Individual Project Draft

Data is extremely important in life. I believe that within everything, analyzing relevant data creates clear benefits within that particular study. One aspect of life that is influential to everyone is the weather. Weather is important to be able to forecast as it affects many things. When we can predict the weather, it becomes much easier to prepare for disasters or traveling. Weather can be well predicted using data and algorithms. Analyzing past weather patterns, it becomes easier to predict future weather.

Now with AI, machine learning and LLMs, we can much more easily use past data to create predictions and analyze data patterns more efficiently and efficiently. Looking through the many new options the ARIMA model uses past values of the time series to forecast future values. It assumes that the current value is a linear combination of previous values. This methodology is perfect for predicting weather patterns and is being used for the project.

Methodology

The idea is to look at and graph past data and use that past data to train an LLM. Training an LLM with our weather data allows that LLM to make predictions based on the training data. Telling the LLM to predict the weather tomorrow will have the LLM look at past data and make a guess as to what the weather may be. Being able to create these raw predictions can be useful since we can compare those predictions to the predictions of the media and see how they compare. We can compare our findings to the actual weather as well after the set day. It should be possible to analyze how effective predicting the weather with LLMs is using this technique.

Data Sets

There are many feasible options for acquiring past weather data. Since we are going to be using python for our overall analysis, finding a good API that allows easy integration of data into a python environment is key. After some research, Tomorrow.io is a good choice for API data. Tomorrow.io allows direct downloads of weather data in many categories like temperature, rain, humidity and sun exposure. Using Tomorrow.io allows easy downloading of weather data in a desired format that will make transformation easy.

After downloading the desired CSV files for our weather data, there are many options for data transformation that we can use to better represent our data. Numpy and Pandas python libraries help our manipulation as we can convert a CSV into a Pandas

data frame which is made to be used with python. Using MatPlotLib can finally let us graph our transformed data in a much more readable form. The neat thing about Tomorrow. IO is that you can download CSV weather predictions as well, and should be in a similar format. Using these various libraries along with our data sets and LLMs, showing a perfect relationship between past, future and present data having been calculated in different ways.