**US Weather Events Analysis (2016–2022) – README**

**Introduction**

This project analyzes **US weather events** from **2016 to 2022**, focusing on identifying patterns, severity, and regional impacts.  
The goal is to provide insights into climate trends, extreme weather frequency, and potential risk areas, helping in disaster preparedness and environmental planning.

**Dataset Description**

The dataset covers weather events across the US, including:

* **Event Type** (e.g., Tornado, Flood, Snowstorm)
* **Date & Time** of occurrence
* **Geographic Location** (State, County)
* **Severity Indicators** (e.g., property damage, fatalities, injuries)
* **Weather Conditions** (temperature, precipitation)

**Data Period:** 2016–2022  
**Source:** NOAA / US Weather Database (as provided in the project notebook)

**Steps Performed**

1. **Data Loading & Cleaning** – Removed duplicates, handled missing values, and standardized date formats.
2. **Exploratory Data Analysis (EDA)** – Identified most frequent event types and seasonal patterns.
3. **Visualization** – Created bar charts, line plots, and heatmaps for trends and geographical impact.
4. **Statistical Analysis** – Analyzed damage costs, fatalities, and weather intensity over time.
5. **Insight Generation** – Highlighted high-risk states and time periods.

**Key Insights**

* Certain event types (e.g., **Floods, Tornadoes**) occur more frequently in specific regions.
* **Summer months** have higher severe weather occurrences in many states.
* Some states face **repeated extreme weather**, indicating higher vulnerability.

**Tools Used**

* **Python** (Pandas, NumPy, Matplotlib, Seaborn)
* **Jupyter Notebook** for analysis and reporting

**How to Use**

1. Download the dataset and notebook.
2. Open the .ipynb file in **Jupyter Notebook** or **Google Colab**.
3. Run the cells sequentially to reproduce the analysis.
4. Adjust filters or parameters for custom analysis.

**Author Info**

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**Purpose:** Portfolio Project showcasing data analysis, visualization, and insight generation on weather trends.