

# weatherdata

March 3, 2025

```
[1]: import pandas as pd
```

```
[2]: df=pd.read_csv("GlobalWeatherRepository.csv")
```

How to analyze Datafaram?

It shows the first N.rows in the data (by default, N=5)

```
[69]: df.head()
```

```
[69]:
```

	city	location_name	latitude	longitude	timezone	\
0	Afghanistan	Kabul	34.52	69.18	Asia/Kabul	
1	Albania	Tirana	41.33	19.82	Europe/Tirane	
2	Algeria	Algiers	36.76	3.05	Africa/Algiers	
3	Andorra	Andorra La Vella	42.50	1.52	Europe/Andorra	
4	Angola	Luanda	-8.84	13.23	Africa/Luanda	

  

	last_updated_epoch	last_updated	temperature_celsius	\
0	1715849100	2024-05-16 13:15	26.6	
1	1715849100	2024-05-16 10:45	19.0	
2	1715849100	2024-05-16 09:45	23.0	
3	1715849100	2024-05-16 10:45	6.3	
4	1715849100	2024-05-16 09:45	26.0	

  

	temperature_fahrenheit	condition_text	...	air_quality_PM2.5	\
0	79.8	Partly Cloudy	...	8.4	
1	66.2	Partly cloudy	...	1.1	
2	73.4	Sunny	...	10.4	
3	43.3	Light drizzle	...	0.7	
4	78.8	Partly cloudy	...	183.4	

  

	air_quality_PM10	air_quality_us-epa-index	air_quality_gb-defra-index	\
0	26.6	1	1	
1	2.0	1	1	
2	18.4	1	1	
3	0.9	1	1	
4	262.3	5	10	

  

	sunrise	sunset	moonrise	moonset	moon_phase	moon_illumination
--	---------	--------	----------	---------	------------	-------------------

0	04:50 AM	06:50 PM	12:12 PM	01:11 AM	Waxing Gibbous	55
1	05:21 AM	07:54 PM	12:58 PM	02:14 AM	Waxing Gibbous	55
2	05:40 AM	07:50 PM	01:15 PM	02:14 AM	Waxing Gibbous	55
3	06:31 AM	09:11 PM	02:12 PM	03:31 AM	Waxing Gibbous	55
4	06:12 AM	05:55 PM	01:17 PM	12:38 AM	Waxing Gibbous	55

[5 rows x 41 columns]

It shows the total no.of rows and no.of columns of data.

```
[71]: df.shape
```

```
[71]: (54568, 41)
```

It shows the name of each column.

```
[72]: df.columns
```

```
[72]: Index(['city', 'location_name', 'latitude', 'longitude', 'timezone',
          'last_updated_epoch', 'last_updated', 'temperature_celsius',
          'temperature_fahrenheit', 'condition_text', 'wind_mph', 'wind_kph',
          'wind_degree', 'wind_direction', 'pressure_mb', 'pressure_in',
          'precip_mm', 'precip_in', 'humidity', 'cloud', 'feels_like_celsius',
          'feels_like_fahrenheit', 'visibility_km', 'visibility_miles',
          'uv_index', 'gust_mph', 'gust_kph', 'air_quality_Carbon_Monoxide',
          'air_quality_Ozone', 'air_quality_Nitrogen_dioxide',
          'air_quality_Sulphur_dioxide', 'air_quality_PM2.5', 'air_quality_PM10',
          'air_quality_us-epa-index', 'air_quality_gb-defra-index', 'sunrise',
          'sunset', 'moonrise', 'moonset', 'moon_phase', 'moon_illumination'],
          dtype='object')
```

It shows the data type of each column.

```
[73]: df.dtypes
```

```
[73]: city                object
      location_name       object
      latitude           float64
      longitude          float64
      timezone           object
      last_updated_epoch  int64
      last_updated        object
      temperature_celsius float64
      temperature_fahrenheit float64
      condition_text      object
      wind_mph            float64
      wind_kph            float64
      wind_degree         int64
      wind_direction      object
```

pressure_mb	float64
pressure_in	float64
precip_mm	float64
precip_in	float64
humidity	int64
cloud	int64
feels_like_celsius	float64
feels_like_fahrenheit	float64
visibility_km	float64
visibility_miles	float64
uv_index	float64
gust_mph	float64
gust_kph	float64
air_quality_Carbon_Monoxide	float64
air_quality_Ozone	float64
air_quality_Nitrogen_dioxide	float64
air_quality_Sulphur_dioxide	float64
air_quality_PM2.5	float64
air_quality_PM10	float64
air_quality_us-epa-index	int64
air_quality_gb-defra-index	int64
sunrise	object
sunset	object
moonrise	object
moonset	object
moon_phase	object
moon_illumination	int64
dtype:	object

Find out all the Null Values in the data.

```
[77]: df.isnull().sum()
      # df.notnull().sum()
```

```
[77]: city          0
      location_name  0
      latitude      0
      longitude     0
      timezone      0
      last_updated_epoch  0
      last_updated   0
      temperature_celsius  0
      temperature_fahrenheit  0
      condition_text    0
      wind_mph         0
      wind_kph         0
      wind_degree      0
      wind_direction    0
```

```

pressure_mb      0
pressure_in      0
precip_mm        0
precip_in        0
humidity         0
cloud            0
feels_like_celsius      0
feels_like_fahrenheit  0
visibility_km      0
visibility_miles    0
uv_index          0
gust_mph          0
gust_kph          0
air_quality_Carbon_Monoxide  0
air_quality_Ozone      0
air_quality_Nitrogen_dioxide  0
air_quality_Sulphur_dioxide  0
air_quality_PM2.5      0
air_quality_PM10       0
air_quality_us-epa-index  0
air_quality_gb-defra-index  0
sunrise          0
sunset           0
moonrise         0
moonset          0
moon_phase       0
moon_illumination 0
dtype: int64

```

It shows the total no. of unique values in each column. 1.Find all the unique 'wind\_kph' values in the data.

```
[78]: df['wind_kph'].nunique()
```

```
[78]: 174
```

It shows all the unique values.

```
[10]: df['wind_kph'].unique() #Answer
```

```
[10]: array([ 13.3,  11.2,  15.1,  11.9,  13. ,   9. ,   3.6,   6.8,
          4. ,  20.2,  25.9,  22. ,  19.1,   6.1,  24.1,  11.5,
         16.2,   7.6,  14.4,  14. ,  23.4,   4.3,  31. ,  12.6,
          4.7,  10.8,  16.9,  33.1,  29.9,  19.8,  28.1,  21.6,
         17.6,  37.1,   5.8,   7.2,  18.4,  15.8,  41. ,  25.2,
          9.7,  10.1,   5. ,   6.5,  34.9,  38.9,  17.3,  22.3,
         46.1,  26.3,  42.8,  12.2,  51.8,  15.5,   5.4,  22.7,
          9.4,  32.8,  27. ,  10.4,  14.8,  20.5,   8.6,  19.4,
```

```

29.5, 18.7, 20.9, 23. , 7.9, 18. , 172.1, 40.3,
34.6, 35.3, 28.4, 37.8, 8.3, 258.8, 31.3, 24.5,
39.6, 27.7, 13.7, 56.2, 16.6, 24.8, 45. , 25.6,
47.9, 26.6, 65.2, 43.9, 21.2, 28.8, 52.6, 32. ,
56.9, 30.6, 27.4, 23.8, 29.2, 36. , 33.5, 33.8,
37.4, 30.2, 32.4, 59. , 50. , 31.7, 35.6, 34.2,
272.2, 2963.2, 36.4, 69.8, 60.8, 205.9, 54. , 81. ,
38.5, 41.4, 69.1, 52.2, 43.6, 36.7, 45.4, 38.2,
40.7, 52.9, 44.6, 56.5, 40. , 39.2, 44.3, 42.1,
78.1, 76. , 48.2, 49. , 43.2, 46.4, 41.8, 54.7,
49.7, 47.2, 48.6, 49.3, 42.5, 57.2, 46.8, 66.2,
54.4, 51.1, 76.7, 50.8, 58.3, 47.5, 61.9, 63.4,
50.4, 53.6, 68. , 70.2, 63. , 63.7, 59.8, 45.7,
91.1, 62.3, 58. , 64.4, 59.4, 51.5])

```

2. Find the number of times when the 'condition\_text' is clear. It shows all the unique value with their count.

```
[79]: df['condition_text'].value_counts()
```

```

[79]: condition_text
Partly cloudy          18014
Sunny                  16612
Patchy rain nearby     4289
Partly Cloudy          2588
Overcast               2576
Clear                  2273
Mist                   1730
Light rain             1506
Light rain shower      1434
Cloudy                 497
Fog                    484
Moderate or heavy rain with thunder 417
Moderate rain          377
Patchy light rain with thunder 306
Light drizzle          268
Patchy light drizzle   172
Light snow             158
Moderate or heavy rain shower 140
Thundery outbreaks in nearby 102
Patchy light rain      100
Patchy light rain in area with thunder 72
Freezing fog           50
Heavy snow              49
Moderate rain at times 41
Light snow showers     34
Moderate snow           32
Light freezing rain     31

```

Patchy rain possible	27
Moderate or heavy snow showers	26
Patchy light snow	26
Light sleet	26
Heavy rain	25
Blowing snow	16
Thundery outbreaks possible	12
Patchy heavy snow	11
Torrential rain shower	9
Heavy rain at times	9
Light sleet showers	6
Patchy moderate snow	6
Moderate or heavy sleet	3
Blizzard	3
Patchy light snow in area with thunder	3
Moderate or heavy rain in area with thunder	2
Freezing drizzle	2
Moderate or heavy snow in area with thunder	2
Patchy snow nearby	1
Patchy snow possible	1

Name: count, dtype: int64

```
[13]: #Filtering
df[df.condition_text=='Clear']
```

```
[13]:
```

	country	location_name	latitude	longitude	\
6	Argentina	Buenos Aires	-34.5900	-58.6700	
8	Australia	Canberra	-35.2800	149.2200	
20	Bolivia	Sucre	-19.0400	-65.2600	
35	Chile	Santiago	-33.4500	-70.6700	
42	Cuba	Havana	23.1300	-82.3600	
...	...	...	...	...	
54445	Haiti	Port-Au-Prince	18.5392	-72.3350	
54500	North Korea	Pyongyang	39.0194	125.7547	
54518	Saint Kitts and Nevis	Basseterre	17.3000	-62.7167	
54535	South Korea	Seoul	37.5664	126.9997	
54563	Venezuela	Caracas	10.5000	-66.9167	

  

	timezone	last_updated_epoch	last_updated	\
6	America/Argentina/Buenos_Aires	1715849100	2024-05-16 05:45	
8	Australia/Sydney	1715849100	2024-05-16 18:45	
20	America/La_Paz	1715849100	2024-05-16 04:45	
35	America/Santiago	1715849100	2024-05-16 04:45	
42	America/Havana	1715849100	2024-05-16 04:45	
...	...	...	...	
54445	America/Port-au-Prince	1740132000	2025-02-21 05:00	
54500	Asia/Pyongyang	1740132000	2025-02-21 19:00	

54518	America/St_Kitts	1740132000	2025-02-21 06:00
54535	Asia/Seoul	1740132000	2025-02-21 19:00
54563	America/Caracas	1740132000	2025-02-21 06:00

	temperature_celsius	temperature_fahrenheit	condition_text	...	\
6	8.0	46.4	Clear	...	
8	9.0	48.2	Clear	...	
20	12.3	54.1	Clear	...	
35	1.0	33.8	Clear	...	
42	26.0	78.8	Clear	...	
...	...	...	...	...	
54445	17.6	63.7	Clear	...	
54500	-3.8	25.1	Clear	...	
54518	25.3	77.5	Clear	...	
54535	0.1	32.2	Clear	...	
54563	23.1	73.6	Clear	...	

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
6	4.000	5.300	1	
8	3.700	5.400	1	
20	4.600	9.100	1	
35	211.100	268.600	5	
42	4.700	18.400	1	
...	...	...	...	
54445	39.035	41.070	2	
54500	29.045	37.370	2	
54518	13.505	21.275	1	
54535	33.300	44.955	2	
54563	17.020	22.385	2	

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset	\
6	1	07:43 AM	05:59 PM	02:36 PM	01:04 AM	
8	1	06:52 AM	05:07 PM	01:31 PM	No moonset	
20	1	06:41 AM	05:53 PM	01:48 PM	12:51 AM	
35	10	07:28 AM	05:50 PM	02:23 PM	12:56 AM	
42	1	06:47 AM	08:04 PM	02:24 PM	02:44 AM	
...	...	...	...	...	...	
54445	4	06:13 AM	05:53 PM	12:47 AM	11:50 AM	
54500	3	07:21 AM	06:21 PM	02:00 AM	11:13 AM	
54518	2	06:34 AM	06:15 PM	01:04 AM	12:13 PM	
54535	3	07:15 AM	06:17 PM	01:50 AM	11:13 AM	
54563	2	06:45 AM	06:37 PM	01:06 AM	12:46 PM	

	moon_phase	moon_illumination
6	Waxing Gibbous	55
8	Waxing Gibbous	55
20	Waxing Gibbous	55

35	Waxing Gibbous	55
42	Waxing Gibbous	55
...	...	...
54445	Waning Crescent	45
54500	Last Quarter	51
54518	Waning Crescent	46
54535	Last Quarter	51
54563	Waning Crescent	46

[2273 rows x 41 columns]

```
[14]: df.groupby('condition_text').get_group('Clear') #answer
```

```
[14]:
```

	country	location_name	latitude	longitude	\
6	Argentina	Buenos Aires	-34.5900	-58.6700	
8	Australia	Canberra	-35.2800	149.2200	
20	Bolivia	Sucre	-19.0400	-65.2600	
35	Chile	Santiago	-33.4500	-70.6700	
42	Cuba	Havana	23.1300	-82.3600	
...	...	...	...	...	
54445	Haiti	Port-Au-Prince	18.5392	-72.3350	
54500	North Korea	Pyongyang	39.0194	125.7547	
54518	Saint Kitts and Nevis	Basseterre	17.3000	-62.7167	
54535	South Korea	Seoul	37.5664	126.9997	
54563	Venezuela	Caracas	10.5000	-66.9167	

  

	timezone	last_updated_epoch	last_updated	\
6	America/Argentina/Buenos_Aires	1715849100	2024-05-16 05:45	
8	Australia/Sydney	1715849100	2024-05-16 18:45	
20	America/La_Paz	1715849100	2024-05-16 04:45	
35	America/Santiago	1715849100	2024-05-16 04:45	
42	America/Havana	1715849100	2024-05-16 04:45	
...	...	...	...	
54445	America/Port-au-Prince	1740132000	2025-02-21 05:00	
54500	Asia/Pyongyang	1740132000	2025-02-21 19:00	
54518	America/St_Kitts	1740132000	2025-02-21 06:00	
54535	Asia/Seoul	1740132000	2025-02-21 19:00	
54563	America/Caracas	1740132000	2025-02-21 06:00	

  

	temperature_celsius	temperature_fahrenheit	condition_text	...	\
6	8.0	46.4	Clear	...	
8	9.0	48.2	Clear	...	
20	12.3	54.1	Clear	...	
35	1.0	33.8	Clear	...	
42	26.0	78.8	Clear	...	
...	...	...	...	...	
54445	17.6	63.7	Clear	...	



54500	-3.8	25.1	Clear	...
54518	25.3	77.5	Clear	...
54535	0.1	32.2	Clear	...
54563	23.1	73.6	Clear	...

