Weather Data Analysis

Source Code:

Kaggle: https://www.kaggle.com/sushantkarn/weatherindia

Github: https://github.com/sushantkarn/Weather-Data-Analysis/blob/main/weatherindia.ipynb

This case study focuses on analyzing real-time weather data for major cities in India. The dataset offers comprehensive features reflecting current weather conditions, providing valuable insights into India's present weather trends. The analysis aims to identify patterns, trends, and correlations among various weather parameters.

Dataset Overview

The dataset consists of real-time weather information for major cities in India, starting from August 29, 2023. It encompasses over 40 features, including temperature, wind speed, pressure, precipitation, humidity, visibility, and air quality measurements. Each element provides essential information for studying weather conditions and exploring their impact on various aspects.

Analysis and Visualization

1. Data Loading and Exploration

The first step involved loading the dataset into Google Colab and exploring its structure, data types, and summary statistics.
https://colab.research.google.com/drive/1iMPoofat9TmTqGOa8Bzne3dXW5lzx5YU?usp=sharing

2) Data Preparation and Cleaning

Data was prepared by ensuring proper formatting and handling missing values if needed. This step is crucial for accurate analysis and visualization.

1. Exploratory Data Analysis (EDA)

Data Distribution Visualization

Histograms were utilized to visualize the distribution of temperature and precipitation, providing insights into their frequency and spread.
https://colab.research.google.com/drive/1iMPoofat9TmTqGOa8Bzne3dXW5lzx5YU?usp=sharing

Correlation Analysis

A correlation matrix was computed to analyze relationships among key weather parameters like temperature, precipitation, wind speed, humidity, and air quality.
https://colab.research.google.com/drive/1iMPoofat9TmTqGOa8Bzne3dXW5lzx5YU?usp=sharing

1. Data Visualization

Temperature Changes over Time

A line graph illustrated temperature changes over time, clearly representing temperature trends.
https://colab.research.google.com/drive/1iMPoofat9TmTqGOa8Bzne3dXW5lzx5YU?usp=sharing

Geospatial Analysis

A scatter plot showcased the geographical distribution of locations based on latitude and longitude.
https://colab.research.google.com/drive/1iMPoofat9TmTqGOa8Bzne3dXW5lzx5YU?usp=sharing

Analyzing real-time weather data for major Indian cities provides valuable insights into contemporary weather trends and their impact on various parameters. Exploring patterns, correlations, and geographical variations in weather conditions enhances our understanding of India's diverse climate. The visualizations created in this case study serve as powerful tools for gaining meaningful insights into weather phenomena and their implications.

You can now share this case study with the provided Google Colab link to showcase your analysis and visualizations. Feel free to make any adjustments or additions to tailor it further to your requirements.