**User Requirements Document**

**Philippines Major Cities Weather Analysis 2025**

**1. Objective**

To analyze and visualize weather trends in major Philippine cities using data analytics techniques to support climate monitoring, policymaking, and disaster preparedness efforts. The project will produce an interactive **Power BI dashboard** and **SQL-based analysis** to provide actionable insights.

**2. Problems Identified**

* There is **no centralized, visual representation** of weather trends across major Philippine cities.
* Policymakers and local governments **lack real-time insights** on extreme weather conditions.
* Farmers, businesses, and researchers **struggle to predict climate patterns** due to the absence of user-friendly weather analytics.

**3. Target Audience**

* **Primary**: Policymakers, government agencies, and disaster response teams.
* **Secondary**: Researchers, urban planners, business owners, and the general public.

**4. Use Cases**

**1. Monitoring Weather Trends Across Philippine Cities**

**User Story:**  
As a policymaker, I want to track temperature, humidity, and rainfall trends in different cities so that I can make informed decisions regarding climate resilience and disaster preparedness.

**Acceptance Criteria:**

* The dashboard should **display real-time and historical weather trends** for all major cities.
* The solution should provide **anomaly detection for extreme weather events**.
* The system should be **easy to navigate with filters for date, city, and weather parameter**.

**2. Identifying Anomalies in Weather Patterns**

**User Story:**  
As a disaster response officer, I want to identify unusual weather events so that I can issue timely alerts and improve emergency preparedness.

**Acceptance Criteria:**

* The system should **flag extreme temperature and rainfall deviations**.
* The dashboard should allow **comparisons between normal and extreme weather conditions**.

**3. Supporting Research & Business Planning**

**User Story:**  
As a researcher or business owner, I want to analyze long-term weather trends to make data-driven decisions.

**Acceptance Criteria:**

* The system should **allow data export** for external analysis.
* The solution should **highlight seasonal and city-specific weather variations**.

**5. Success Criteria**

* **Comprehensive Data Coverage**: The dataset should contain temperature, humidity, rainfall, and wind speed data for **all major Philippine cities**.
* **User-Friendly Power BI Dashboard**: The dashboard must be interactive and **intuitive for non-technical users**.
* **Accurate & Timely Insights**: The system should help users **detect weather anomalies early**.

**6. Data Requirements**

**Data Fields:**

* **Date** (YYYY-MM-DD)
* **City** (String)
* **Temperature (°C)** (Float)
* **Humidity (%)** (Integer)
* **Rainfall (mm)** (Float)
* **Wind Speed (km/h)** (Float)

**Data Quality Checks:**

* **Ensure no missing values** in key weather parameters.
* **Standardize date formats** across all datasets.
* **Detect and remove duplicate records**.

**7. Dashboard Design Requirements**

**Main Dashboard Components:**

✅ **Geo Map**: Displays major cities with temperature, humidity, and rainfall data.  
✅ **Time-Series Charts**: Show temperature, rainfall, and humidity variations over time.  
✅ **Bar Charts**: Compare weather conditions across different cities.  
✅ **KPIs**: Highlight **hottest, coldest, and wettest** cities in 2025.  
✅ **Filters & Interactivity**: Users can filter by **date, city, and weather parameter**.

**8. Additional Requirements**

* **Ensure reproducibility**: The system must be easily maintainable for future updates.
* **Provide documentation**: The project should include clear technical documentation and a GitHub repository with code and findings.
* **Source code and dataset**: Must be publicly available for transparency and further research.

**9. Implementation Timeline**

| **Task** | **Expected Completion** |
| --- | --- |
| Data Collection & Cleaning | Week 1 |
| SQL Database Setup | Week 2 |
| Power BI Dashboard Design | Week 3 |
| Data Analysis & Visualization | Week 4 |
| Documentation & GitHub Upload | Week 5 |

**10. Conclusion**

This project will provide **data-driven insights** into Philippine weather trends, supporting climate monitoring efforts and policymaking. By leveraging **SQL, Power BI, and data visualization techniques**, stakeholders will gain valuable weather intelligence for **better decision-making and risk mitigation**.