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
6	4.000	5.300		1
8	3.700	5.400		1
20	4.600	9.100		1
35	211.100	268.600		5
42	4.700	18.400		1
...	...	...	...	
54445	39.035	41.070		2
54500	29.045	37.370		2
54518	13.505	21.275		1
54535	33.300	44.955		2
54563	17.020	22.385		2

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset	\
6	1	07:43 AM	05:59 PM	02:36 PM	01:04 AM	
8	1	06:52 AM	05:07 PM	01:31 PM	No moonset	
20	1	06:41 AM	05:53 PM	01:48 PM	12:51 AM	
35	10	07:28 AM	05:50 PM	02:23 PM	12:56 AM	
42	1	06:47 AM	08:04 PM	02:24 PM	02:44 AM	
...	...	...	...	...	...	
54445	4	06:13 AM	05:53 PM	12:47 AM	11:50 AM	
54500	3	07:21 AM	06:21 PM	02:00 AM	11:13 AM	
54518	2	06:34 AM	06:15 PM	01:04 AM	12:13 PM	
54535	3	07:15 AM	06:17 PM	01:50 AM	11:13 AM	
54563	2	06:45 AM	06:37 PM	01:06 AM	12:46 PM	

	moon_phase	moon_illumination
6	Waxing Gibbous	55
8	Waxing Gibbous	55
20	Waxing Gibbous	55
35	Waxing Gibbous	55
42	Waxing Gibbous	55
...	...	...
54445	Waning Crescent	45
54500	Last Quarter	51
54518	Waning Crescent	46
54535	Last Quarter	51
54563	Waning Crescent	46

[2273 rows x 41 columns]

3.Find the number of times when the'wind\_kph exactly 4'.

```
[81]: df['wind_kph'].value_counts()
```

```
[81]: wind_kph
3.6      6333
6.8      2019
11.2     1976
9.0      1791
15.1     1770
...
69.8      1
205.9     1
81.0      1
69.1      1
51.5      1
Name: count, Length: 174, dtype: int64
```

```
[17]: df[df['wind_kph']==4] # answer
```

```
[17]:
```

	country	location_name	latitude	longitude	\
8	Australia	Canberra	-35.2800	149.2200	
23	Brazil	Bras	-2.0800	-58.1700	
45	Democratic Republic of Congo	Kinshasa	-4.3000	15.3000	
72	Haiti	Port-Au-Prince	18.5400	-72.3400	
156	Singapore	Singapore	1.2900	103.8600	
...	...	...	...	...	
54396	Brazil	Bras	-2.0833	-58.1667	
54398	Bulgaria	Sofia	42.6833	23.3167	
54445	Haiti	Port-Au-Prince	18.5392	-72.3350	
54446	Vatican City	Vatican City	41.9040	12.4530	
54456	Italy	Rome	41.9000	12.4833	

  

	timezone	last_updated_epoch	last_updated	\
8	Australia/Sydney	1715849100	2024-05-16 18:45	
23	America/Manaus	1715849100	2024-05-16 04:45	
45	Africa/Brazzaville	1715849100	2024-05-16 09:45	
72	America/Port-au-Prince	1715849100	2024-05-16 04:45	
156	Asia/Singapore	1715849100	2024-05-16 16:45	
...	...	...	...	
54396	America/Manaus	1740132000	2025-02-21 06:00	
54398	Europe/Sofia	1740132000	2025-02-21 12:00	
54445	America/Port-au-Prince	1740132000	2025-02-21 05:00	
54446	Europe/Rome	1740132000	2025-02-21 11:00	
54456	Europe/Rome	1740132000	2025-02-21 11:00	

  

	temperature_celsius	temperature_fahrenheit	condition_text	...	\
8	9.0	48.2	Clear	...	
23	23.1	73.6	Fog	...	

45	29.4	85.0	Sunny	...
72	21.0	69.8	Clear	...
156	26.0	78.8	Partly cloudy	...
...	...	...	...	...
54396	22.5	72.5	Light rain shower	...
54398	-1.7	28.9	Partly cloudy	...
54445	17.6	63.7	Clear	...
54446	12.1	53.8	Sunny	...
54456	12.1	53.8	Sunny	...

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
8	3.700	5.400	1	
23	0.500	0.500	1	
45	17.300	72.700	2	
72	10.700	20.700	1	
156	8.900	11.000	1	
...	...	...	...	
54396	0.555	0.555	1	
54398	55.500	59.015	3	
54445	39.035	41.070	2	
54446	50.135	51.615	3	
54456	50.135	51.615	3	

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset	\
8	1	06:52 AM	05:07 PM	01:31 PM	No moonset	
23	1	05:49 AM	05:50 PM	01:05 PM	12:39 AM	
45	2	05:58 AM	05:53 PM	01:05 PM	12:34 AM	
72	1	06:15 AM	07:17 PM	01:47 PM	01:58 AM	
156	1	06:56 AM	07:06 PM	01:55 PM	01:36 AM	
...	...	...	...	...	...	
54396	1	06:01 AM	06:11 PM	12:04 AM	12:37 PM	
54398	7	07:15 AM	06:06 PM	02:22 AM	10:59 AM	
54445	4	06:13 AM	05:53 PM	12:47 AM	11:50 AM	
54446	6	06:57 AM	05:51 PM	02:04 AM	10:47 AM	
54456	6	06:57 AM	05:51 PM	02:04 AM	10:47 AM	

	moon_phase	moon_illumination
8	Waxing Gibbous	55
23	Waxing Gibbous	55
45	Waxing Gibbous	55
72	Waxing Gibbous	55
156	Waxing Gibbous	55
...	...	...
54396	Waning Crescent	46
54398	Waning Crescent	48
54445	Waning Crescent	45
54446	Waning Crescent	48

54456 Waning Crescent

48

[974 rows x 41 columns]

5.Rename the column name 'condition\_text' of the dataframe to 'weather\_condition'.

```
[82]: df.columns
```

```
[82]: Index(['city', 'location_name', 'latitude', 'longitude', 'timezone',
        'last_updated_epoch', 'last_updated', 'temperature_celsius',
        'temperature_fahrenheit', 'condition_text', 'wind_mph', 'wind_kph',
        'wind_degree', 'wind_direction', 'pressure_mb', 'pressure_in',
        'precip_mm', 'precip_in', 'humidity', 'cloud', 'feels_like_celsius',
        'feels_like_fahrenheit', 'visibility_km', 'visibility_miles',
        'uv_index', 'gust_mph', 'gust_kph', 'air_quality_Carbon_Monoxide',
        'air_quality_Ozone', 'air_quality_Nitrogen_dioxide',
        'air_quality_Sulphur_dioxide', 'air_quality_PM2.5', 'air_quality_PM10',
        'air_quality_us-epa-index', 'air_quality_gb-defra-index', 'sunrise',
        'sunset', 'moonrise', 'moonset', 'moon_phase', 'moon_illumination'],
        dtype='object')
```

```
[83]: df.rename(columns={'condition_text':'weather_condition'},inplace=True)
df.head(2)
```

```
[83]:
```

	city	location_name	latitude	longitude	timezone	\
0	Afghanistan	Kabul	34.52	69.18	Asia/Kabul	
1	Albania	Tirana	41.33	19.82	Europe/Tirane	

  

	last_updated_epoch	last_updated	temperature_celsius	\
0	1715849100	2024-05-16 13:15	26.6	
1	1715849100	2024-05-16 10:45	19.0	

  

	temperature_fahrenheit	weather_condition	...	air_quality_PM2.5	\
0	79.8	Partly Cloudy	...	8.4	
1	66.2	Partly cloudy	...	1.1	

  

	air_quality_PM10	air_quality_us-epa-index	air_quality_gb-defra-index	\
0	26.6		1	1
1	2.0		1	1

  

	sunrise	sunset	moonrise	moonset	moon_phase	moon_illumination
0	04:50 AM	06:50 PM	12:12 PM	01:11 AM	Waxing Gibbous	55
1	05:21 AM	07:54 PM	12:58 PM	02:14 AM	Waxing Gibbous	55

[2 rows x 41 columns]

6.what is the mean 'Visibility'?

```
[22]: df.visibility_km.mean()
```

```
[22]: 9.596179079313885
```

7.what is the Standard Deviation of 'Pressure'in this data?

```
[28]: df.pressure_in.std()
```

```
[28]: 0.41444123470464567
```

8.what is the Variance of 'Relative Humidity'in this data?

```
[32]: df.humidity.var()
```

```
[32]: 601.8811573699641
```

9.find all instances when 'Snow' was recorded.

```
[84]: #value_counts()  
df['weather_condition'].value_counts()
```

```
[84]: weather_condition  
Partly cloudy          18014  
Sunny                  16612  
Patchy rain nearby     4289  
Partly Cloudy          2588  
Overcast               2576  
Clear                  2273  
Mist                   1730  
Light rain             1506  
Light rain shower      1434  
Cloudy                 497  
Fog                    484  
Moderate or heavy rain with thunder 417  
Moderate rain          377  
Patchy light rain with thunder 306  
Light drizzle          268  
Patchy light drizzle   172  
Light snow             158  
Moderate or heavy rain shower 140  
Thundery outbreaks in nearby 102  
Patchy light rain      100  
Patchy light rain in area with thunder 72  
Freezing fog           50  
Heavy snow             49  
Moderate rain at times 41  
Light snow showers     34  
Moderate snow          32  
Light freezing rain     31
```

Patchy rain possible	27
Moderate or heavy snow showers	26
Patchy light snow	26
Light sleet	26
Heavy rain	25
Blowing snow	16
Thundery outbreaks possible	12
Patchy heavy snow	11
Torrential rain shower	9
Heavy rain at times	9
Light sleet showers	6
Patchy moderate snow	6
Moderate or heavy sleet	3
Blizzard	3
Patchy light snow in area with thunder	3
Moderate or heavy rain in area with thunder	2
Freezing drizzle	2
Moderate or heavy snow in area with thunder	2
Patchy snow nearby	1
Patchy snow possible	1

Name: count, dtype: int64

```
[85]: #Filtering
df[df['weather_condition']=='Heavy snow']
```

```
[85]:
```

	city	location_name	latitude	longitude	\
33020	Estonia	Tallinn	59.4339	24.7281	
33024	Finland	Helsinki	60.1756	24.9342	
34917	Andorra	Andorra La Vella	42.5000	1.5167	
35987	Liechtenstein	Vaduz	47.1333	9.5167	
36334	Estonia	Tallinn	59.4339	24.7281	
36657	Ukraine	Kyiv	50.4333	30.5167	
36710	Croatia	Zagreb	45.8000	16.0000	
37806	South Korea	Seoul	37.5664	126.9997	
38869	Estonia	Tallinn	59.4339	24.7281	
38912	Liechtenstein	Vaduz	47.1333	9.5167	
40082	Liechtenstein	Vaduz	47.1333	9.5167	
40876	Iran	Chi Chi Khvar	36.2625	46.5900	
41209	Estonia	Tallinn	59.4339	24.7281	
41245	Kyrgyzstan	Bishkek	42.8731	74.6003	
42220	Kyrgyzstan	Bishkek	42.8731	74.6003	
42349	Bulgaria	Sofia	42.6833	23.3167	
42379	Estonia	Tallinn	59.4339	24.7281	
42383	Finland	Helsinki	60.1756	24.9342	
42606	Kazakhstan	Astana	51.1811	71.4278	
42617	Liechtenstein	Vaduz	47.1333	9.5167	
42735	Bosnia and Herzegovina	Sarajevo	43.8500	18.3833	

42801	Kazakhstan	Astana	51.1811	71.4278
42883	Switzerland	Bern	46.9167	7.4667
42930	Bosnia and Herzegovina	Sarajevo	43.8500	18.3833
43062	Serbia	Belgrade	44.8040	20.4651
43129	Bulgaria	Sofia	42.6833	23.3167
43336	Bulgaria	Bogot	43.3167	24.7000
44664	Afghanistan	Kabul	34.5167	69.1833
44859	Afghanistan	Kabul	34.5167	69.1833
44880	Bosnia and Herzegovina	Sarajevo	43.8500	18.3833
45030	Tajikistan	Dushanbe	38.5600	68.7739
45348	Lithuania	Vilnius	54.6833	25.3167
45447	Andorra	Andorra La Vella	42.5000	1.5167
45542	Lithuania	Vilnius	54.6833	25.3167
45572	Norway	Oslo	59.9167	10.7500
45626	Ukraine	Kyiv	50.4333	30.5167
46228	Croatia	Zagreb	45.8000	16.0000
46242	Estonia	Tallinn	59.4339	24.7281
46385	Andorra	Andorra La Vella	42.5000	1.5167
47941	Afghanistan	Kabul	34.5167	69.1833
48617	Kyrgyzstan	Bishkek	42.8731	74.6003
50371	Kyrgyzstan	Bishkek	42.8731	74.6003
52401	Tajikistan	Dushanbe	38.5600	68.7739
52664	Czech Republic	Prague	50.0833	14.4667
52870	Estonia	Tallinn	59.4339	24.7281
53017	Armenia	Yerevan	40.1811	44.5136
53619	Bulgaria	Sofia	42.6833	23.3167
53631	Bulgaria	Bogot	43.3167	24.7000
53930	Romania	Bucharest	44.4333	26.1000

	timezone	last_updated_epoch	last_updated \
33020	Europe/Tallinn	1730624400	2024-11-03 11:00
33024	Europe/Helsinki	1730625300	2024-11-03 11:15
34917	Europe/Andorra	1731488400	2024-11-13 10:00
35987	Europe/Vaduz	1731919500	2024-11-18 09:45
36334	Europe/Tallinn	1732092300	2024-11-20 10:45
36657	Europe/Kiev	1732178700	2024-11-21 10:45
36710	Europe/Zagreb	1732265100	2024-11-22 09:45
37806	Asia/Seoul	1732697100	2024-11-27 17:45
38869	Europe/Tallinn	1733222700	2024-12-03 12:45
38912	Europe/Vaduz	1733222700	2024-12-03 11:45
40082	Europe/Vaduz	1733742000	2024-12-09 12:00
40876	Asia/Tehran	1734087600	2024-12-13 14:30
41209	Europe/Tallinn	1734258600	2024-12-15 12:30
41245	Asia/Bishkek	1734258600	2024-12-15 16:30
42220	Asia/Bishkek	1734691500	2024-12-20 16:45
42349	Europe/Sofia	1734777900	2024-12-21 12:45
42379	Europe/Tallinn	1734777900	2024-12-21 12:45

42383	Europe/Helsinki	1734777900	2024-12-21 12:45
42606	Asia/Almaty	1734862500	2024-12-22 15:15
42617	Europe/Vaduz	1734862500	2024-12-22 11:15
42735	Europe/Sarajevo	1734950700	2024-12-23 11:45
42801	Asia/Almaty	1734950700	2024-12-23 15:45
42883	Europe/Zurich	1734950700	2024-12-23 11:45
42930	Europe/Sarajevo	1735035300	2024-12-24 11:15
43062	Europe/Belgrade	1735037100	2024-12-24 11:45
43129	Europe/Sofia	1735119900	2024-12-25 11:45
43336	Europe/Sofia	1735206300	2024-12-26 11:45
44664	Asia/Kabul	1735815600	2025-01-02 15:30
44859	Asia/Kabul	1735901100	2025-01-03 15:15
44880	Europe/Sarajevo	1735901100	2025-01-03 11:45
45030	Asia/Dushanbe	1735901100	2025-01-03 15:45
45348	Europe/Vilnius	1736072100	2025-01-05 12:15
45447	Europe/Andorra	1736156700	2025-01-06 10:45
45542	Europe/Vilnius	1736156700	2025-01-06 11:45
45572	Europe/Oslo	1736159400	2025-01-06 11:30
45626	Europe/Kiev	1736159400	2025-01-06 12:30
46228	Europe/Zagreb	1736508600	2025-01-10 12:30
46242	Europe/Tallinn	1736504100	2025-01-10 12:15
46385	Europe/Andorra	1736588700	2025-01-11 10:45
47941	Asia/Kabul	1737278100	2025-01-19 13:45
48617	Asia/Bishkek	1737540900	2025-01-22 16:15
50371	Asia/Bishkek	1738319400	2025-01-31 16:30
52401	Asia/Dushanbe	1739183400	2025-02-10 15:30
52664	Europe/Prague	1739355300	2025-02-12 11:15
52870	Europe/Tallinn	1739441700	2025-02-13 12:15
53017	Asia/Yerevan	1739527200	2025-02-14 14:00
53619	Europe/Sofia	1739787300	2025-02-17 12:15
53631	Europe/Sofia	1739787300	2025-02-17 12:15
53930	Europe/Bucharest	1739873700	2025-02-18 12:15

	temperature_celsius	temperature_fahrenheit	weather_condition	...	\
33020	3.8	38.9	Heavy snow	...	
33024	3.5	38.3	Heavy snow	...	
34917	2.6	36.6	Heavy snow	...	
35987	1.1	33.9	Heavy snow	...	
36334	0.1	32.2	Heavy snow	...	
36657	0.9	33.6	Heavy snow	...	
36710	2.1	35.8	Heavy snow	...	
37806	-0.3	31.4	Heavy snow	...	
38869	1.1	34.0	Heavy snow	...	
38912	0.3	32.6	Heavy snow	...	
40082	-2.1	28.2	Heavy snow	...	
40876	-1.1	30.0	Heavy snow	...	
41209	-2.6	27.3	Heavy snow	...	



