Group Members: Sohail Akram (DS008) & Abdullah Saif (AI048)

Weather Management System Project

## 1. Functional Requirements (FR)

**Weather Data Fetching:** Retrieve Realtime weather information for a given city using the OpenWeatherMap API.  
**Data Processing:** Convert and format weather data (e.g., Fahrenheit to Celsius) for better usability.  
**Data Storage:** Save processed weather data into a CSV file for future reference.  
**Data Viewing:** Open and view the saved weather data directly from the application.

## 2. CRUD Operations

**Create:** Add weather data for a specific city by fetching it through the API and saving it in the CSV file.  
**Read:** View the contents of the weather data file.  
**Update:** Update weather data for a city by fetching the latest information and overwriting the corresponding entry in the CSV file (this functionality can be added if not implemented).  
 **Delete:** Delete a city's weather data from the CSV file (can be an optional feature to implement).

## 3. Scope

**Core Functionality:** This project focuses on managing weather data by leveraging a third-party API, storing the data locally, and presenting it in a user-friendly format.  
**Application Areas:** Educational: Demonstrates object-oriented programming principles, file handling, and API integration.

**Usability:** A simple tool for users to monitor and log weather data for various cities.  
**Extensibility:** Add features like weather trend analysis over time (e.g., graphs using Matplotlib). Integration with other data sources for richer functionality, such as air quality index. Option to visualize data using Pandas or other visualization tools.

## 4. Problem Statement

Managing weather data for multiple locations can be tedious and error prone without an automated system. Many individuals and small organizations need a simple and reliable way to fetch, process, and store weather information for analysis or reporting purposes. **This project aims to:** Provide an easy way to fetch weather data for any city using the OpenWeatherMap API. Process and save weather details like temperature, humidity, and weather conditions in a structured CSV format. Enable users to view and manage their stored weather data effortlessly.