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UNO Graduate Project

<div align="center">**COVID-19 Data Visualization**</div>

Background

The COVID-19 pandemic has affected almost the entire world. In the US alone there has been 12.3 million infections as of November 2020. As I write this, the US is experiencing an unprecedented surge in infections that threaten to overrun hospitals throughout the US. There are a wide variety of potential factors driving the current surge we are in. One theory is that as the weather gets colder it drives people to be inside more where the virus can spread more easily.

Purpose

My graduate project will help to visualize any correlation there might be between weather and COVID-19 infection rates. Specifically, I will help to visualize them spatially on a map. Visualizing this data spatially makes sense because different parts of the US are experiencing different levels of infection rates.

Project

For my project I propose building a map-based web application that consumes current and historical COVID-19 infection data along with weather data in order to visualize any correlation there might be between the two.

Resources

The data resources I could leverage for my project include:

- The COVID Tracking Project API
    - The COVID Tracking Project provides an API that exposes COVID-19 data around testing and patient outcomes.
- OpenWeather API
    - The OpenWeather API exposes weather data from all around the world, including the US.

The technology stack I could leverage for my project include:

- Angular
    - Angular is a frontend framework that can be used to build Single Page Applications (SPAs) using HTML and Typescript. I would build the frontend part of the web application using this.
- ESRI tools
    - Javascript API
        - ESRI's javascript API can be used inside an Angular application to add a map and spatial data. I would integrate this library into the Angular application to add the mapping functionality needed.
    - ArcGIS Server
        - ESRI's ArcGIS Server can be used to serve up spatial data in the form of layers on a map. These services can be created and published using another tool called ArcGIS Pro. I would potentially use this to manipulate and publish data.