41245	-0.5	31.1	Heavy snow	...
42220	-1.7	28.9	Heavy snow	...
42349	1.6	35.0	Heavy snow	...
42379	1.7	35.0	Heavy snow	...
42383	0.7	33.3	Heavy snow	...
42606	-8.3	17.0	Heavy snow	...
42617	0.3	32.5	Heavy snow	...
42735	0.5	32.9	Heavy snow	...
42801	-5.8	21.5	Heavy snow	...
42883	1.4	34.5	Heavy snow	...
42930	-1.2	29.9	Heavy snow	...
43062	-0.0	32.0	Heavy snow	...
43129	1.7	35.0	Heavy snow	...
43336	-0.3	31.4	Heavy snow	...
44664	0.9	33.6	Heavy snow	...
44859	1.3	34.3	Heavy snow	...
44880	3.2	37.8	Heavy snow	...
45030	1.2	34.2	Heavy snow	...
45348	-3.8	25.2	Heavy snow	...
45447	-0.7	30.7	Heavy snow	...
45542	-2.7	27.1	Heavy snow	...
45572	-7.0	19.4	Heavy snow	...
45626	-0.3	31.5	Heavy snow	...
46228	1.5	34.7	Heavy snow	...
46242	0.0	32.0	Heavy snow	...
46385	2.7	36.9	Heavy snow	...
47941	0.3	32.5	Heavy snow	...
48617	-4.7	23.5	Heavy snow	...
50371	-3.8	25.2	Heavy snow	...
52401	-0.6	30.9	Heavy snow	...
52664	0.1	32.2	Heavy snow	...
52870	-0.8	30.6	Heavy snow	...
53017	1.1	34.0	Heavy snow	...
53619	-1.9	28.6	Heavy snow	...
53631	-1.5	29.3	Heavy snow	...
53930	-2.8	27.0	Heavy snow	...

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
33020	2.960	7.770	1	
33024	2.960	9.620	1	
34917	2.775	3.515	1	
35987	16.095	19.055	2	
36334	10.545	13.135	1	
36657	8.880	10.915	1	
36710	8.880	9.435	1	
37806	39.775	43.105	2	
38869	8.325	9.250	1	

38912	8.140	10.175	1
40082	16.835	18.130	2
40876	5.735	10.545	1
41209	11.470	13.320	1
41245	56.610	60.495	3
42220	52.910	57.535	3
42349	14.430	15.540	1
42379	3.885	7.585	1
42383	3.700	9.065	1
42606	7.400	7.585	1
42617	1.295	1.665	1
42735	21.460	22.015	2
42801	14.800	15.355	1
42883	2.590	3.700	1
42930	19.610	21.645	2
43062	17.945	20.535	2
43129	20.165	24.235	2
43336	13.320	13.320	1
44664	29.785	41.070	2
44859	24.975	29.415	2
44880	31.080	38.665	2
45030	3.885	3.885	1
45348	17.575	22.940	2
45447	8.510	19.610	1
45542	23.495	27.010	2
45572	14.060	15.540	1
45626	25.345	29.785	2
46228	10.730	13.135	1
46242	25.160	31.450	2
46385	0.925	1.295	1
47941	39.960	45.510	2
48617	30.710	33.115	2
50371	37.925	39.590	2
52401	27.195	35.705	2
52664	26.455	27.565	2
52870	6.475	9.805	1
53017	36.260	58.645	2
53619	39.405	45.140	2
53631	33.115	34.225	2
53930	51.060	57.905	3

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset \
33020	1	07:47 AM	04:21 PM	10:50 AM	03:59 PM
33024	1	07:50 AM	04:17 PM	10:59 AM	03:48 PM
34917	1	07:43 AM	05:33 PM	04:00 PM	04:29 AM
35987	2	07:31 AM	04:43 PM	06:30 PM	10:55 AM
36334	1	08:28 AM	03:45 PM	07:26 PM	01:56 PM

36657	1	07:23 AM	04:05 PM	09:29 PM	12:46 PM
36710	1	07:06 AM	04:18 PM	10:56 PM	12:50 PM
37806	4	07:24 AM	05:15 PM	03:24 AM	02:50 PM
38869	1	08:56 AM	03:26 PM	12:27 PM	03:48 PM
38912	1	07:50 AM	04:33 PM	10:24 AM	05:57 PM
40082	2	07:57 AM	04:32 PM	01:08 PM	12:20 AM
40876	1	07:27 AM	05:10 PM	03:13 PM	05:09 AM
41209	1	09:14 AM	03:20 PM	02:02 PM	10:32 AM
41245	7	08:25 AM	05:28 PM	05:02 PM	08:36 AM
42220	6	08:29 AM	05:30 PM	10:48 PM	12:08 PM
42349	2	07:54 AM	04:56 PM	11:26 PM	11:56 AM
42379	1	09:18 AM	03:21 PM	11:03 PM	12:15 PM
42383	1	09:24 AM	03:13 PM	11:01 PM	12:15 PM
42606	1	08:16 AM	04:09 PM	No moonrise	12:02 PM
42617	1	08:06 AM	04:35 PM	No moonrise	12:10 PM
42735	2	07:19 AM	04:13 PM	No moonrise	11:50 AM
42801	2	08:17 AM	04:10 PM	12:07 AM	12:12 PM
42883	1	08:14 AM	04:45 PM	12:34 AM	12:32 PM
42930	2	07:19 AM	04:13 PM	12:51 AM	12:07 PM
43062	2	07:14 AM	04:02 PM	12:43 AM	11:57 AM
43129	2	07:56 AM	04:59 PM	02:31 AM	01:08 PM
43336	2	07:53 AM	04:51 PM	03:31 AM	01:23 PM
44664	3	07:00 AM	04:55 PM	09:03 AM	07:25 PM
44859	3	07:00 AM	04:55 PM	09:38 AM	08:33 PM
44880	3	07:21 AM	04:21 PM	09:54 AM	08:21 PM
45030	1	07:43 AM	05:16 PM	10:17 AM	08:59 PM
45348	2	08:40 AM	04:08 PM	11:14 AM	11:24 PM
45447	1	08:23 AM	05:37 PM	12:06 PM	12:02 AM
45542	2	08:40 AM	04:10 PM	11:22 AM	No moonset
45572	2	09:15 AM	03:32 PM	11:16 AM	No moonset
45626	3	07:57 AM	04:10 PM	11:04 AM	No moonset
46228	1	07:36 AM	04:32 PM	12:50 PM	04:21 AM
46242	3	09:11 AM	03:47 PM	11:34 AM	06:21 AM
46385	1	08:22 AM	05:42 PM	02:54 PM	06:23 AM
47941	4	06:58 AM	05:10 PM	10:31 PM	09:59 AM
48617	3	08:25 AM	06:01 PM	01:47 AM	12:02 PM
50371	4	08:17 AM	06:13 PM	09:30 AM	08:26 PM
52401	3	07:22 AM	05:57 PM	03:32 PM	06:11 AM
52664	3	07:18 AM	05:16 PM	05:07 PM	07:36 AM
52870	1	08:02 AM	05:10 PM	06:16 PM	08:36 AM
53017	4	07:56 AM	06:36 PM	08:33 PM	08:52 AM
53619	4	07:21 AM	06:01 PM	11:08 PM	09:14 AM
53631	3	07:16 AM	05:55 PM	11:03 PM	09:07 AM
53930	6	07:11 AM	05:49 PM	No moonrise	09:18 AM

	moon_phase	moon_illumination
33020	Waxing Crescent	2

33024	Waxing Crescent	2
34917	Waxing Gibbous	88
35987	Waning Gibbous	94
36334	Waning Gibbous	80
36657	Waning Gibbous	71
36710	Waning Gibbous	61
37806	Waning Crescent	19
38869	Waxing Crescent	3
38912	Waxing Crescent	3
40082	Waxing Gibbous	54
40876	Waxing Gibbous	91
41209	Full Moon	100
41245	Full Moon	99
42220	Waning Gibbous	79
42349	Waning Gibbous	69
42379	Waning Gibbous	69
42383	Waning Gibbous	69
42606	Waning Gibbous	61
42617	Last Quarter	59
42735	Waning Crescent	50
42801	Last Quarter	51
42883	Waning Crescent	50
42930	Waning Crescent	40
43062	Waning Crescent	40
43129	Waning Crescent	32
43336	Waning Crescent	23
44664	Waxing Crescent	4
44859	Waxing Crescent	10
44880	Waxing Crescent	11
45030	Waxing Crescent	9
45348	Waxing Crescent	27
45447	First Quarter	38
45542	Waxing Crescent	38
45572	First Quarter	38
45626	Waxing Crescent	38
46228	Waxing Gibbous	81
46242	Waxing Gibbous	81
46385	Waxing Gibbous	89
47941	Waning Gibbous	77
48617	Last Quarter	51
50371	Waxing Crescent	2
52401	Waxing Gibbous	92
52664	Full Moon	100
52870	Waning Gibbous	100
53017	Waning Gibbous	98
53619	Waning Gibbous	83
53631	Waning Gibbous	83

[49 rows x 41 columns]

```
[43]: #str.contains
df[df['condition_text'].str.contains('snow')].head(50)
```

```
[43]:
```

	city	location_name	latitude	longitude	\
23004	Netherlands	Amsterdam	52.3700	4.8900	
29264	Russia	Moscow	55.7522	37.6156	
29430	Mongolia	Ulaanbaatar	47.9167	106.9167	
30405	Mongolia	Ulaanbaatar	47.9167	106.9167	
31356	Mongolia	Ulaanbaatar	47.9167	106.9167	
32725	Russia	Moscow	55.7522	37.6156	
33020	Estonia	Tallinn	59.4339	24.7281	
33024	Finland	Helsinki	60.1756	24.9342	
33247	Kazakhstan	Astana	51.1811	71.4278	
33303	Russia	Moscow	55.7522	37.6156	
33693	Russia	Moscow	55.7522	37.6156	
33831	Kazakhstan	Astana	51.1811	71.4278	
33835	Kyrgyzstan	Bishkek	42.8731	74.6003	
34416	Kazakhstan	Astana	51.1811	71.4278	
34611	Kazakhstan	Astana	51.1811	71.4278	
34722	Andorra	Andorra La Vella	42.5000	1.5167	
34917	Andorra	Andorra La Vella	42.5000	1.5167	
35001	Kazakhstan	Astana	51.1811	71.4278	
35196	Kazakhstan	Astana	51.1811	71.4278	
35292	Ukraine	Kyiv	50.4333	30.5167	
35391	Kazakhstan	Astana	51.1811	71.4278	
35447	Russia	Moscow	55.7522	37.6156	
35487	Ukraine	Kyiv	50.4333	30.5167	
35987	Liechtenstein	Vaduz	47.1333	9.5167	
36213	Norway	Oslo	59.9167	10.7500	
36269	United Kingdom	London	51.5171	-0.1062	
36334	Estonia	Tallinn	59.4339	24.7281	
36338	Finland	Helsinki	60.1756	24.9342	
36377	Liechtenstein	Vaduz	47.1333	9.5167	
36401	Netherlands	Amsterdam	52.3740	4.8897	
36529	Estonia	Tallinn	59.4339	24.7281	
36534	France	Paris	48.8667	2.3333	
36561	Kazakhstan	Astana	51.1811	71.4278	
36642	Sweden	Stockholm	59.3333	18.0500	
36657	Ukraine	Kyiv	50.4333	30.5167	
36672	Andorra	Andorra La Vella	42.5000	1.5167	
36710	Croatia	Zagreb	45.8000	16.0000	
36728	Finland	Helsinki	60.1756	24.9342	
36729	France	Paris	48.8667	2.3333	

36733	Germany	Berlin	52.5167	13.4000
36767	Liechtenstein	Vaduz	47.1333	9.5167
36819	Belgium	'S Gravenjansdijk	51.2500	3.6333
36940	Iceland	Vestmannaeyjar	63.3650	-20.2075
36957	Latvia	Riga	56.9500	24.1000
36963	Lithuania	Vilnius	54.6833	25.3167
37007	Russia	Moscow	55.7522	37.6156
37047	Ukraine	Kyiv	50.4333	30.5167
37188	Norway	Oslo	59.9167	10.7500
37198	Poland	Warsaw	52.2500	21.0000
37368	Mongolia	Ulaanbaatar	47.9167	106.9167

	timezone	last_updated_epoch	last_updated	\
23004	Europe/Amsterdam	1726143300	2024-09-12 14:15	
29264	Europe/Moscow	1728898200	2024-10-14 12:30	
29430	Asia/Ulaanbaatar	1728984600	2024-10-15 17:30	
30405	Asia/Ulaanbaatar	1729416600	2024-10-20 17:30	
31356	Asia/Ulaanbaatar	1729847700	2024-10-25 17:15	
32725	Europe/Moscow	1730452500	2024-11-01 12:15	
33020	Europe/Tallinn	1730624400	2024-11-03 11:00	
33024	Europe/Helsinki	1730625300	2024-11-03 11:15	
33247	Asia/Almaty	1730710800	2024-11-04 14:00	
33303	Europe/Moscow	1730710800	2024-11-04 12:00	
33693	Europe/Moscow	1730883600	2024-11-06 12:00	
33831	Asia/Almaty	1730970000	2024-11-07 14:00	
33835	Asia/Bishkek	1730970000	2024-11-07 15:00	
34416	Asia/Almaty	1731228300	2024-11-10 13:45	
34611	Asia/Almaty	1731315600	2024-11-11 14:00	
34722	Europe/Andorra	1731402000	2024-11-12 10:00	
34917	Europe/Andorra	1731488400	2024-11-13 10:00	
35001	Asia/Almaty	1731488400	2024-11-13 14:00	
35196	Asia/Almaty	1731575700	2024-11-14 14:15	
35292	Europe/Kiev	1731575700	2024-11-14 11:15	
35391	Asia/Almaty	1731661200	2024-11-15 14:00	
35447	Europe/Moscow	1731661200	2024-11-15 12:00	
35487	Europe/Kiev	1731661200	2024-11-15 11:00	
35987	Europe/Vaduz	1731919500	2024-11-18 09:45	
36213	Europe/Oslo	1732005900	2024-11-19 09:45	
36269	Europe/London	1732006800	2024-11-19 09:00	
36334	Europe/Tallinn	1732092300	2024-11-20 10:45	
36338	Europe/Helsinki	1732092300	2024-11-20 10:45	
36377	Europe/Vaduz	1732092300	2024-11-20 09:45	
36401	Europe/Amsterdam	1732092300	2024-11-20 09:45	
36529	Europe/Tallinn	1732178700	2024-11-21 10:45	
36534	Europe/Paris	1732178700	2024-11-21 09:45	
36561	Asia/Almaty	1732177800	2024-11-21 13:30	
36642	Europe/Stockholm	1732178700	2024-11-21 09:45	

