**Weather Data Analysis Documentation**

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**1. Introduction**

This documentation provides a comprehensive guide to processing and analysing a weather dataset. The dataset contains information about weather conditions and temperatures recorded at various dates and times. The primary goal is to compute the mean temperature for different weather conditions.

**2. Dataset Description**

The dataset used in this analysis is assumed to be in CSV format and contains the following columns:

* **Date/Time**: The date and time of the weather observation (format: MM-DD-YYYY HH:MM).
* **Temperature**: The temperature recorded at the given date and time.
* **Weather Condition**: The weather condition at the given date and time (e.g., Clear, Cloudy).

**Sample Data**

Date/Time,Temperature,Weather Condition

01-01-2012 00:00,31,Clear

01-01-2012 01:00,30,Cloudy

...

**3. Data Processing Steps**

The following steps were taken to process and analyse the dataset:

**3.1 Importing Required Libraries**

import pandas as pd

**3.2 Reading the Dataset**

Load the dataset from the CSV file.

data = pd.read\_csv('C:\\Users\\TanviKumari\\Downloads\\weather\_data.csv')

**3.3 Converting the Date/Time Column**

Convert the Date/Time column to datetime format.

data['date'] = pd.to\_datetime(data['Date/Time'], format='%m-%d-%Y %H:%M', errors='coerce')

**3.4 Dropping Rows with Parsing Errors**

Drop rows where the date parsing failed.

data.dropna(subset=['date'], inplace=True)

**3.5 Grouping Data by Weather Condition**

Group the data by Weather Condition and compute the mean temperature for each condition.

mean\_temp\_by\_condition = data.groupby('Weather Condition')['Temperature'].mean()

print(mean\_temp\_by\_condition)

**4. Analysis and Results**

The mean temperature for each weather condition was calculated as follows:

* **Clear**: 31.0
* **Cloudy**: 31.0

Both "Clear" and "Cloudy" weather conditions have an average temperature of 31.0 degrees.

**5. Conclusion**

This analysis successfully processed the weather dataset, handled date parsing issues, and computed the mean temperature for different weather conditions. The results provide a basic understanding of temperature trends associated with specific weather conditions.

For further analysis, additional factors such as location, time of day, or seasonal variations could be considered.

**Appendix**

**Full Code Listing**

import pandas as pd

# Load the dataset

data = pd.read\_csv('C:\\Users\\TanviKumari\\Downloads\\weather\_data.csv')

# Convert the 'Date/Time' column to datetime format

data['date'] = pd.to\_datetime(data['Date/Time'], format='%m-%d-%Y %H:%M', errors='coerce')

# Drop rows with parsing errors

data.dropna(subset=['date'], inplace=True)

# Group by 'Weather Condition' and calculate the mean temperature

mean\_temp\_by\_condition = data.groupby('Weather Condition')['Temperature'].mean()

# Print the results

print(mean\_temp\_by\_condition)