Alaska: Weather and Wildlife throughout the Parks

T.J. Ossola

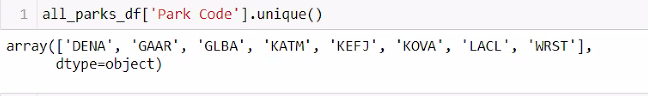
Spencer Davis

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Our motivation for this project is our general love for the great outdoors. Part of having a great trip is planning. We are providing a MongoDB as a planning resource to help potential tourists to Alaskan state parks. Users will be able to search for different biodiversity within the 7 parks within our data set. Users will also be able to check out current local weather to the parks for packing.

We chose MongoDB as the way to navigate through our datasets. MongoDB allows data to be stored in JSON style dictionaries and allows for more variability in the data structure and quicker reading of the data. We were planning on using the national parks service website to pull data but the website was down so we adjusted where we pulled our dataset. We were able to pull 7 separate parks wildlife data in csv format and used the park code as the primary key:



We got the data from the following websites:

Nat Parks BioDiv 4 years ago

https://www.kaggle.com/nationalparkservice/park-biodiversity

Nat Parks BioDiv current

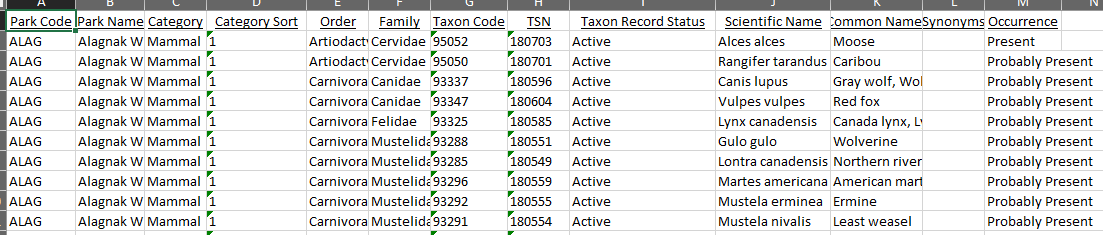
https://irma.nps.gov/NPSpecies/Search/SpeciesList

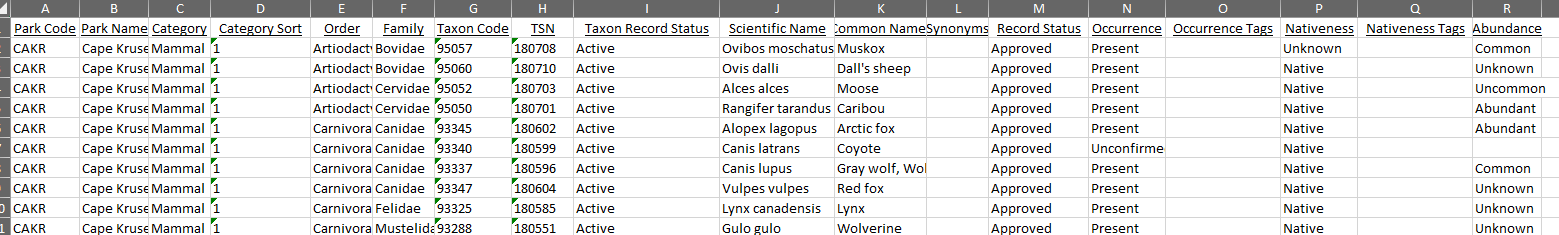
Need to search park for data

Openweather api

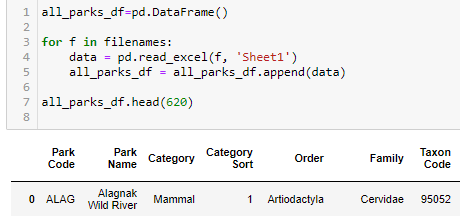
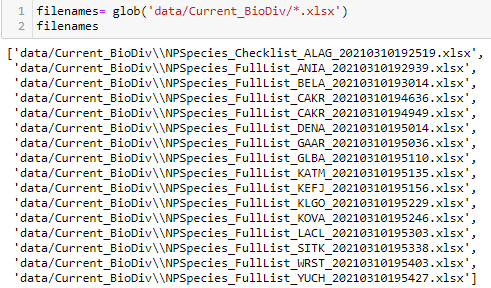
"http://api.openweathermap.org/data/2.5/weather?"

Each excel doc was parsed out in a clean format, and we focused on the ‘common name’,’occurrence’, and ‘abundance’. There was a slight difference between some of the datasets between the keywords ‘occurrence’ and ‘abundance’ so added both in to ensure the record was added to the dictionary.

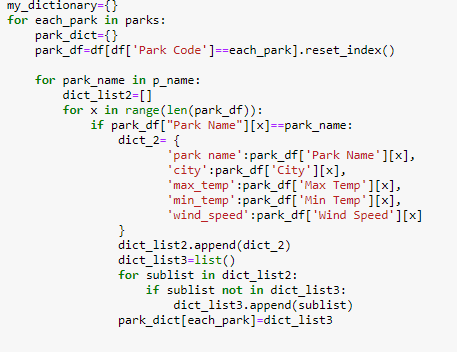




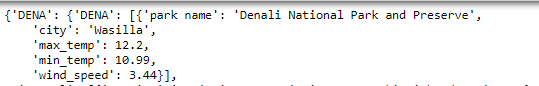
We read all the excel files into a single database to query.



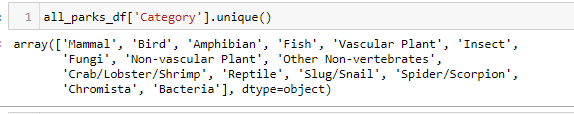
We created a for loop to loop through each park code and return a single instance of the selected keys: “Park Name”, ”City”, “Min Temp”, and “Max Temp”. This was the trickiest steps while getting the single value to append to the list. We can fill the dictionary with the values pulled from the main data frame, then send through a second loop to append the unique values to a new dictionary.

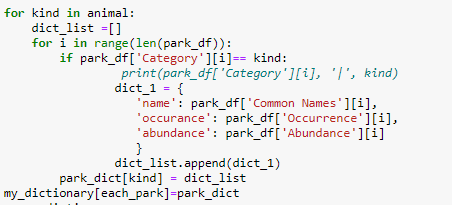


This allowed for the park and weather data to be displayed with unique values in the dictionary.



The final loop was based on biodiversity category - which added the common name, occurrence, and abundance to lists to create a dictionary that was tied to the specific state park.





We decided to use an open weather API to get weather data surrounding the parks. We reached out to a Park Scientist in Alaska and found out that most of the weather stations are outside the parks themselves. We got a National Park List from Leah which provided lat and long information for parks across the US. We filtered the data to be state specific for Alaska. Then using geo mapping located the nearest city to the lat and long of the park. This allowed us to pull the weather data nearest to the park as a general indicator for how park conditions would be.

Use cases for the data we pulled would likely be for vacation planning. This will help tourists research what kinds of wildlife and vegetation is active in the different parks around Alaska. For example, where would they want to go if they wanted to see wolves, etc. Users will be able to look up current weather conditions for trip planning.