36657	Europe/Kiev	1732178700	2024-11-21 10:45
36672	Europe/Andorra	1732265100	2024-11-22 09:45
36710	Europe/Zagreb	1732265100	2024-11-22 09:45
36728	Europe/Helsinki	1732265100	2024-11-22 10:45
36729	Europe/Paris	1732265100	2024-11-22 09:45
36733	Europe/Berlin	1732265100	2024-11-22 09:45
36767	Europe/Vaduz	1732265100	2024-11-22 09:45
36819	Europe/Brussels	1732265100	2024-11-22 09:45
36940	Atlantic/Reykjavik	1732352400	2024-11-23 09:00
36957	Europe/Riga	1732351500	2024-11-23 10:45
36963	Europe/Vilnius	1732351500	2024-11-23 10:45
37007	Europe/Moscow	1732352400	2024-11-23 12:00
37047	Europe/Kiev	1732352400	2024-11-23 11:00
37188	Europe/Oslo	1732437000	2024-11-24 09:30
37198	Europe/Warsaw	1732437000	2024-11-24 09:30
37368	Asia/Ulaanbaatar	1732524300	2024-11-25 16:45

	temperature_celsius	temperature_fahrenheit \
23004	12.3	54.1
29264	0.2	32.4
29430	-1.9	28.6
30405	-6.7	19.9
31356	-0.7	30.8
32725	2.4	36.3
33020	3.8	38.9
33024	3.5	38.3
33247	2.4	36.4
33303	-0.9	30.4
33693	-0.8	30.6
33831	-2.7	27.1
33835	2.2	36.0
34416	0.3	32.5
34611	-5.9	21.4
34722	2.5	36.6
34917	2.6	36.6
35001	-6.8	19.8
35196	-2.9	26.8
35292	1.4	34.5
35391	-1.7	28.9
35447	0.4	32.7
35487	1.3	34.4
35987	1.1	33.9
36213	0.3	32.5
36269	1.1	34.0
36334	0.1	32.2
36338	0.3	32.5
36377	-1.8	28.7

36401	4.3	39.7
36529	1.2	34.2
36534	2.4	36.3
36561	0.2	32.4
36642	-3.0	26.6
36657	0.9	33.6
36672	-0.9	30.4
36710	2.1	35.8
36728	-0.0	31.9
36729	2.2	36.0
36733	1.3	34.3
36767	-10.2	13.7
36819	2.3	36.1
36940	1.0	33.7
36957	-0.6	30.9
36963	-2.7	27.1
37007	0.1	32.2
37047	0.6	33.1
37188	-4.0	24.8
37198	2.0	35.6
37368	-16.9	1.6

	condition_text	...	air_quality_PM2.5	\
23004	Moderate or heavy snow showers	...	5.735	
29264	Moderate snow	...	23.310	
29430	Light snow	...	10.360	
30405	Moderate snow	...	14.800	
31356	Moderate snow	...	11.100	
32725	Moderate snow	...	5.920	
33020	Heavy snow	...	2.960	
33024	Heavy snow	...	2.960	
33247	Moderate or heavy snow showers	...	13.690	
33303	Light snow	...	19.610	
33693	Light snow	...	49.950	
33831	Blowing snow	...	1.110	
33835	Light snow	...	6.105	
34416	Light snow	...	0.740	
34611	Light snow	...	2.220	
34722	Patchy heavy snow	...	3.330	
34917	Heavy snow	...	2.775	
35001	Blowing snow	...	3.885	
35196	Blowing snow	...	7.215	
35292	Light snow showers	...	22.940	
35391	Blowing snow	...	4.995	
35447	Light snow	...	56.795	
35487	Light snow	...	30.525	
35987	Heavy snow	...	16.095	



36213	Light snow showers ...	16.835
36269	Patchy heavy snow ...	5.365
36334	Heavy snow ...	10.545
36338	Patchy light snow ...	6.845
36377	Patchy heavy snow ...	1.665
36401	Moderate or heavy snow showers ...	9.435
36529	Moderate or heavy snow showers ...	2.960
36534	Light snow ...	25.715
36561	Light snow showers ...	31.265
36642	Light snow ...	2.035
36657	Heavy snow ...	8.880
36672	Patchy light snow ...	0.740
36710	Heavy snow ...	8.880
36728	Moderate or heavy snow showers ...	4.070
36729	Light snow ...	15.540
36733	Light snow ...	23.310
36767	Moderate snow ...	8.325
36819	Moderate or heavy snow showers ...	7.955
36940	Patchy light snow ...	2.571
36957	Light snow ...	14.060
36963	Moderate snow ...	34.780
37007	Moderate snow ...	28.860
37047	Light snow ...	17.390
37188	Light snow ...	8.510
37198	Patchy heavy snow ...	39.220
37368	Moderate snow ...	10.730

	air_quality_PM10	air_quality_us-epa-index	air_quality_gb-defra-index \
23004	10.730	1	1
29264	27.565	2	2
29430	36.075	1	1
30405	61.790	1	2
31356	18.130	1	1
32725	8.695	1	1
33020	7.770	1	1
33024	9.620	1	1
33247	26.640	1	2
33303	23.310	2	2
33693	65.305	3	6
33831	1.665	1	1
33835	9.805	1	1
34416	1.295	1	1
34611	3.330	1	1
34722	3.885	1	1
34917	3.515	1	1
35001	5.365	1	1
35196	7.585	1	1

35292	26.640	2	2
35391	5.365	1	1
35447	66.230	3	7
35487	35.520	2	3
35987	19.055	2	2
36213	19.425	2	2
36269	6.290	1	1
36334	13.135	1	1
36338	9.250	1	1
36377	2.220	1	1
36401	16.835	1	1
36529	4.440	1	1
36534	33.485	2	3
36561	41.625	2	3
36642	4.625	1	1
36657	10.915	1	1
36672	0.925	1	1
36710	9.435	1	1
36728	6.105	1	1
36729	18.130	2	2
36733	25.345	2	2
36767	9.065	1	1
36819	8.880	1	1
36940	6.059	1	1
36957	15.910	1	2
36963	39.590	2	3
37007	34.040	2	3
37047	19.055	2	2
37188	12.395	1	1
37198	40.145	2	4
37368	12.210	1	1

	sunrise	sunset	moonrise	moonset	moon_phase \
23004	07:11 AM	08:02 PM	05:45 PM	No moonset	Waxing Gibbous
29264	06:59 AM	05:31 PM	04:47 PM	01:52 AM	Waxing Gibbous
29430	07:12 AM	06:04 PM	05:09 PM	03:47 AM	Waxing Gibbous
30405	07:19 AM	05:55 PM	07:09 PM	11:07 AM	Waning Gibbous
31356	07:27 AM	05:46 PM	No moonrise	03:23 PM	Waning Crescent
32725	07:37 AM	04:49 PM	07:34 AM	04:19 PM	New Moon
33020	07:47 AM	04:21 PM	10:50 AM	03:59 PM	Waxing Crescent
33024	07:50 AM	04:17 PM	10:59 AM	03:48 PM	Waxing Crescent
33247	07:13 AM	04:42 PM	10:38 AM	05:32 PM	Waxing Crescent
33303	07:43 AM	04:43 PM	11:40 AM	05:10 PM	Waxing Crescent
33693	07:47 AM	04:39 PM	01:41 PM	06:57 PM	Waxing Crescent
33831	07:18 AM	04:37 PM	01:20 PM	08:32 PM	Waxing Crescent
33835	07:44 AM	05:47 PM	01:22 PM	10:02 PM	Waxing Crescent
34416	07:23 AM	04:33 PM	02:26 PM	No moonset	Waxing Gibbous

34611	07:25 AM	04:31 PM	02:40 PM	12:46 AM	Waxing Gibbous
34722	07:42 AM	05:34 PM	03:37 PM	03:12 AM	Waxing Gibbous
34917	07:43 AM	05:33 PM	04:00 PM	04:29 AM	Waxing Gibbous
35001	07:28 AM	04:28 PM	03:06 PM	03:41 AM	Waxing Gibbous
35196	07:30 AM	04:27 PM	03:22 PM	05:11 AM	Waxing Gibbous
35292	07:11 AM	04:13 PM	03:09 PM	05:03 AM	Waxing Gibbous
35391	07:32 AM	04:25 PM	03:41 PM	06:44 AM	Waxing Gibbous
35447	08:06 AM	04:22 PM	03:36 PM	07:30 AM	Waxing Gibbous
35487	07:13 AM	04:12 PM	03:31 PM	06:36 AM	Full Moon
35987	07:31 AM	04:43 PM	06:30 PM	10:55 AM	Waning Gibbous
36213	08:25 AM	03:39 PM	05:36 PM	01:46 PM	Waning Gibbous
36269	07:26 AM	04:05 PM	06:53 PM	11:57 AM	Waning Gibbous
36334	08:28 AM	03:45 PM	07:26 PM	01:56 PM	Waning Gibbous
36338	08:32 AM	03:39 PM	07:16 PM	02:04 PM	Waning Gibbous
36377	07:34 AM	04:41 PM	08:55 PM	12:29 PM	Waning Gibbous
36401	08:11 AM	04:41 PM	08:47 PM	01:17 PM	Waning Gibbous
36529	08:31 AM	03:43 PM	09:04 PM	02:02 PM	Waning Gibbous
36534	08:09 AM	05:03 PM	10:33 PM	01:34 PM	Waning Gibbous
36561	07:42 AM	04:18 PM	09:33 PM	01:03 PM	Waning Gibbous
36642	07:57 AM	03:10 PM	08:33 PM	01:28 PM	Waning Gibbous
36657	07:23 AM	04:05 PM	09:29 PM	12:46 PM	Waning Gibbous
36672	07:54 AM	05:26 PM	No moonrise	01:41 PM	Waning Gibbous
36710	07:06 AM	04:18 PM	10:56 PM	12:50 PM	Waning Gibbous
36728	08:37 AM	03:35 PM	10:30 PM	02:07 PM	Waning Gibbous
36729	08:11 AM	05:03 PM	11:47 PM	01:54 PM	Waning Gibbous
36733	07:41 AM	04:04 PM	10:49 PM	01:20 PM	Waning Gibbous
36767	07:36 AM	04:40 PM	11:21 PM	01:20 PM	Waning Gibbous
36819	08:15 AM	04:48 PM	11:35 PM	01:56 PM	Waning Gibbous
36940	10:08 AM	04:06 PM	No moonrise	03:18 PM	Last Quarter
36957	08:22 AM	03:58 PM	No moonrise	02:00 PM	Last Quarter
36963	08:05 AM	04:05 PM	No moonrise	01:49 PM	Last Quarter
37007	08:21 AM	04:10 PM	No moonrise	02:02 PM	Last Quarter
37047	07:26 AM	04:03 PM	11:56 PM	01:18 PM	Last Quarter
37188	08:37 AM	03:30 PM	No moonrise	02:01 PM	Waning Crescent
37198	07:13 AM	03:33 PM	No moonrise	01:10 PM	Waning Crescent
37368	08:13 AM	05:05 PM	01:47 AM	02:32 PM	Waning Crescent

moon_illumination	
23004	58
29264	83
29430	91
30405	91
31356	43
32725	0
33020	2
33024	2
33247	6

33303	6
33693	18
33831	27
33835	27
34416	58
34611	69
34722	79
34917	88
35001	86
35196	94
35292	94
35391	98
35447	98
35487	99
35987	94
36213	88
36269	87
36334	80
36338	80
36377	79
36401	79
36529	71
36534	70
36561	72
36642	70
36657	71
36672	61
36710	61
36728	61
36729	61
36733	61
36767	61
36819	61
36940	51
36957	51
36963	51
37007	52
37047	51
37188	41
37198	41
37368	35

[50 rows x 41 columns]

10. Find all instances when 'wind\_degree is above 24' and 'visibility is 10'

```
[49]: df[(df['wind_degree']>24)&(df['visibility_km']==10)]
```

[49]:

	city	location_name	latitude	longitude	\
0	Afghanistan	Kabul	34.5200	69.1800	
1	Albania	Tirana	41.3300	19.8200	
2	Algeria	Algiers	36.7600	3.0500	
4	Angola	Luanda	-8.8400	13.2300	
5	Antigua and Barbuda	Saint John's	17.1200	-61.8500	
...	...	...	...	...	
54561	Uzbekistan	Tashkent	41.3167	69.2500	
54562	Vanuatu	Port Vila	-17.7333	168.3167	
54563	Venezuela	Caracas	10.5000	-66.9167	
54565	Yemen	Sanaa	15.3547	44.2067	
54566	Zambia	Lusaka	-15.4167	28.2833	

	timezone	last_updated_epoch	last_updated	\
0	Asia/Kabul	1715849100	2024-05-16 13:15	
1	Europe/Tirane	1715849100	2024-05-16 10:45	
2	Africa/Algiers	1715849100	2024-05-16 09:45	
4	Africa/Luanda	1715849100	2024-05-16 09:45	
5	America/Antigua	1715849100	2024-05-16 04:45	
...	...	...	...	
54561	Asia/Tashkent	1740132000	2025-02-21 15:00	
54562	Pacific/Efate	1740132000	2025-02-21 21:00	
54563	America/Caracas	1740132000	2025-02-21 06:00	
54565	Asia/Aden	1740132000	2025-02-21 13:00	
54566	Africa/Lusaka	1740132000	2025-02-21 12:00	

	temperature_celsius	temperature_fahrenheit	condition_text	...	\
0	26.6	79.8	Partly Cloudy	...	
1	19.0	66.2	Partly cloudy	...	
2	23.0	73.4	Sunny	...	
4	26.0	78.8	Partly cloudy	...	
5	26.0	78.8	Partly cloudy	...	
...	...	...	...	...	
54561	17.2	63.0	Sunny	...	
54562	26.3	79.3	Partly cloudy	...	
54563	23.1	73.6	Clear	...	
54565	24.0	75.2	Sunny	...	
54566	24.1	75.4	Light rain shower	...	

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
0	8.400	26.600	1	
1	1.100	2.000	1	
2	10.400	18.400	1	
4	183.400	262.300	5	
5	1.200	4.500	1	
...	...	...	...	
54561	31.265	34.410	2	

54562	3.515	5.365	1
54563	17.020	22.385	2
54565	28.860	180.560	2
54566	14.060	14.060	1

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset	\
0	1	04:50 AM	06:50 PM	12:12 PM	01:11 AM	
1	1	05:21 AM	07:54 PM	12:58 PM	02:14 AM	
2	1	05:40 AM	07:50 PM	01:15 PM	02:14 AM	
4	10	06:12 AM	05:55 PM	01:17 PM	12:38 AM	
5	1	05:36 AM	06:32 PM	01:05 PM	01:14 AM	
...	...	...	...	...	...	
54561	3	07:10 AM	06:04 PM	02:04 AM	10:56 AM	
54562	1	05:43 AM	06:17 PM	11:42 PM	12:31 PM	
54563	2	06:45 AM	06:37 PM	01:06 AM	12:46 PM	
54565	3	06:25 AM	06:09 PM	12:35 AM	11:55 AM	
54566	2	06:05 AM	06:35 PM	No moonrise	01:08 PM	

	moon_phase	moon_illumination
0	Waxing Gibbous	55
1	Waxing Gibbous	55
2	Waxing Gibbous	55
4	Waxing Gibbous	55
5	Waxing Gibbous	55
...	...	...
54561	Waning Crescent	49
54562	Last Quarter	52
54563	Waning Crescent	46
54565	Waning Crescent	49
54566	Waning Crescent	48

[40776 rows x 41 columns]

11.what is the Minimum & Maximum value of each column against each'weather condition'?

```
[86]: df.groupby('weather_condition').min()
```

	city	\
weather_condition		
Blizzard	Azerbaijan	
Blowing snow	Austria	
Clear	Afghanistan	
Cloudy	Afghanistan	
Fog	Argentina	
Freezing drizzle	Russia	
Freezing fog	Australia	
Heavy rain	Bangladesh	
Heavy rain at times	Bulgaria	

