**🌪️ Severe Weather Analyst Project – Mise en Place (Project Prep Guide)**

This is your personal **prep station** — a complete annotated guide so you’re ready before diving in.

**🗂️ 1. Data Files & Formats**

| **Item** | **Format** | **Why You Need It** |
| --- | --- | --- |
| **NOAA Storm Events Data** | .csv | Raw tornado/hurricane event data by location, time, type, fatalities, cost |
| **Census Region Shapefiles (optional)** | .geojson or .shp | For mapping tornado/hurricane hotspots across U.S. regions |
| **Cleaned version of the data** | .csv or .xlsx | Easier to analyze after removing nulls, formatting dates, renaming columns, etc. |
| **Summary table** | .xlsx or Python-generated | Aggregated values like # of storms per year, per state, average fatalities |

**Tip:** Store all raw and cleaned files in a data/ folder to stay organized.

**🧪 2. Software & Tools**

| **Tool** | **Use** |
| --- | --- |
| **Jupyter Notebook or VS Code** | Main workspace for writing and running Python code |
| **Python Libraries:** pandas, matplotlib, seaborn, plotly, datetime | Data wrangling + creating graphs and charts |
| **Excel** | Quick pivoting or formatting large CSVs before analysis |
| **IBM Cognos Analytics** *(optional)* | Build an interactive dashboard to explore storm trends |
| **Looker Studio** *(optional alternative)* | Easier to publish and share visualizations online |

**🧰 3. Project Folder Structure (recommended)**

bash

CopyEdit

SevereWeatherProject/

│

├── data/

│ ├── raw/ # Unmodified CSV files

│ └── cleaned/ # After filtering, renaming, formatting

│

├── notebooks/

│ └── severe\_weather\_analysis.ipynb # Python code and visuals

│

├── visuals/

│ ├── charts/

│ └── maps/

│

├── outputs/

│ ├── summary.pdf # One-page insight summary

│ └── presentation.pptx # Portfolio-ready slide deck

│

└── README.md # Project overview and findings

**🧭 4. Personal Guide (What to Watch For)**

| **Focus Area** | **Why it Matters** |
| --- | --- |
| **Date Parsing** | Dates may be strings in raw CSVs — convert them properly for seasonal trends |
| **Missing Values** | Some events may have unknown damage or fatality values — decide whether to drop or fill |
| **Event Type Filtering** | Filter just tornadoes or hurricanes to avoid noise from floods/hail/etc. |
| **Outliers (e.g., Katrina)** | Major events can skew visualizations — handle them thoughtfully in charts |
| **State/Region Mapping** | Decide if you want to aggregate by state or use U.S. census regions for grouping |

**🔮 5. Output Goals**

| **Deliverable** | **Use** |
| --- | --- |
| .ipynb notebook | Showcases your EDA and visuals — your data storytelling hub |
| .csv of top trends | Can be uploaded into BI tools or visualized again |
| .pptx slide deck or PDF | Portfolio-ready summary to show hiring managers or add to your site |
| Optional dashboard (Cognos or Looker) | Bonus interactivity for recruiters or clients to click through |