Analyzing Historical Winter Weather

Kole Frazier

Final Project

Physics 2300 – Scientific Computing

Weber State University

Fall 2017

1. **Introduction**

During this semester, I was given the tools needed to perform analysis on large sets of data. I decided to put these tools to work and analyze a much larger set of data than I had analyzed before. I decided to write a program that could handle a large set of weather data from the National Oceanic and Atmospheric Administration (NOAA). The focus would be on cold weather and whether the Winter season in the Salt Lake City area has been changing over the past decade.

Due to the process of reading in, parsing and plotting data being a process that does not initially require user input, I built my program to be self-contained and automatically generate the desired information. When ran, it will pull in all information from the data sets and ready the information to be plotted for analysis.

* 1. **Purpose**

The NOAA publishes the data collected from its many weather stations and allows third parties and general citizens to request sets of raw data. When the NOAA publishes this weather data, it does not analyze the information for you. Nor does the NOAA ensure that every piece of data is complete.

This problem of having so much data – which may not be perfect - suddenly in your hands is a common obstacle that writing a program can assist in overcoming.

* 1. **Scope**

The programming language used for this course was Python.

The NOAA’s website allows anyone to request data sets for many different weather parameters. I chose to limit the scope of my project to a single decade, starting with 2007 and going to 2017. To help reign in the scope of the project further, I requested weather data such as precipitation records and temperature records for the Salt Lake City area. I received two sets of data to work with: a data set with entries for every single day from all stations in the area and a data set with yearly averages for each station.

* 1. **Using the Program**

1. **Top Down Design**

Aaaaa

1. **Results**

Aaaaaaa

1. **Glossary**

NOAA – National Oceanic and Atmospheric Administration