Heavy snow	Afghanistan
Light drizzle	Albania
Light freezing rain	Andorra
Light rain	Albania
Light rain shower	Algeria
Light sleet	Belarus
Light sleet showers	Belarus
Light snow	Afghanistan
Light snow showers	Afghanistan
Mist	Albania
Moderate or heavy rain in area with thunder	Kyrgyzstan
Moderate or heavy rain shower	Antigua and Barbuda
Moderate or heavy rain with thunder	Albania
Moderate or heavy sleet	Belgium
Moderate or heavy snow in area with thunder	Bhutan
Moderate or heavy snow showers	Belgium
Moderate rain	Albania
Moderate rain at times	Afghanistan
Moderate snow	Afghanistan
Overcast	Afghanistan
Partly Cloudy	Afghanistan
Partly cloudy	Albania
Patchy heavy snow	Andorra
Patchy light drizzle	Afghanistan
Patchy light rain	Afghanistan
Patchy light rain in area with thunder	Andorra
Patchy light rain with thunder	Albania
Patchy light snow	Andorra
Patchy light snow in area with thunder	Bhutan
Patchy moderate snow	Andorra
Patchy rain nearby	Afghanistan
Patchy rain possible	Barbados
Patchy snow nearby	Bhutan
Patchy snow possible	Canada
Sunny	Afghanistan
Thundery outbreaks in nearby	Afghanistan
Thundery outbreaks possible	China
Torrential rain shower	Bangladesh

weather_condition	location_name	latitude \
Blizzard	Astana	40.3953
Blowing snow	Astana	45.4167
Clear	Abu Dhabi	-41.3000
Cloudy	'S Gravenjansdijk	-35.2833
Fog	'S Gravenjansdijk	-41.3000
Freezing drizzle	Moscow	55.7522

Freezing fog	'S Gravenjansdijk	-35.2800
Heavy rain	'S Gravenjansdijk	-34.8600
Heavy rain at times	Bogot	-8.1826
Heavy snow	Andorra La Vella	34.5167
Light drizzle	'S Gravenjansdijk	-41.3000
Light freezing rain	Andorra La Vella	27.4833
Light rain	'S Gravenjansdijk	-41.3000
Light rain shower	'S Gravenjansdijk	-41.3000
Light sleet	Amsterdam	39.5500
Light sleet showers	Berlin	42.8731
Light snow	Ankara	34.5167
Light snow showers	Andorra La Vella	34.5167
Mist	'S Gravenjansdijk	-35.2800
Moderate or heavy rain in area with thunder	Bishkek	15.3500
Moderate or heavy rain shower	'S Gravenjansdijk	-23.4333
Moderate or heavy rain with thunder	'S Gravenjansdijk	-34.8600
Moderate or heavy sleet	Brussels	50.8333
Moderate or heavy snow in area with thunder	Thimphu	27.4833
Moderate or heavy snow showers	'S Gravenjansdijk	27.4833
Moderate rain	'S Gravenjansdijk	-41.3000
Moderate rain at times	'S Gravenjansdijk	-41.3000
Moderate snow	Andorra La Vella	34.5167
Overcast	'S Gravenjansdijk	-41.3000
Partly Cloudy	'S Gravenjansdijk	-41.3000
Partly cloudy	'S Gravenjansdijk	-41.3000
Patchy heavy snow	'S Gravenjansdijk	27.4833
Patchy light drizzle	Abuja	-29.3167
Patchy light rain	Amsterdam	-29.3200
Patchy light rain in area with thunder	Addis Ababa	-17.8178
Patchy light rain with thunder	Abuja	-35.2833
Patchy light snow	Andorra La Vella	36.2625
Patchy light snow in area with thunder	Thimphu	27.4833
Patchy moderate snow	Andorra La Vella	27.4833
Patchy rain nearby	'S Gravenjansdijk	-41.3000
Patchy rain possible	Amsterdam	10.6500
Patchy snow nearby	Thimphu	27.4833
Patchy snow possible	Ottawa	45.4167
Sunny	'S Gravenjansdijk	-35.2833
Thundery outbreaks in nearby	Andorra La Vella	-29.3167
Thundery outbreaks possible	Beijing	-4.3000
Torrential rain shower	Aurora	-23.4333

longitude \

weather_condition	
Blizzard	-20.2075
Blowing snow	-75.7000
Clear	-175.2000



Cloudy	-171.7333
Fog	-175.2000
Freezing drizzle	37.6156
Freezing fog	2.3333
Heavy rain	-175.2000
Heavy rain at times	-89.2000
Heavy snow	1.5167
Light drizzle	-175.2000
Light freezing rain	-20.2075
Light rain	-175.2000
Light rain shower	-175.2000
Light sleet	-20.2075
Light sleet showers	-20.2075
Light snow	-75.7000
Light snow showers	-75.7000
Mist	-175.2000
Moderate or heavy rain in area with thunder	44.2100
Moderate or heavy rain shower	-175.2000
Moderate or heavy rain with thunder	-89.2000
Moderate or heavy sleet	4.3333
Moderate or heavy snow in area with thunder	89.6000
Moderate or heavy snow showers	-0.1062
Moderate rain	-175.2000
Moderate rain at times	-65.2592
Moderate snow	-75.7000
Overcast	-175.2000
Partly Cloudy	-175.2000
Partly cloudy	-175.2000
Patchy heavy snow	-0.1062
Patchy light drizzle	-89.2000
Patchy light rain	-123.0439
Patchy light rain in area with thunder	-62.7167
Patchy light rain with thunder	-88.7700
Patchy light snow	-20.2075
Patchy light snow in area with thunder	89.6000
Patchy moderate snow	1.5167
Patchy rain nearby	-175.2000
Patchy rain possible	-69.9000
Patchy snow nearby	89.6000
Patchy snow possible	-75.7000
Sunny	-123.0400
Thundery outbreaks in nearby	-171.7333
Thundery outbreaks possible	-79.5300
Torrential rain shower	-61.3333

timezone \

weather\_condition

Blizzard	Asia/Almaty
Blowing snow	America/Toronto
Clear	Africa/Accra
Cloudy	Africa/Accra
Fog	Africa/Bissau
Freezing drizzle	Europe/Moscow
Freezing fog	Asia/Almaty
Heavy rain	Africa/Conakry
Heavy rain at times	America/El_Salvador
Heavy snow	Asia/Almaty
Light drizzle	Africa/Blantyre
Light freezing rain	Asia/Bishkek
Light rain	Africa/Accra
Light rain shower	Africa/Accra
Light sleet	Asia/Almaty
Light sleet showers	Asia/Bishkek
Light snow	America/Toronto
Light snow showers	America/Toronto
Mist	Africa/Accra
Moderate or heavy rain in area with thunder	Asia/Aden
Moderate or heavy rain shower	Africa/Asmara
Moderate or heavy rain with thunder	Africa/Addis_Ababa
Moderate or heavy sleet	Europe/Brussels
Moderate or heavy snow in area with thunder	Asia/Thimphu
Moderate or heavy snow showers	Asia/Almaty
Moderate rain	Africa/Addis_Ababa
Moderate rain at times	Africa/Addis_Ababa
Moderate snow	America/Toronto
Overcast	Africa/Accra
Partly Cloudy	Africa/Accra
Partly cloudy	Africa/Accra
Patchy heavy snow	Asia/Tehran
Patchy light drizzle	Africa/Addis_Ababa
Patchy light rain	Africa/Asmara
Patchy light rain in area with thunder	Africa/Addis_Ababa
Patchy light rain with thunder	Africa/Accra
Patchy light snow	Asia/Almaty
Patchy light snow in area with thunder	Asia/Thimphu
Patchy moderate snow	Asia/Thimphu
Patchy rain nearby	Africa/Accra
Patchy rain possible	America/Barbados
Patchy snow nearby	Asia/Thimphu
Patchy snow possible	America/Toronto
Sunny	Africa/Accra
Thundery outbreaks in nearby	Africa/Asmara
Thundery outbreaks possible	Africa/Brazzaville
Torrential rain shower	America/Argentina/Cordoba

weather_condition	last_updated_epoch \
Blizzard	1728726300
Blowing snow	1730970000
Clear	1715849100
Cloudy	1715849100
Fog	1715849100
Freezing drizzle	1735465500
Freezing fog	1718804700
Heavy rain	1716820200
Heavy rain at times	1715961600
Heavy snow	1730624400
Light drizzle	1715849100
Light freezing rain	1729761300
Light rain	1715849100
Light rain shower	1715849100
Light sleet	1728035100
Light sleet showers	1729071000
Light snow	1728984600
Light snow showers	1731575700
Mist	1715849100
Moderate or heavy rain in area with thunder	1716645600
Moderate or heavy rain shower	1715868900
Moderate or heavy rain with thunder	1715849100
Moderate or heavy sleet	1732005900
Moderate or heavy snow in area with thunder	1736245800
Moderate or heavy snow showers	1726143300
Moderate rain	1715849100
Moderate rain at times	1715849100
Moderate snow	1728898200
Overcast	1715849100
Partly Cloudy	1715849100
Partly cloudy	1715849100
Patchy heavy snow	1731402000
Patchy light drizzle	1716127200
Patchy light rain	1716127200
Patchy light rain in area with thunder	1715849100
Patchy light rain with thunder	1715849100
Patchy light snow	1732092300
Patchy light snow in area with thunder	1739960100
Patchy moderate snow	1733912100
Patchy rain nearby	1715849100
Patchy rain possible	1716472800
Patchy snow nearby	1738062000
Patchy snow possible	1739441700
Sunny	1715849100

Thundery outbreaks in nearby	1715849100
Thundery outbreaks possible	1716302700
Torrential rain shower	1718114400

	last_updated \
weather_condition	
Blizzard	2024-10-12 14:45
Blowing snow	2024-11-07 14:00
Clear	2024-05-16 01:45
Cloudy	2024-05-16 20:45
Fog	2024-05-16 02:45
Freezing drizzle	2024-12-29 12:45
Freezing fog	2024-06-19 23:45
Heavy rain	2024-05-27 20:30
Heavy rain at times	2024-05-17 18:00
Heavy snow	2024-11-03 11:00
Light drizzle	2024-05-16 10:45
Light freezing rain	2024-10-24 17:15
Light rain	2024-05-16 10:00
Light rain shower	2024-05-16 18:45
Light sleet	2024-10-04 11:45
Light sleet showers	2024-10-16 15:30
Light snow	2024-10-15 17:30
Light snow showers	2024-11-14 11:15
Mist	2024-05-16 02:45
Moderate or heavy rain in area with thunder	2024-05-25 20:00
Moderate or heavy rain shower	2024-05-16 09:15
Moderate or heavy rain with thunder	2024-05-16 02:45
Moderate or heavy sleet	2024-11-19 10:45
Moderate or heavy snow in area with thunder	2025-01-07 16:30
Moderate or heavy snow showers	2024-09-12 14:15
Moderate rain	2024-05-16 10:45
Moderate rain at times	2024-05-16 17:00
Moderate snow	2024-10-14 12:30
Overcast	2024-05-16 02:45
Partly Cloudy	2024-05-16 03:45
Partly cloudy	2024-05-16 02:45
Patchy heavy snow	2024-11-12 10:00
Patchy light drizzle	2024-05-19 17:00
Patchy light rain	2024-05-19 10:00
Patchy light rain in area with thunder	2024-05-16 14:45
Patchy light rain with thunder	2024-05-16 15:00
Patchy light snow	2024-11-20 10:45
Patchy light snow in area with thunder	2025-02-19 16:15
Patchy moderate snow	2024-12-11 11:15
Patchy rain nearby	2024-05-16 02:45
Patchy rain possible	2024-05-23 10:00

Patchy snow nearby	2025-01-28 17:00
Patchy snow possible	2025-02-13 05:15
Sunny	2024-05-16 07:15
Thundery outbreaks in nearby	2024-05-16 12:15
Thundery outbreaks possible	2024-05-21 18:45
Torrential rain shower	2024-06-11 21:00

weather_condition	temperature_celsius \
Blizzard	-0.9
Blowing snow	-12.6
Clear	-24.9
Cloudy	-10.2
Fog	-11.8
Freezing drizzle	-0.9
Freezing fog	-21.9
Heavy rain	5.5
Heavy rain at times	12.0
Heavy snow	-8.3
Light drizzle	0.2
Light freezing rain	-10.0
Light rain	0.4
Light rain shower	2.0
Light sleet	0.1
Light sleet showers	0.3
Light snow	-17.0
Light snow showers	-8.5
Mist	-24.2
Moderate or heavy rain in area with thunder	19.3
Moderate or heavy rain shower	6.1
Moderate or heavy rain with thunder	3.2
Moderate or heavy sleet	1.4
Moderate or heavy snow in area with thunder	3.1
Moderate or heavy snow showers	-5.6
Moderate rain	-2.0
Moderate rain at times	-5.0
Moderate snow	-16.9
Overcast	-24.8
Partly Cloudy	-20.3
Partly cloudy	-22.9
Patchy heavy snow	-3.1
Patchy light drizzle	4.7
Patchy light rain	2.1
Patchy light rain in area with thunder	0.5
Patchy light rain with thunder	11.1
Patchy light snow	-8.9
Patchy light snow in area with thunder	4.1

Patchy moderate snow	-16.7
Patchy rain nearby	1.2
Patchy rain possible	12.0
Patchy snow nearby	3.4
Patchy snow possible	-9.8
Sunny	-23.8
Thundery outbreaks in nearby	4.7
Thundery outbreaks possible	18.3
Torrential rain shower	21.9

weather_condition	temperature_fahrenheit	wind_mph \
Blizzard	30.4	21.0
Blowing snow	9.3	8.1
Clear	-12.8	2.2
Cloudy	13.6	2.2
Fog	10.8	2.2
Freezing drizzle	30.4	6.3
Freezing fog	-7.4	2.2
Heavy rain	41.9	2.2
Heavy rain at times	53.6	2.2
Heavy snow	17.0	2.2
Light drizzle	32.4	2.2
Light freezing rain	14.1	2.2
Light rain	32.7	2.2
Light rain shower	35.6	2.2
Light sleet	32.2	2.2
Light sleet showers	32.5	4.7
Light snow	1.4	2.2
Light snow showers	16.7	2.2
Mist	-11.6	2.2
Moderate or heavy rain in area with thunder	66.8	8.9
Moderate or heavy rain shower	43.0	2.2
Moderate or heavy rain with thunder	37.8	2.2
Moderate or heavy sleet	34.5	4.7
Moderate or heavy snow in area with thunder	37.5	4.3
Moderate or heavy snow showers	21.9	2.7
Moderate rain	28.4	2.2
Moderate rain at times	23.0	2.2
Moderate snow	1.6	2.2
Overcast	-12.6	2.2
Partly Cloudy	-4.5	2.2
Partly cloudy	-9.2	2.2
Patchy heavy snow	26.3	4.0
Patchy light drizzle	40.5	2.2
Patchy light rain	35.8	2.2
Patchy light rain in area with thunder	33.0	2.2

Patchy light rain with thunder	52.0	2.2
Patchy light snow	16.0	2.2
Patchy light snow in area with thunder	39.3	4.9
Patchy moderate snow	1.9	2.9
Patchy rain nearby	34.1	2.2
Patchy rain possible	53.6	2.2
Patchy snow nearby	38.0	4.3
Patchy snow possible	14.4	17.0
Sunny	-10.8	2.2
Thundery outbreaks in nearby	40.5	2.2
Thundery outbreaks possible	64.9	2.2
Torrential rain shower	71.5	3.8

	...	air_quality_PM2.5 \
weather_condition	...	
Blizzard	...	1.665
Blowing snow	...	1.110
Clear	...	0.500
Cloudy	...	0.500
Fog	...	0.500
Freezing drizzle	...	53.650
Freezing fog	...	2.000
Heavy rain	...	0.500
Heavy rain at times	...	0.900
Heavy snow	...	0.925
Light drizzle	...	0.500
Light freezing rain	...	2.405
Light rain	...	0.500
Light rain shower	...	0.370
Light sleet	...	2.405
Light sleet showers	...	3.121
Light snow	...	0.740
Light snow showers	...	2.220
Mist	...	0.500
Moderate or heavy rain in area with thunder	...	2.400
Moderate or heavy rain shower	...	0.185
Moderate or heavy rain with thunder	...	0.500
Moderate or heavy sleet	...	6.660
Moderate or heavy snow in area with thunder	...	4.070
Moderate or heavy snow showers	...	2.590
Moderate rain	...	0.500
Moderate rain at times	...	0.500
Moderate snow	...	1.469
Overcast	...	0.500
Partly Cloudy	...	0.500
Partly cloudy	...	0.370
Patchy heavy snow	...	1.110

