

# Python for Informatics

## Assignment 7

### “Web Services”

**Introduction:** For this assignment, you can exercise 1 of 2 possible options. The first option is the “Google Geocoding” option. The second option is the “Alpha Vantage Stock Quote” option. The “Google Geocoding” option requires that you use your credit card to establish a developer’s account. Google will credit your account with \$200 worth of service. You won’t need more than a small fraction of that amount to complete this assignment. In other words, it shouldn’t cost you anything. Google has a vested interest in the developers that utilize their services, so they carefully guard your credit card information. However, since some students might not have a credit card, or might not feel comfortable developing software in association with Google, there is a second option for this assignment that does not require a credit card account—i.e., the “Alpha Vantage Stock Quote” option.

# Option 1: “Google Geocoding”

## Description:

1. Change the `geojson.py` program to print out the two-character country code from the retrieved data.
2. Add error checking—**try: except:**—so your program does not traceback if the country code is not there.
3. Use the program to “try:” to retrieve the country code JSON element and make sure that it can handle locations that do not exist (such as “Pacific Ocean”).
4. Your “except:” will handle non-existing locations by printing a message such as “There is no country code for that location.”.
5. Your program does not need to print the entire JSON structure.
6. Use the program to search for “San Diego” and “Pacific Ocean” and take a screenshot of the results.

You can find the documentation for the *Google Maps Platform Web Services Geocoding API* here: <https://developers.google.com/maps/documentation/geocoding/start>. Note that in addition to registering with a credit card account to obtain an API key, you’ll need to update the textbook Geocode example with your API key information. Additionally, when you enable the *Google Maps Platform*, you’ll need to pick the *Places API* as your “product”. If you click on the “Get started” button at the above URL, you will be guided through the step by step process of 1) Picking your product (*Places API*), 2) Selecting a project, and 3) Setting up your billing.

## Deliverable:

Two files as attachments at our course shell assignment page. The first file should be the Python **.py** that you chose to modify. The second file should be a screenshot image file (.png or .jpg) demonstrating the correct execution of your program. **Your screenshot image should show the correct response for a location that has a country code (such as “San Diego”), as well as a response for a location that does not have a country code (such as “Pacific Ocean”).** Please ensure that your full name is specified as a Python comment at the top of the **.py** file.

## Submission Deadline:

Please see the course schedule in our syllabus for all assignment submission deadlines.

## Option 2: “Alpha-Vantage”

### Description:

1. Change the `geojson.py` program to print out the “05. price” from the retrieved data.
2. Add error checking—**try: except:**—so your program does not traceback if the “05. price” is not there.
3. Use the program to “try:” to retrieve the “05. price” JSON element and make sure that it can handle stock ticker symbols that do not exist (such as “ACME”).
4. Your “except:” will handle non-existing stock tickers symbols by printing a message such as “There is no price for that stock.”.
5. Your program does not need to print the entire JSON structure.
6. Use the program to search for “WMT” and “ACME” and take a screenshot of the results.

You can find the documentation for the *Alpha-Vantage Stock Time Series Quote Endpoint API* here: <https://www.alphavantage.co/documentation/>. Specifically, you’ll be looking at the *Quote Endpoint API* instructions and examples. Use the Stock Time Series Quote Endpoint to obtain the latest price and volume information for the stock tickers “WMT” and “ACME”. After receiving the result of your API query, you’ll want to retrieve the “Global Quote”, “05. price” JSON element.

### Deliverable:

Two files as attachments at our course shell assignment page. The first file should be the Python **.py** that you chose to modify. The second file should be a screenshot image file (.png or .jpg) demonstrating the correct execution of your program. **Your screenshot image should show the correct response for stock ticker symbol “WMT”, as well as a response for a stock ticker symbol that does not exist (such as “ACME”).**

### Submission Deadline:

Please see the course schedule in our syllabus for all assignment submission deadlines.