**Weather project**

Starting with a dictionary:

cities = { "Atlanta": '33.762909,-84.422675',

"Austin": '30.303936,-97.754355',

"Boston": '42.331960,-71.020173',

"Chicago": '41.837551,-87.681844',

"Cleveland": '41.478462,-81.679435'

}

For this assignment, we're going to be collecting the max temperature in 5 major cities in the US over the course of a month and find out which city experienced the largest temperature swings.

The weather data will be getting at:

https://api.forecast.io/forecast/APIKEY/LATITUDE,LONGITUDE,TIME

You can go to <https://developer.forecast.io/register> to get the keys.

**Challenge**

1. *Build the API call* by combining the string elements in Python for your first city. You can use the datetime.datetime.now() function from the datetime package for the current datetime. You can use the datetime.timedelta() function to subtract or add time to a date. In this case, we'll be subtracting 30 days from the current date to get our start date and then iterating through until the present day. We do that like this start\_date = datetime.datetime.now() - datetime.timedelta(days=30). This will subtract 30 days from the current day.
2. *Test the call* for your first city and make sure you have it formatted properly. You can start by just printing out the URL and pasting it into your browser before you use the requests package to do the call for you. This can help you troubleshoot any errors (though you can use the text and status\_code attributes to also troubleshoot any errors)
3. Once you have the URL formatted properly, *issue the request* from your code and inspect the result. How many levels does the data have? Which field do we want to save to get the daily maximum temperature?
4. Based on the data sample, *create the table* in a SQLite database called "weather.db".
5. *Write a script* that takes each city and queries every day for the past 30 days (Hint: You can use the datetime.timedelta(days=1) to increment the value by day)
6. *Save the max temperature values* to the table, keyed on the date. You can leave the date in Unix time or convert to a string.

### Profiling the Temperature Data

What's the range of temperatures for each city? What is the mean temperature for each city? What's the variance? Are there any patterns in the data? Which cities had the largest temperature changes over the time period?