Patchy light drizzle	...	0.500
Patchy light rain	...	0.500
Patchy light rain in area with thunder	...	0.500
Patchy light rain with thunder	...	0.500
Patchy light snow	...	0.740
Patchy light snow in area with thunder	...	3.885
Patchy moderate snow	...	3.700
Patchy rain nearby	...	0.500
Patchy rain possible	...	0.500
Patchy snow nearby	...	13.135
Patchy snow possible	...	7.955
Sunny	...	0.370
Thundery outbreaks in nearby	...	0.500
Thundery outbreaks possible	...	0.800
Torrential rain shower	...	1.110

air\_quality\_PM10 \

weather_condition	
Blizzard	1.850
Blowing snow	1.110
Clear	0.600
Cloudy	0.600
Fog	0.500
Freezing drizzle	60.680
Freezing fog	3.200
Heavy rain	0.800
Heavy rain at times	1.000
Heavy snow	1.295
Light drizzle	0.600
Light freezing rain	3.145
Light rain	0.500
Light rain shower	0.370
Light sleet	3.330
Light sleet showers	4.625
Light snow	1.295
Light snow showers	2.960
Mist	0.500
Moderate or heavy rain in area with thunder	5.900
Moderate or heavy rain shower	0.185
Moderate or heavy rain with thunder	0.500
Moderate or heavy sleet	9.250
Moderate or heavy snow in area with thunder	4.625
Moderate or heavy snow showers	2.960
Moderate rain	0.600
Moderate rain at times	0.600
Moderate snow	4.590
Overcast	0.500



Partly Cloudy	0.500
Partly cloudy	0.370
Patchy heavy snow	1.850
Patchy light drizzle	0.500
Patchy light rain	0.500
Patchy light rain in area with thunder	0.500
Patchy light rain with thunder	0.500
Patchy light snow	0.925
Patchy light snow in area with thunder	4.070
Patchy moderate snow	3.885
Patchy rain nearby	0.500
Patchy rain possible	1.100
Patchy snow nearby	13.690
Patchy snow possible	9.250
Sunny	0.370
Thundery outbreaks in nearby	0.500
Thundery outbreaks possible	1.300
Torrential rain shower	1.110

air\_quality\_us-epa-index \

weather_condition	
Blizzard	1
Blowing snow	1
Clear	1
Cloudy	1
Fog	1
Freezing drizzle	3
Freezing fog	1
Heavy rain	1
Heavy rain at times	1
Heavy snow	1
Light drizzle	1
Light freezing rain	1
Light rain	1
Light rain shower	1
Light sleet	1
Light sleet showers	1
Light snow	1
Light snow showers	1
Mist	1
Moderate or heavy rain in area with thunder	1
Moderate or heavy rain shower	1
Moderate or heavy rain with thunder	1
Moderate or heavy sleet	1
Moderate or heavy snow in area with thunder	1
Moderate or heavy snow showers	1
Moderate rain	1

Moderate rain at times	1
Moderate snow	1
Overcast	1
Partly Cloudy	1
Partly cloudy	1
Patchy heavy snow	1
Patchy light drizzle	1
Patchy light rain	1
Patchy light rain in area with thunder	1
Patchy light rain with thunder	1
Patchy light snow	1
Patchy light snow in area with thunder	1
Patchy moderate snow	1
Patchy rain nearby	1
Patchy rain possible	1
Patchy snow nearby	1
Patchy snow possible	1
Sunny	1
Thundery outbreaks in nearby	1
Thundery outbreaks possible	1
Torrential rain shower	1

air\_quality\_gb-defra-index \

weather_condition	
Blizzard	1
Blowing snow	1
Clear	1
Cloudy	1
Fog	1
Freezing drizzle	6
Freezing fog	1
Heavy rain	1
Heavy rain at times	1
Heavy snow	1
Light drizzle	1
Light freezing rain	1
Light rain	1
Light rain shower	1
Light sleet	1
Light sleet showers	1
Light snow	1
Light snow showers	1
Mist	1
Moderate or heavy rain in area with thunder	1
Moderate or heavy rain shower	1
Moderate or heavy rain with thunder	1
Moderate or heavy sleet	1

Moderate or heavy snow in area with thunder	1
Moderate or heavy snow showers	1
Moderate rain	1
Moderate rain at times	1
Moderate snow	1
Overcast	1
Partly Cloudy	1
Partly cloudy	1
Patchy heavy snow	1
Patchy light drizzle	1
Patchy light rain	1
Patchy light rain in area with thunder	1
Patchy light rain with thunder	1
Patchy light snow	1
Patchy light snow in area with thunder	1
Patchy moderate snow	1
Patchy rain nearby	1
Patchy rain possible	1
Patchy snow nearby	2
Patchy snow possible	1
Sunny	1
Thundery outbreaks in nearby	1
Thundery outbreaks possible	1
Torrential rain shower	1

	sunrise	sunset	moonrise \
weather_condition			
Blizzard	06:33 AM	03:39 PM	02:21 AM
Blowing snow	07:18 AM	03:42 PM	01:20 PM
Clear	04:25 AM	03:34 PM	01:00 AM
Cloudy	04:27 AM	02:50 PM	01:00 PM
Fog	03:18 AM	03:18 PM	01:05 PM
Freezing drizzle	08:59 AM	04:04 PM	08:24 AM
Freezing fog	06:52 AM	03:12 PM	01:05 PM
Heavy rain	04:55 AM	04:14 PM	01:19 PM
Heavy rain at times	05:10 AM	04:15 PM	01:06 PM
Heavy snow	06:58 AM	03:13 PM	01:08 PM
Light drizzle	03:06 AM	03:26 PM	01:03 AM
Light freezing rain	06:40 AM	02:48 PM	01:23 PM
Light rain	03:05 AM	02:47 PM	01:00 AM
Light rain shower	02:48 AM	03:27 PM	01:00 AM
Light sleet	07:00 AM	02:47 PM	01:06 PM
Light sleet showers	07:17 AM	03:35 PM	05:40 PM
Light snow	06:34 AM	02:47 PM	01:00 AM
Light snow showers	07:01 AM	03:13 PM	01:03 PM
Mist	02:57 AM	03:16 PM	01:00 AM
Moderate or heavy rain in area with thunder	05:30 AM	06:35 PM	09:57 PM

Moderate or heavy rain shower	03:46 AM	04:27 PM	01:03 AM
Moderate or heavy rain with thunder	03:35 AM	04:38 PM	01:00 PM
Moderate or heavy sleet	08:10 AM	03:47 PM	03:06 PM
Moderate or heavy snow in area with thunder	06:36 AM	05:23 PM	11:03 PM
Moderate or heavy snow showers	06:40 AM	03:35 PM	01:22 PM
Moderate rain	03:07 AM	03:23 PM	01:04 AM
Moderate rain at times	05:06 AM	03:50 PM	01:10 PM
Moderate snow	06:59 AM	02:51 PM	01:03 PM
Overcast	03:05 AM	02:47 PM	01:00 AM
Partly Cloudy	02:51 AM	02:52 PM	01:00 AM
Partly cloudy	03:07 AM	02:47 PM	01:00 AM
Patchy heavy snow	06:37 AM	03:33 PM	01:19 PM
Patchy light drizzle	04:42 AM	04:45 PM	01:01 PM
Patchy light rain	02:49 AM	04:02 PM	01:00 AM
Patchy light rain in area with thunder	04:49 AM	04:52 PM	01:29 PM
Patchy light rain with thunder	03:49 AM	04:56 PM	01:00 PM
Patchy light snow	06:43 AM	03:14 PM	01:03 PM
Patchy light snow in area with thunder	06:33 AM	05:56 PM	11:59 PM
Patchy moderate snow	06:38 AM	04:36 PM	02:26 PM
Patchy rain nearby	02:48 AM	02:48 PM	01:00 AM
Patchy rain possible	03:57 AM	05:32 PM	01:27 AM
Patchy snow nearby	06:50 AM	05:40 PM	05:58 AM
Patchy snow possible	07:07 AM	05:28 PM	06:46 PM
Sunny	02:55 AM	02:47 PM	01:00 AM
Thundery outbreaks in nearby	04:41 AM	03:54 PM	01:03 PM
Thundery outbreaks possible	03:56 AM	05:45 PM	02:51 AM
Torrential rain shower	05:11 AM	05:46 PM	02:09 PM

weather_condition	moonset	moon_phase \
Blizzard	11:19 AM	Waning Crescent
Blowing snow	02:41 AM	Last Quarter
Clear	01:00 AM	First Quarter
Cloudy	01:00 AM	First Quarter
Fog	01:00 PM	First Quarter
Freezing drizzle	01:46 PM	New Moon
Freezing fog	01:35 PM	Full Moon
Heavy rain	01:15 PM	First Quarter
Heavy rain at times	01:21 AM	Waning Crescent
Heavy snow	01:08 PM	First Quarter
Light drizzle	01:03 AM	First Quarter
Light freezing rain	01:05 AM	First Quarter
Light rain	01:00 PM	First Quarter
Light rain shower	01:00 AM	First Quarter
Light sleet	01:09 PM	Full Moon
Light sleet showers	01:31 PM	Last Quarter
Light snow	01:18 PM	First Quarter

Light snow showers	01:03 PM	First Quarter
Mist	01:00 PM	First Quarter
Moderate or heavy rain in area with thunder	06:12 AM	Waning Gibbous
Moderate or heavy rain shower	01:05 AM	First Quarter
Moderate or heavy rain with thunder	01:01 AM	First Quarter
Moderate or heavy sleet	01:41 PM	Full Moon
Moderate or heavy snow in area with thunder	09:30 AM	First Quarter
Moderate or heavy snow showers	01:17 PM	First Quarter
Moderate rain	01:01 PM	First Quarter
Moderate rain at times	01:03 AM	First Quarter
Moderate snow	01:16 PM	First Quarter
Overcast	01:00 PM	First Quarter
Partly Cloudy	01:00 AM	First Quarter
Partly cloudy	01:00 AM	First Quarter
Patchy heavy snow	01:10 PM	First Quarter
Patchy light drizzle	01:04 AM	First Quarter
Patchy light rain	01:06 PM	First Quarter
Patchy light rain in area with thunder	01:00 AM	First Quarter
Patchy light rain with thunder	01:00 PM	First Quarter
Patchy light snow	01:20 AM	First Quarter
Patchy light snow in area with thunder	10:01 AM	Last Quarter
Patchy moderate snow	03:28 AM	Last Quarter
Patchy rain nearby	01:00 AM	First Quarter
Patchy rain possible	01:22 PM	Full Moon
Patchy snow nearby	04:21 PM	Waning Crescent
Patchy snow possible	07:47 AM	Waning Gibbous
Sunny	01:00 AM	First Quarter
Thundery outbreaks in nearby	01:11 PM	First Quarter
Thundery outbreaks possible	01:57 AM	First Quarter
Torrential rain shower	01:17 AM	New Moon

#### moon\_illumination

weather_condition	
Blizzard	31
Blowing snow	1
Clear	0
Cloudy	0
Fog	0
Freezing drizzle	1
Freezing fog	0
Heavy rain	1
Heavy rain at times	13
Heavy snow	2
Light drizzle	0
Light freezing rain	1
Light rain	0
Light rain shower	0

Light sleet	0
Light sleet showers	7
Light snow	0
Light snow showers	7
Mist	0
Moderate or heavy rain in area with thunder	83
Moderate or heavy rain shower	0
Moderate or heavy rain with thunder	0
Moderate or heavy sleet	61
Moderate or heavy snow in area with thunder	47
Moderate or heavy snow showers	6
Moderate rain	0
Moderate rain at times	0
Moderate snow	0
Overcast	0
Partly Cloudy	0
Partly cloudy	0
Patchy heavy snow	41
Patchy light drizzle	0
Patchy light rain	0
Patchy light rain in area with thunder	0
Patchy light rain with thunder	0
Patchy light snow	0
Patchy light snow in area with thunder	50
Patchy moderate snow	0
Patchy rain nearby	0
Patchy rain possible	0
Patchy snow nearby	4
Patchy snow possible	100
Sunny	0
Thundery outbreaks in nearby	0
Thundery outbreaks possible	24
Torrential rain shower	0

[47 rows x 40 columns]

```
[87]: df.groupby('weather_condition').max()
```

weather_condition	city \
Blizzard	Kazakhstan
Blowing snow	Russia
Clear	Zimbabwe
Cloudy	
Fog	Vietnam
Freezing drizzle	Russia
Freezing fog	Switzerland

Heavy rain	Uruguay
Heavy rain at times	Vietnam
Heavy snow	Ukraine
Light drizzle	Zambia
Light freezing rain	Ukraine
Light rain	Zambia
Light rain shower	Zimbabwe
Light sleet	Ukraine
Light sleet showers	Luxembourg
Light snow	Uzbekistan
Light snow showers	Uzbekistan
Mist	
Moderate or heavy rain in area with thunder	Yemen
Moderate or heavy rain shower	Vietnam
Moderate or heavy rain with thunder	Vietnam
Moderate or heavy sleet	Lithuania
Moderate or heavy snow in area with thunder	Bhutan
Moderate or heavy snow showers	United Kingdom
Moderate rain	Vietnam
Moderate rain at times	Vietnam
Moderate snow	Sweden
Overcast	Vietnam
Partly Cloudy	Zimbabwe
Partly cloudy	
Patchy heavy snow	United Kingdom
Patchy light drizzle	Zimbabwe
Patchy light rain	Zimbabwe
Patchy light rain in area with thunder	Zimbabwe
Patchy light rain with thunder	Vietnam
Patchy light snow	Tajikistan
Patchy light snow in area with thunder	Bhutan
Patchy moderate snow	Mongolia
Patchy rain nearby	Zimbabwe
Patchy rain possible	Trinidad and Tobago
Patchy snow nearby	Bhutan
Patchy snow possible	Canada
Sunny	
Thundery outbreaks in nearby	Yemen
Thundery outbreaks possible	Trinidad and Tobago
Torrential rain shower	Solomon Islands

weather_condition	location_name	latitude	\
Blizzard	Vestmannaeyjar	63.3650	
Blowing snow	Vienna	60.1756	
Clear	Yangon	63.3650	
Cloudy	Zagreb	60.1756	

Fog	Zagreb	63.3700
Freezing drizzle	Moscow	55.7522
Freezing fog	Vilnius	60.1756
Heavy rain	Singapore	51.2500
Heavy rain at times	San Salvador	49.6100
Heavy snow	Zagreb	60.1756
Light drizzle	Yaren	63.8300
Light freezing rain	Zagreb	63.3650
Light rain	Zagreb	63.8300
Light rain shower	Yaren	64.1500
Light sleet	Yaren	63.3650
Light sleet showers	Vestmannaeyjar	63.3650
Light snow	Yaren	63.3650
Light snow showers	Vilnius	63.3650
Mist	Zagreb	63.3700
Moderate or heavy rain in area with thunder	Sanaa	42.8700
Moderate or heavy rain shower	Yangon	55.7500
Moderate or heavy rain with thunder	Zagreb	60.1800
Moderate or heavy sleet	Vilnius	59.4339
Moderate or heavy snow in area with thunder	Thimphu	27.4833
Moderate or heavy snow showers	Vilnius	60.1756
Moderate rain	Zagreb	63.3700
Moderate rain at times	Wellington	63.3700
Moderate snow	Zagreb	63.3650
Overcast	Zagreb	63.8300
Partly Cloudy	Zagreb	63.3700
Partly cloudy	Zagreb	63.8300
Patchy heavy snow	Warsaw	60.1756
Patchy light drizzle	Yangon	59.9200
Patchy light rain	Zagreb	63.3700
Patchy light rain in area with thunder	Yerevan	50.4300
Patchy light rain with thunder	Zagreb	59.4300
Patchy light snow	Yerevan	63.3650
Patchy light snow in area with thunder	Thimphu	27.4833
Patchy moderate snow	Vaduz	47.9167
Patchy rain nearby	Zagreb	63.3700
Patchy rain possible	Santo Domingo	60.1800
Patchy snow nearby	Thimphu	27.4833
Patchy snow possible	Ottawa	45.4167
Sunny	Zagreb	63.8300
Thundery outbreaks in nearby	Zagreb	55.7500
Thundery outbreaks possible	Valletta	60.1800
Torrential rain shower	Victoria	35.6900
	longitude	timezone \
weather_condition		
Blizzard	71.4278	Atlantic/Reykjavik



