**Weather Analysis**

**Objective:**

This project provides detailed insights to make predictions and conclusions using Python commands with that enhance a data providently.

Here, the weather dataset is a time-series data set with per hour about the weather conditions at a particular location. It records Temperature, Dew Point Temperature, Relative Humidity, Wind Speed, Visibility, Pressure, and Conditions.

**Analysis Design:**

1. Find all the unique ‘Wind Speed’ values in the data
2. Find the number of items when the ‘Weather is exactly Clear’
3. Find the number of items when the ‘Wind Speed is exactly 40km/h’
4. Find out all the Null values
5. Rename the column name ‘Weather’ of the data frame to ‘Weather Condition’
6. What is the mean ‘Visibility’
7. What is the standard deviation of ‘Pressure’ in this data
8. What is the variance of ‘Relative Humidity’ in this data
9. Find all instances when ‘snow’ was recorded
10. Find all instances when ‘Wind Speed is above 24’ and ‘Visibility is 25’
11. What is the mean value for column against each ‘Weather Condition’
12. What is the maximum and minimum value of each column against each ‘Weather Condition’
13. Show all the records when ‘Weather Condition’ is ‘Fog’
14. Find all instances when ‘Weather is clear’ or ‘Visibility is above 40’
15. Find all instances when,

* ‘Weather is clear’ and ‘Relative Humidity is above 40’
* (or)
* ‘Visibility is above 40’

**Analysis Commands:**

GitHub: <https://github.com/MuhammedYaseen786/Weather-Analysis/blob/main/Weather_Analysis.ipynb>

Data File: <file.csv>

**Analysis Solutions:**

1. Find all the unique ‘Wind Speed’ values in the data

* There are almost 34 unique values in ‘Wind Speed’
* The values between 0 - 70 speed/hr

1. Find the number of items when the ‘Weather is exactly Clear’

* The Weather is exactly clear through 1326 items
* It is good to be clear monsoon

1. Find the number of items when the ‘Wind Speed is exactly 40km/h’

* 474 items are at the speed of 40km/hr
* It occurs through each weather condition i.e. Snow or Fog

1. Find out all the Null values

* There are no Null values in this data
* 8784 items are in proper format

1. Rename the column name ‘Weather’ of the data frame to ‘Weather Condition’

* The column(‘Weather’) has been renamed to ‘Weather Condition’
* Using rename () it was renamed successfully

1. What is the mean ‘Visibility’

* The mean of ‘Visibility’ is up to 27.66444

1. What is the standard deviation of ‘Pressure’ in this data

* The Standard Deviation of ‘Pressure’ is 0.844004

1. What is the variance of ‘Relative Humidity’ in this data

* The Variance of ‘Relative Humidity’ is 286.248550

1. Find all instances when ‘snow’ was recorded

* There are 390 instances during ‘Snow’
* It was almost -14.0 temperature with -0.001 Celsius

1. Find all instances when ‘Wind Speed is above 24’ and ‘Visibility is 25’

* Through this condition, the weather is ‘Cloudy’ and ‘Clear’
* Other instances in provided link

1. What is the mean value for column against each ‘Weather Condition’

* The Mean value will vary in each instance against ‘Weather Condition’
* It is dynamic in nature

1. What is the maximum and minimum value of each column against each ‘Weather Condition’

* The least value or average value will be shown in Minimum
* The peak value or hierarchical value will be shown as Maximum

1. Show all the records when ‘Weather Condition’ is ‘Fog’

* Around 150 days the ‘Weather Condition’ is ‘Fog’
* Details in the following link

1. Find all instances when ‘Weather is clear’ or ‘Visibility is above 40’

* The instance will be shown in commands
* Those commands provide broad insights accurately

1. Find all instances when,

* ‘Weather is clear’ and ‘Relative Humidity is above 40’
* (or)
* ‘Visibility is above 40’
* These conditions lead to detailed knowledge
* Finally, the weather is ‘Clear’ respectively