CIS4930 Term Project

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Climate Change Impact Analyzer Python Project

This project pools data from the “NOAA National Centers for Environmental Information (NCEI)” weather API, in order to successfully project, predict, and normalize precipitation data for the month of August (chosen given that it is the rainiest month), across the span of 5 years (inclusive of 2020 - 2024). The data was taken from the Tallahassee station in metric units. From this data we employ the “LinearRegression()” from the “Sklearn” library, in order to predict the amount of rainfall in the same month for any number of following years (based on data from our sample size). We present such data in mediums such as: Scatter plots, Pie-Charts, and Bar-Graphs. The Project is separated into main files: “algorithms.py”; which fittingly sees implementation of the algorithms we use for data prediction and detecting anomalies/miscellaneous skews from the data trend; “DataCollection.py”, being responsible for making the API request and sending the data to “/data/climate\_data.json”; “cli.py”, our command-line interface, which parses command-line inputs and loads and processes the data in the aforementioned “climate\_data”, alongside running the code for “visualizer.py” which interprets and displays the data in such called graphs. Extra functionality is also included with the HTML presentation as an optional alternative to the command-line interface, displays and navigation were made using Flask.

# Functionality

Our program is structured as such... for the graphs being that they all depict the same month with differing years for increased visibility of the data in the graph we ...

## Using Matplotlib

Displaying the information was done utilizing the varying graph functionalities in the matplotlib library ...

### Algorithms

For algorithms for prediction, we utilized the Sklearn’s method “LinearRegression()”, which simply makes a trend line per the list we feed it. The motivations behind this ...