Blowing snow	71.4278	Europe/Vienna
Clear	179.2200	Pacific/Tongatapu
Cloudy	178.4200	Pacific/Tarawa
Fog	174.7800	Pacific/Tongatapu
Freezing drizzle	37.6156	Europe/Moscow
Freezing fog	149.2200	Europe/Zurich
Heavy rain	158.1500	Pacific/Tongatapu
Heavy rain at times	114.3188	Europe/Sofia
Heavy snow	126.9997	Europe/Zurich
Light drizzle	174.7833	Pacific/Tongatapu
Light freezing rain	116.3883	Europe/Zagreb
Light rain	179.2200	Pacific/Tongatapu
Light rain shower	179.2200	Pacific/Tongatapu
Light sleet	74.6003	Europe/Vilnius
Light sleet showers	74.6003	Europe/Minsk
Light snow	126.9997	Europe/Warsaw
Light snow showers	125.7547	Europe/Vilnius
Mist	178.4200	Pacific/Tongatapu
Moderate or heavy rain in area with thunder	74.6000	Asia/Bishkek
Moderate or heavy rain shower	178.4167	Pacific/Tongatapu
Moderate or heavy rain with thunder	179.2200	Pacific/Palau
Moderate or heavy sleet	25.3167	Europe/Vilnius
Moderate or heavy snow in area with thunder	89.6000	Asia/Thimphu
Moderate or heavy snow showers	125.7547	Europe/Vilnius
Moderate rain	179.2167	Pacific/Tongatapu
Moderate rain at times	179.2200	Pacific/Funafuti
Moderate snow	126.9997	Europe/Zagreb
Overcast	179.2200	Pacific/Tongatapu
Partly Cloudy	179.2200	Pacific/Tongatapu
Partly cloudy	179.2200	Pacific/Tongatapu
Patchy heavy snow	89.6000	Europe/Warsaw
Patchy light drizzle	171.3833	Pacific/Tarawa
Patchy light rain	169.5300	Pacific/Tarawa
Patchy light rain in area with thunder	171.3800	Pacific/Majuro
Patchy light rain with thunder	179.2200	Pacific/Palau
Patchy light snow	74.6003	Europe/Warsaw
Patchy light snow in area with thunder	89.6000	Asia/Thimphu
Patchy moderate snow	106.9167	Europe/Vaduz
Patchy rain nearby	179.2200	Pacific/Tongatapu
Patchy rain possible	24.9300	Europe/Helsinki
Patchy snow nearby	89.6000	Asia/Thimphu
Patchy snow possible	-75.7000	America/Toronto
Sunny	149.2167	Pacific/Port_Moresby
Thundery outbreaks in nearby	169.5300	Pacific/Tarawa
Thundery outbreaks possible	116.3900	Europe/Malta
Torrential rain shower	159.9500	Pacific/Guadalcanal

weather_condition	last_updated_epoch \
Blizzard	1740132000
Blowing snow	1738836900
Clear	1740132000
Cloudy	1740132000
Fog	1740132000
Freezing drizzle	1735554600
Freezing fog	1740132000
Heavy rain	1738062000
Heavy rain at times	1737283500
Heavy snow	1739873700
Light drizzle	1740045600
Light freezing rain	1739700900
Light rain	1740132000
Light rain shower	1740132000
Light sleet	1739183400
Light sleet showers	1736418600
Light snow	1740132000
Light snow showers	1739787300
Mist	1740132000
Moderate or heavy rain in area with thunder	1721910600
Moderate or heavy rain shower	1740132000
Moderate or heavy rain with thunder	1739960100
Moderate or heavy sleet	1734258600
Moderate or heavy snow in area with thunder	1739873700
Moderate or heavy snow showers	1739787300
Moderate rain	1740045600
Moderate rain at times	1739960100
Moderate snow	1739700900
Overcast	1740132000
Partly Cloudy	1740132000
Partly cloudy	1740132000
Patchy heavy snow	1739787300
Patchy light drizzle	1740132000
Patchy light rain	1739960100
Patchy light rain in area with thunder	1740045600
Patchy light rain with thunder	1739873700
Patchy light snow	1740132000
Patchy light snow in area with thunder	1740132000
Patchy moderate snow	1739614500
Patchy rain nearby	1740132000
Patchy rain possible	1739700900
Patchy snow nearby	1738062000
Patchy snow possible	1739441700
Sunny	1740132000
Thundery outbreaks in nearby	1738751400

Thundery outbreaks possible  
 Torrential rain shower

1732611600  
 1735815600

	last_updated \
weather_condition	
Blizzard	2025-02-21 14:00
Blowing snow	2025-02-06 15:15
Clear	2025-02-21 21:00
Cloudy	2025-02-21 22:00
Fog	2025-02-21 11:00
Freezing drizzle	2024-12-30 13:30
Freezing fog	2025-02-21 11:00
Heavy rain	2025-01-28 19:00
Heavy rain at times	2025-01-19 17:45
Heavy snow	2025-02-18 12:15
Light drizzle	2025-02-20 12:00
Light freezing rain	2025-02-16 16:15
Light rain	2025-02-21 17:00
Light rain shower	2025-02-21 17:00
Light sleet	2025-02-10 11:30
Light sleet showers	2025-01-09 11:30
Light snow	2025-02-21 13:00
Light snow showers	2025-02-17 12:15
Mist	2025-02-21 17:00
Moderate or heavy rain in area with thunder	2024-07-25 15:30
Moderate or heavy rain shower	2025-02-21 19:00
Moderate or heavy rain with thunder	2025-02-19 12:15
Moderate or heavy sleet	2024-12-15 12:30
Moderate or heavy snow in area with thunder	2025-02-18 16:15
Moderate or heavy snow showers	2025-02-17 13:45
Moderate rain	2025-02-20 13:00
Moderate rain at times	2025-02-19 13:15
Moderate snow	2025-02-16 12:15
Overcast	2025-02-21 23:00
Partly Cloudy	2025-02-21 16:00
Partly cloudy	2025-02-21 23:00
Patchy heavy snow	2025-02-17 16:15
Patchy light drizzle	2025-02-21 13:00
Patchy light rain	2025-02-19 12:15
Patchy light rain in area with thunder	2025-02-20 15:00
Patchy light rain with thunder	2025-02-18 18:15
Patchy light snow	2025-02-21 14:00
Patchy light snow in area with thunder	2025-02-21 16:00
Patchy moderate snow	2025-02-15 16:15
Patchy rain nearby	2025-02-21 17:00
Patchy rain possible	2025-02-16 06:15
Patchy snow nearby	2025-01-28 17:00

Patchy snow possible	2025-02-13 05:15
Sunny	2025-02-21 18:00
Thundery outbreaks in nearby	2025-02-05 11:30
Thundery outbreaks possible	2024-11-26 09:00
Torrential rain shower	2025-01-02 22:00

weather_condition	temperature_celsius \
Blizzard	1.2
Blowing snow	-1.6
Clear	44.8
Cloudy	46.0
Fog	27.1
Freezing drizzle	0.1
Freezing fog	0.4
Heavy rain	26.1
Heavy rain at times	28.3
Heavy snow	3.8
Light drizzle	31.1
Light freezing rain	0.4
Light rain	34.3
Light rain shower	33.0
Light sleet	5.1
Light sleet showers	5.1
Light snow	4.1
Light snow showers	2.7
Mist	47.5
Moderate or heavy rain in area with thunder	21.4
Moderate or heavy rain shower	33.2
Moderate or heavy rain with thunder	36.2
Moderate or heavy sleet	2.2
Moderate or heavy snow in area with thunder	3.9
Moderate or heavy snow showers	12.3
Moderate rain	32.1
Moderate rain at times	33.3
Moderate snow	2.9
Overcast	45.4
Partly Cloudy	45.4
Partly cloudy	49.1
Patchy heavy snow	2.6
Patchy light drizzle	37.4
Patchy light rain	30.1
Patchy light rain in area with thunder	32.8
Patchy light rain with thunder	44.0
Patchy light snow	1.9
Patchy light snow in area with thunder	4.7
Patchy moderate snow	3.9

Patchy rain nearby	41.6
Patchy rain possible	31.0
Patchy snow nearby	3.4
Patchy snow possible	-9.8
Sunny	49.2
Thundery outbreaks in nearby	40.2
Thundery outbreaks possible	31.0
Torrential rain shower	28.2

weather_condition	temperature_fahrenheit	wind_mph \
Blizzard	34.1	47.2
Blowing snow	29.1	29.3
Clear	112.7	29.8
Cloudy	114.8	28.6
Fog	80.8	26.6
Freezing drizzle	32.2	13.4
Freezing fog	32.7	10.1
Heavy rain	79.0	32.7
Heavy rain at times	83.0	34.9
Heavy snow	38.9	27.7
Light drizzle	88.0	35.1
Light freezing rain	32.8	19.7
Light rain	93.7	56.6
Light rain shower	91.4	34.9
Light sleet	41.2	47.6
Light sleet showers	41.2	39.4
Light snow	39.4	30.9
Light snow showers	36.9	21.0
Mist	117.5	28.6
Moderate or heavy rain in area with thunder	70.6	13.0
Moderate or heavy rain shower	91.8	27.5
Moderate or heavy rain with thunder	97.2	32.2
Moderate or heavy sleet	36.0	16.1
Moderate or heavy snow in area with thunder	39.1	5.4
Moderate or heavy snow showers	54.1	20.1
Moderate rain	89.8	43.6
Moderate rain at times	92.0	33.6
Moderate snow	37.3	19.2
Overcast	113.7	39.1
Partly Cloudy	113.8	23.9
Partly cloudy	120.4	1841.2
Patchy heavy snow	36.6	21.0
Patchy light drizzle	99.4	20.6
Patchy light rain	86.1	31.1
Patchy light rain in area with thunder	91.0	22.4
Patchy light rain with thunder	111.2	32.2

Patchy light snow	35.4	25.7
Patchy light snow in area with thunder	40.4	5.1
Patchy moderate snow	39.0	5.6
Patchy rain nearby	106.8	36.7
Patchy rain possible	87.8	25.5
Patchy snow nearby	38.0	4.3
Patchy snow possible	14.4	17.0
Sunny	120.6	40.5
Thundery outbreaks in nearby	104.3	22.6
Thundery outbreaks possible	87.8	42.9
Torrential rain shower	82.8	20.6

	...	air_quality_PM2.5 \
weather_condition	...	
Blizzard	...	6.059
Blowing snow	...	32.005
Clear	...	625.485
Cloudy	...	223.110
Fog	...	606.200
Freezing drizzle	...	55.870
Freezing fog	...	82.140
Heavy rain	...	30.525
Heavy rain at times	...	87.800
Heavy snow	...	56.610
Light drizzle	...	262.400
Light freezing rain	...	292.855
Light rain	...	342.200
Light rain shower	...	836.500
Light sleet	...	45.880
Light sleet showers	...	51.615
Light snow	...	202.575
Light snow showers	...	100.085
Mist	...	1190.500
Moderate or heavy rain in area with thunder	...	20.800
Moderate or heavy rain shower	...	156.325
Moderate or heavy rain with thunder	...	269.730
Moderate or heavy sleet	...	12.765
Moderate or heavy snow in area with thunder	...	17.760
Moderate or heavy snow showers	...	63.270
Moderate rain	...	579.300
Moderate rain at times	...	87.400
Moderate snow	...	112.850
Overcast	...	1614.100
Partly Cloudy	...	1188.400
Partly cloudy	...	1406.300
Patchy heavy snow	...	39.220
Patchy light drizzle	...	210.900

Patchy light rain	...	91.575
Patchy light rain in area with thunder	...	142.200
Patchy light rain with thunder	...	422.500
Patchy light snow	...	41.070
Patchy light snow in area with thunder	...	17.020
Patchy moderate snow	...	88.430
Patchy rain nearby	...	264.400
Patchy rain possible	...	34.225
Patchy snow nearby	...	13.135
Patchy snow possible	...	7.955
Sunny	...	1204.900
Thundery outbreaks in nearby	...	120.700
Thundery outbreaks possible	...	169.100
Torrential rain shower	...	739.400

air\_quality\_PM10 \

weather_condition	
Blizzard	26.073
Blowing snow	37.555
Clear	631.800
Cloudy	406.630
Fog	718.400
Freezing drizzle	69.930
Freezing fog	97.125
Heavy rain	32.560
Heavy rain at times	100.100
Heavy snow	60.495
Light drizzle	339.800
Light freezing rain	296.370
Light rain	417.000
Light rain shower	1073.300
Light sleet	47.360
Light sleet showers	58.460
Light snow	248.825
Light snow showers	114.515
Mist	1791.910
Moderate or heavy rain in area with thunder	68.300
Moderate or heavy rain shower	156.325
Moderate or heavy rain with thunder	335.960
Moderate or heavy sleet	19.425
Moderate or heavy snow in area with thunder	21.090
Moderate or heavy snow showers	101.195
Moderate rain	1874.600
Moderate rain at times	108.600
Moderate snow	131.720
Overcast	6037.290
Partly Cloudy	1902.170

Partly cloudy	5899.280
Patchy heavy snow	115.440
Patchy light drizzle	244.900
Patchy light rain	130.980
Patchy light rain in area with thunder	172.100
Patchy light rain with thunder	519.500
Patchy light snow	45.695
Patchy light snow in area with thunder	21.645
Patchy moderate snow	92.315
Patchy rain nearby	787.360
Patchy rain possible	73.445
Patchy snow nearby	13.690
Patchy snow possible	9.250
Sunny	5858.020
Thundery outbreaks in nearby	160.000
Thundery outbreaks possible	196.200
Torrential rain shower	927.600

air\_quality\_us-epa-index \

weather_condition	
Blizzard	1
Blowing snow	2
Clear	6
Cloudy	5
Fog	6
Freezing drizzle	3
Freezing fog	4
Heavy rain	2
Heavy rain at times	4
Heavy snow	3
Light drizzle	6
Light freezing rain	6
Light rain	6
Light rain shower	6
Light sleet	3
Light sleet showers	3
Light snow	5
Light snow showers	4
Mist	6
Moderate or heavy rain in area with thunder	2
Moderate or heavy rain shower	5
Moderate or heavy rain with thunder	6
Moderate or heavy sleet	1
Moderate or heavy snow in area with thunder	2
Moderate or heavy snow showers	3
Moderate rain	6
Moderate rain at times	4



Moderate snow	4
Overcast	6
Partly Cloudy	6
Partly cloudy	6
Patchy heavy snow	2
Patchy light drizzle	5
Patchy light rain	4
Patchy light rain in area with thunder	4
Patchy light rain with thunder	6
Patchy light snow	3
Patchy light snow in area with thunder	2
Patchy moderate snow	4
Patchy rain nearby	6
Patchy rain possible	2
Patchy snow nearby	1
Patchy snow possible	1
Sunny	6
Thundery outbreaks in nearby	4
Thundery outbreaks possible	5
Torrential rain shower	6

air\_quality\_gb-defra-index \

weather_condition	
Blizzard	1
Blowing snow	3
Clear	10
Cloudy	10
Fog	10
Freezing drizzle	7
Freezing fog	10
Heavy rain	3
Heavy rain at times	10
Heavy snow	7
Light drizzle	10
Light freezing rain	10
Light rain	10
Light rain shower	10
Light sleet	5
Light sleet showers	6
Light snow	10
Light snow showers	10
Mist	10
Moderate or heavy rain in area with thunder	2
Moderate or heavy rain shower	10
Moderate or heavy rain with thunder	10
Moderate or heavy sleet	2
Moderate or heavy snow in area with thunder	2

