-- WEATHER DATA REPORT--

/*Description*/

This report displays the unique wind Speed values. and also it displays "pressure" "humidity" "visibility" "snow records" and the "weather condition" for a selected weather Data. .. weather condition help in measure Minimum and Maximum Value or each rows and columns any many things.

------The commands that i used in this Projects:---------

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

*shape - It shows the total no. of rows and no. of columns of the dataframe

*index - This attribute provides the index of the dataframe

*columns - It shows the name of each column

*dtypes - It shows the data-type of each column

*unique() - In a column, it shows all the unique values. It can be applied on a single column only, not on the whole dataframe.

*nunique() - It shows the total no. of unique values in each column. It can be applied on a single column as well as on the whole dataframe.

*count - It shows the total no. of non-null values in each column. It can be applied on a single column as well as on the whole dataframe.

*value_counts - In a column, it shows all the unique values with their count. It can be applied on a single column only.

*info() - Provides basic information about the dataframe.

[On the basis of Weather data set i deal with few Question to analyze the data.]

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

Answer : 1- data.nunique() to get the wind speed i.e (34)

2- data['Wind Speed_km/h'].unique() to get all the values of wind speed i.e
array([4, 7, 6, 9, 15, 13, 20, 22, 19, 24, 30, 35, 39, 32, 33,
26, 44,43, 48, 37, 28, 17, 11, 0, 83, 70, 57, 46, 41, 52, 50, 63, 54, 2],dtype=int64)

Q. 2) Find the number of times when the 'Weather is exactly Clear'?

Answer :- data.groupby('Weather').get_group('Clear') to get the Weather is exactly Clear is (1326 rows × 8 columns)

Q. 3) Find the number of times when the 'Wind Speed was exactly 4 km/h'.
Answer :- data[data['Wind Speed_km/h'] == 4] by this the value is
(474 rows × 8 columns)

Q. 4) Find out all the Null Values in the data?
Answer :- data.isnull().sum() or data.notnull().sum() the value is (0)
because there is no null values

Q. 5) Rename the column name 'Weather' of the dataframe to 'Weather Condition'.
Answer :- data.rename(columns = {'Weather' :' Weather condition'}, inplace = True)
by the use of inplace command the column data will permanently chaged by
the name of "Weather Condition"

Q. 6) What is the mean 'Visibility' ?
Answer :- data.Visibility_km.mean() it will give the value (27.66444672131151)

Q. 7) What is the Standard Deviation of 'Pressure' in this data?
Answer :- data.Press_kPa.std() it will give the value (0.8440047459486474)

Q. 8) What is the Variance of 'Relative Humidity' in this data ?
Answer :- data['Rel Hum_%'].var() it will give value (286.2485501984998)

Q. 9) Find all instances when 'Snow' was recorded.
Answer :- data[' Weather condition'].value_counts() it will give the
value (390 rows × 8 columns)or data[data[' Weather condition'].str.contains('Snow')]
wecan use str for all the data value related to snow the value is (583 rows × 8 columns)

Q. 10) Find all instances when 'Wind Speed is above 24' and 'Visibility is 25'.
Answer :- data[(data['Wind Speed_km/h'] > 24) & (data['Visibility_km'] == 25)]
value is (308 rows × 8 columns)

Q. 11) What is the Mean value of each column against each 'Weather Condition ?
Answer :- data.groupby(' Weather condition').mean() by this we can fetch all
the data of the mean value

Q. 12) What is the Minimum & Maximum value of each column against each 'Weather Condition ?
Answer :- data.groupby(' Weather condition').min()
data.groupby(' Weather condition').max()

Q. 13) Show all the Records where Weather Condition is Fog.
Answer :- data[data[' Weather condition'] == 'Fog']
the value is (150 rows × 8 columns)
Q. 14) Find all instances when 'Weather is Clear' or 'Visibility is above 40'.
Answer :- data[(data[' Weather condition'] == 'Clear') | (data['Visibility_km'] > 40)]
the value is (3027 rows × 8 columns)

Q. 15) Find all instances when :
A. 'Weather is Clear' and 'Relative Humidity is greater than 50'
or
B. 'Visibility is above 40'

Answer :- data[(data[' Weather condition'] == 'Clear') & (data['Rel Hum_%'] > 50) | (data ['Visibility_km'] > 40)] v
alue is (2921 rows × 8 columns)