    Snow
101 1/5/2012 5:00   -7.0       -9.5      82           4           4.0    100.19    Snow
146 1/7/2012 2:00   -8.1       -11.1      79           4           19.3    100.15    Cloudy
147 1/7/2012 3:00   -7.8       -10.8      79           4           19.3    100.12    Cloudy
149 1/7/2012 5:00   -6.9       -9.7      80           4           19.3    100.12    Cloudy
164 1/7/2012 20:00   -1.8       -3.7      87           4           9.7    100.48    Snow
166 1/7/2012 22:00   -1.5       -3.0      89           4           4.0    100.54    Fog
194 1/9/2012 2:00   -9.0       -14.1      66           4           25.0    102.15    Mostly Cloudy
339 1/15/2012 3:00   -20.7       -26.1      62           4           25.0    102.04    Cloudy
367 1/16/2012 7:00   -17.9       -21.5      73           4           48.3    102.96    Mainly Clear
377 1/16/2012 17:00   -7.6       -14.8      56           4           25.0    101.34    Mostly Cloudy
433 1/19/2012 1:30   -15.2       -18.4      76           4           25.0    101.89    Clear
499 1/21/2012 19:00   -13.4       -19.9      58           4           25.0    102.27    Clear
500 1/21/2012 20:00   -18.5       -24.4      60           4           25.0    102.36    Clear
505 1/22/2012 1:00   -17.5       -21.3      72           4           25.0    102.64    Clear
512 1/26/2012 8:00   -18.5       -22.0      74           4           24.1    102.96    Mainly Clear
601 1/26/2012 1:00   -7.0       -12.1      67           4           25.0    101.95    Clear
661 1/28/2012 13:00   0.9       -3.5      72           4           48.3    100.58    Mostly Cloudy
716 1/30/2012 20:00   -9.5       -16.0      59           4           25.0    101.95    Mainly Clear
717 1/30/2012 21:00   -8.4       -15.5      57           4           25.0    101.96    Mostly Cloudy
718 1/30/2012 22:00   -7.8       -15.2      55           4           25.0    101.98    Mostly Cloudy
764 2/1/2012 20:00   -3.6       -6.4      81           4           4.8    100.85    Snow,Haze
770 2/2/2012 2:00   -6.3       -9.6      77           4           16.1    101.45    Snow Showers
772 2/2/2012 4:00   -5.5       -8.8      78           
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