Moderate or heavy snow showers	8
Moderate rain	10
Moderate rain at times	10
Moderate snow	10
Overcast	10
Partly Cloudy	10
Partly cloudy	10
Patchy heavy snow	4
Patchy light drizzle	10
Patchy light rain	10
Patchy light rain in area with thunder	10
Patchy light rain with thunder	10
Patchy light snow	4
Patchy light snow in area with thunder	2
Patchy moderate snow	10
Patchy rain nearby	10
Patchy rain possible	3
Patchy snow nearby	2
Patchy snow possible	1
Sunny	10
Thundery outbreaks in nearby	10
Thundery outbreaks possible	10
Torrential rain shower	10

	sunrise	sunset	moonrise \
weather_condition			
Blizzard	11:04 AM	06:23 PM	04:36 AM
Blowing snow	09:28 AM	05:14 PM	No moonrise
Clear	11:03 AM	09:07 PM	No moonrise
Cloudy	09:27 AM	10:19 PM	No moonrise
Fog	09:20 AM	11:32 PM	No moonrise
Freezing drizzle	09:00 AM	04:05 PM	09:30 AM
Freezing fog	09:20 AM	05:37 PM	No moonrise
Heavy rain	07:37 AM	08:18 PM	No moonrise
Heavy rain at times	06:43 AM	09:17 PM	12:24 PM
Heavy snow	09:24 AM	06:36 PM	No moonrise
Light drizzle	10:57 AM	11:53 PM	No moonrise
Light freezing rain	09:51 AM	06:34 PM	No moonrise
Light rain	11:00 AM	11:58 PM	No moonrise
Light rain shower	10:46 AM	12:03 AM	No moonrise
Light sleet	10:59 AM	06:55 PM	No moonrise
Light sleet showers	11:04 AM	06:17 PM	No moonrise
Light snow	11:02 AM	06:53 PM	No moonrise
Light snow showers	11:03 AM	06:29 PM	No moonrise
Mist	09:26 AM	11:12 PM	No moonrise
Moderate or heavy rain in area with thunder	05:44 AM	08:28 PM	10:51 PM
Moderate or heavy rain shower	08:36 AM	10:05 PM	No moonrise

Moderate or heavy rain with thunder	08:23 AM	10:32 PM	No moonrise
Moderate or heavy sleet	08:36 AM	04:47 PM	11:33 PM
Moderate or heavy snow in area with thunder	06:53 AM	05:55 PM	11:47 AM
Moderate or heavy snow showers	09:17 AM	08:02 PM	No moonrise
Moderate rain	10:48 AM	11:40 PM	No moonrise
Moderate rain at times	09:04 AM	08:52 PM	No moonrise
Moderate snow	11:04 AM	06:22 PM	No moonrise
Overcast	11:03 AM	11:58 PM	No moonrise
Partly Cloudy	09:28 AM	10:41 PM	No moonrise
Partly cloudy	11:04 AM	11:50 PM	No moonrise
Patchy heavy snow	08:47 AM	06:04 PM	No moonrise
Patchy light drizzle	07:52 AM	09:54 PM	No moonrise
Patchy light rain	08:16 AM	09:44 PM	No moonrise
Patchy light rain in area with thunder	08:10 AM	09:30 PM	No moonrise
Patchy light rain with thunder	07:38 AM	10:04 PM	No moonrise
Patchy light snow	10:08 AM	06:44 PM	No moonrise
Patchy light snow in area with thunder	06:35 AM	05:57 PM	No moonrise
Patchy moderate snow	08:40 AM	05:53 PM	12:39 AM
Patchy rain nearby	11:04 AM	10:37 PM	No moonrise
Patchy rain possible	06:51 AM	10:43 PM	12:54 AM
Patchy snow nearby	06:50 AM	05:40 PM	05:58 AM
Patchy snow possible	07:07 AM	05:28 PM	06:46 PM
Sunny	10:53 AM	11:55 PM	No moonrise
Thundery outbreaks in nearby	08:04 AM	09:12 PM	No moonrise
Thundery outbreaks possible	06:37 AM	10:45 PM	12:53 AM
Torrential rain shower	06:19 AM	07:19 PM	No moonrise

weather_condition	moonset	moon_phase \
Blizzard	No moonset	Waxing Gibbous
Blowing snow	11:48 AM	Waxing Gibbous
Clear	No moonset	Waxing Gibbous
Cloudy	No moonset	Waxing Gibbous
Fog	No moonset	Waxing Gibbous
Freezing drizzle	02:37 PM	Waning Crescent
Freezing fog	No moonset	Waxing Gibbous
Heavy rain	12:41 AM	Waxing Gibbous
Heavy rain at times	12:54 AM	Waxing Gibbous
Heavy snow	No moonset	Waxing Gibbous
Light drizzle	No moonset	Waxing Gibbous
Light freezing rain	No moonset	Waxing Gibbous
Light rain	No moonset	Waxing Gibbous
Light rain shower	No moonset	Waxing Gibbous
Light sleet	12:59 PM	Waxing Gibbous
Light sleet showers	12:42 PM	Waxing Gibbous
Light snow	No moonset	Waxing Gibbous
Light snow showers	No moonset	Waxing Gibbous

Mist	No moonset	Waxing Gibbous
Moderate or heavy rain in area with thunder	09:29 AM	Waning Gibbous
Moderate or heavy rain shower	No moonset	Waxing Gibbous
Moderate or heavy rain with thunder	No moonset	Waxing Gibbous
Moderate or heavy sleet	09:24 AM	Waning Gibbous
Moderate or heavy snow in area with thunder	No moonset	Waning Gibbous
Moderate or heavy snow showers	No moonset	Waxing Gibbous
Moderate rain	No moonset	Waxing Gibbous
Moderate rain at times	No moonset	Waxing Gibbous
Moderate snow	12:47 PM	Waxing Gibbous
Overcast	No moonset	Waxing Gibbous
Partly Cloudy	No moonset	Waxing Gibbous
Partly cloudy	No moonset	Waxing Gibbous
Patchy heavy snow	No moonset	Waxing Gibbous
Patchy light drizzle	No moonset	Waxing Gibbous
Patchy light rain	No moonset	Waxing Gibbous
Patchy light rain in area with thunder	12:44 AM	Waxing Gibbous
Patchy light rain with thunder	No moonset	Waxing Gibbous
Patchy light snow	No moonset	Waxing Gibbous
Patchy light snow in area with thunder	11:18 AM	Waning Gibbous
Patchy moderate snow	12:50 PM	Waxing Gibbous
Patchy rain nearby	No moonset	Waxing Gibbous
Patchy rain possible	12:22 AM	Waxing Gibbous
Patchy snow nearby	04:21 PM	Waning Crescent
Patchy snow possible	07:47 AM	Waning Gibbous
Sunny	No moonset	Waxing Gibbous
Thundery outbreaks in nearby	No moonset	Waxing Gibbous
Thundery outbreaks possible	No moonset	Waxing Gibbous
Torrential rain shower	10:24 PM	Waxing Gibbous

#### moon\_illumination

weather_condition	
Blizzard	63
Blowing snow	98
Clear	100
Cloudy	100
Fog	100
Freezing drizzle	5
Freezing fog	100
Heavy rain	98
Heavy rain at times	89
Heavy snow	100
Light drizzle	100
Light freezing rain	100
Light rain	100
Light rain shower	100
Light sleet	99

Light sleet showers	97
Light snow	100
Light snow showers	99
Mist	100
Moderate or heavy rain in area with thunder	98
Moderate or heavy rain shower	100
Moderate or heavy rain with thunder	100
Moderate or heavy sleet	100
Moderate or heavy snow in area with thunder	77
Moderate or heavy snow showers	100
Moderate rain	100
Moderate rain at times	100
Moderate snow	100
Overcast	100
Partly Cloudy	100
Partly cloudy	100
Patchy heavy snow	98
Patchy light drizzle	100
Patchy light rain	100
Patchy light rain in area with thunder	100
Patchy light rain with thunder	100
Patchy light snow	100
Patchy light snow in area with thunder	68
Patchy moderate snow	99
Patchy rain nearby	100
Patchy rain possible	100
Patchy snow nearby	4
Patchy snow possible	100
Sunny	100
Thundery outbreaks in nearby	100
Thundery outbreaks possible	100
Torrential rain shower	97

[47 rows x 40 columns]

13.show all record where condition is Fog.

```
[88]: df[df['weather_condition']=='Fog']
```

```
[88]:
```

	city	location_name	latitude	longitude	timezone	\
23	Brazil	Bras	-2.0800	-58.1700	America/Manaus	
40	Costa Rica	San Juan	9.9700	-84.0800	America/Costa_Rica	
1732	Tonga	Nuku`Aloia	-21.1300	-175.2000	Pacific/Tongatapu	
4920	El Salvador	San Salvador	13.7100	-89.2000	America/El_Salvador	
5277	Bhutan	Thimphu	27.4800	89.6000	Asia/Thimphu	
...	...	...	...	...	...	
54318	Portugal	Lisbon	38.7167	-9.1333	Europe/Lisbon	
54390	Belize	Belmopan	17.2500	-88.7667	America/Belize	

54419	Denmark	Copenhagen	55.6667	12.5833	Europe/Copenhagen
54471	Liechtenstein	Vaduz	47.1333	9.5167	Europe/Vaduz
54506	Bolivia	National	-11.1833	-67.0833	America/La_Paz

	last_updated_epoch	last_updated	temperature_celsius	\
23	1715849100	2024-05-16 04:45	23.1	
40	1715849100	2024-05-16 02:45	21.0	
1732	1716472800	2024-05-24 03:00	23.0	
4920	1717942500	2024-06-09 08:15	23.1	
5277	1718114400	2024-06-11 20:00	13.3	
...	...	...	...	
54318	1740045600	2025-02-20 10:00	11.1	
54390	1740132000	2025-02-21 04:00	21.1	
54419	1740132000	2025-02-21 11:00	3.1	
54471	1740132000	2025-02-21 11:00	3.1	
54506	1740132000	2025-02-21 06:00	22.1	

	temperature_fahrenheit	weather_condition	...	air_quality_PM2.5	\
23	73.6	Fog	...	0.500	
40	69.8	Fog	...	21.700	
1732	73.4	Fog	...	0.800	
4920	73.6	Fog	...	16.900	
5277	56.0	Fog	...	15.600	
...	...	...	...	...	
54318	52.0	Fog	...	71.410	
54390	70.0	Fog	...	9.990	
54419	37.6	Fog	...	27.935	
54471	37.6	Fog	...	7.215	
54506	71.8	Fog	...	14.430	

	air_quality_PM10	air_quality_us-epa-index	air_quality_gb-defra-index	\
23	0.500	1	1	
40	23.300	2	2	
1732	2.500	1	1	
4920	20.900	2	2	
5277	17.900	2	2	
...	...	...	...	
54318	82.140	4	10	
54390	12.950	1	1	
54419	29.415	2	3	
54471	9.620	1	1	
54506	14.430	1	2	

	sunrise	sunset	moonrise	moonset	moon_phase	\
23	05:49 AM	05:50 PM	01:05 PM	12:39 AM	Waxing Gibbous	
40	05:15 AM	05:51 PM	12:42 PM	12:37 AM	Waxing Gibbous	
1732	07:07 AM	06:08 PM	05:38 PM	06:26 AM	Full Moon	

4920	05:29 AM	06:24 PM	08:18 AM	09:36 PM	Waxing Crescent
5277	05:06 AM	06:57 PM	09:21 AM	11:05 PM	Waxing Crescent
...	...	...	...	...	...
54318	07:21 AM	06:20 PM	01:19 AM	10:50 AM	Last Quarter
54390	06:18 AM	05:59 PM	12:52 AM	12:01 PM	Waning Crescent
54419	07:20 AM	05:28 PM	03:28 AM	09:20 AM	Waning Crescent
54471	07:16 AM	05:56 PM	02:41 AM	10:33 AM	Waning Crescent
54506	06:30 AM	06:53 PM	12:21 AM	01:34 PM	Waning Crescent

moon_illumination	
23	55
40	55
1732	100
4920	7
5277	21
...	...
54318	57
54390	45
54419	48
54471	48
54506	46

[484 rows x 41 columns]

14. Find all instances when 'weather' is clear 'or' 'visibility' is above 40.

```
[89]: df[(df['weather_condition']=='Clear')|(df['visibility_km']>40)]
```

```
[89]:
```

	city	location_name	latitude	longitude	\
6	Argentina	Buenos Aires	-34.5900	-58.6700	
8	Australia	Canberra	-35.2800	149.2200	
20	Bolivia	Sucre	-19.0400	-65.2600	
35	Chile	Santiago	-33.4500	-70.6700	
42	Cuba	Havana	23.1300	-82.3600	
...	...	...	...	...	
54445	Haiti	Port-Au-Prince	18.5392	-72.3350	
54500	North Korea	Pyongyang	39.0194	125.7547	
54518	Saint Kitts and Nevis	Basseterre	17.3000	-62.7167	
54535	South Korea	Seoul	37.5664	126.9997	
54563	Venezuela	Caracas	10.5000	-66.9167	

  

	timezone	last_updated_epoch	last_updated	\
6	America/Argentina/Buenos_Aires	1715849100	2024-05-16 05:45	
8	Australia/Sydney	1715849100	2024-05-16 18:45	
20	America/La_Paz	1715849100	2024-05-16 04:45	
35	America/Santiago	1715849100	2024-05-16 04:45	
42	America/Havana	1715849100	2024-05-16 04:45	
...	...	...	...	

54445	America/Port-au-Prince	1740132000	2025-02-21 05:00
54500	Asia/Pyongyang	1740132000	2025-02-21 19:00
54518	America/St_Kitts	1740132000	2025-02-21 06:00
54535	Asia/Seoul	1740132000	2025-02-21 19:00
54563	America/Caracas	1740132000	2025-02-21 06:00

	temperature_celsius	temperature_fahrenheit	weather_condition	...	\
6	8.0	46.4	Clear	...	
8	9.0	48.2	Clear	...	
20	12.3	54.1	Clear	...	
35	1.0	33.8	Clear	...	
42	26.0	78.8	Clear	...	
...	...	...	...	...	
54445	17.6	63.7	Clear	...	
54500	-3.8	25.1	Clear	...	
54518	25.3	77.5	Clear	...	
54535	0.1	32.2	Clear	...	
54563	23.1	73.6	Clear	...	

	air_quality_PM2.5	air_quality_PM10	air_quality_us-epa-index	\
6	4.000	5.300	1	
8	3.700	5.400	1	
20	4.600	9.100	1	
35	211.100	268.600	5	
42	4.700	18.400	1	
...	...	...	...	
54445	39.035	41.070	2	
54500	29.045	37.370	2	
54518	13.505	21.275	1	
54535	33.300	44.955	2	
54563	17.020	22.385	2	

	air_quality_gb-defra-index	sunrise	sunset	moonrise	moonset	\
6	1	07:43 AM	05:59 PM	02:36 PM	01:04 AM	
8	1	06:52 AM	05:07 PM	01:31 PM	No moonset	
20	1	06:41 AM	05:53 PM	01:48 PM	12:51 AM	
35	10	07:28 AM	05:50 PM	02:23 PM	12:56 AM	
42	1	06:47 AM	08:04 PM	02:24 PM	02:44 AM	
...	...	...	...	...	...	
54445	4	06:13 AM	05:53 PM	12:47 AM	11:50 AM	
54500	3	07:21 AM	06:21 PM	02:00 AM	11:13 AM	
54518	2	06:34 AM	06:15 PM	01:04 AM	12:13 PM	
54535	3	07:15 AM	06:17 PM	01:50 AM	11:13 AM	
54563	2	06:45 AM	06:37 PM	01:06 AM	12:46 PM	

	moon_phase	moon_illumination
6	Waxing Gibbous	55



8	Waxing Gibbous	55
20	Waxing Gibbous	55
35	Waxing Gibbous	55
42	Waxing Gibbous	55
...	...	...
54445	Waning Crescent	45
54500	Last Quarter	51
54518	Waning Crescent	46
54535	Last Quarter	51
54563	Waning Crescent	46

[2273 rows x 41 columns]

[ ]: