Weather Station Analyser

Requirements Specifications

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General Description:

Weather Station Analyzer is an application used to analyze weather station information and determine which stations can predict the data of others.

The software will take in 5 input parameters: start year, sample period, temperature and precipitation tolerance, and accuracy range. Using theses inputs the program will search, sort and graph the requested stations, then identify which weather stations are redundant and may be removed while keeping weather readings accurate.

Shareholder/Stakeholder

Stakeholders include:

- Provincial & State Governments
- Weather Stations
- Meteorologists

Shareholders include:

- Reza Samavi - Professor
- Terin Dhadda - Teaching Assistant
- Development Team:
    - Pedro Oliveira - Team Lead
    - Pavithran Pathmarajah - Scrum Master
    - Pareek Ravi - Senior Developer
    - Kunal Shah - Synchronisation / Developer

Functional Requirements:

- Utilize the past 30 years of weather data for California from: NCDC's Climate Data Online
- Over the given time period connections between stations will be designated as related or unrelated, based on their weather data
- Show results on a map of California - GUI
- User enters the start year, time period and accuracy desired for temperature and precipitation

Non functional Requirements:

- App completes calculations with a fast response time
- Well encapsulated methods
- Scalable with larger sets of data with the use of SQLite3
- The weather stations will form a series of nodes on the map, they are to be connected in such a way the closer weather stations are connected and no two connections can cross each other
- Smooth simple easy to use GUI experience
- The weather data will be placed in an SQLite which will contain a table for every weather station and a table with all the station information

Architecture Requirements:

- HTML/JavaScript based Front-End, hosted through Electron wrapper
- Backend written in Ruby
- Local server hosted using Sinatra

System Evolution:

- Use data from similar areas ex. California and North Africa to help 3rd world nations. This will also reduce the cost of unnecessary weather stations which can be put to better use.