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Program 2 Application Description

This application I have created, can be used by runners, bikers, and outdoors enthusiasts of every variety to determine the best locations for their activities. By simply typing in the name of a city, they are able to see the wind and the temperature at that location, thanks to the OpenWeather API, two critical components of determining if the weather is comfortable. Users are also able to view the elevation of their inputted city as well, thanks to the Google Elevation API.

First my application starts with some simple code retrieving the name of the city provided by the user. It is then converted into all lowercase letters, and sent to the weather API. This API returns a JSON string, which is able to be converted into an object, from which the program is able to extract temperature, wind, and geographic location data. The temperature and wind are displayed to the user, while the geographic location data, namely latitude and longitude, are sent to the elevation API. From there another JSON is deserialized and the elevation in meters is extracted and displayed to the user. Should the weather API fail to find a matching city, the failure status is displayed to the user and no elevation data is requested.

Should one of the API's return a 500-level error status, the program was designed to use exponential back off to retry requests to the server. First the request is resent immediately, then waits 1 second, then 2, doubling each time until finally 8 seconds have elapsed, from which the user is told the request has failed.