DAILY ASSESSMENT

Date:	**6-6-2020**	**Name:**	**Shilpa S**
Course:	**Python programming**	**USN:**	**4al14ec078**
Topic:	**Project Exercise on Building a Geocoder Web Service**	**Semester & Section:**	**8th A**
Github Repository:	**Shilpa_online**		

FORENOON SESSION DETAILS
Image of session

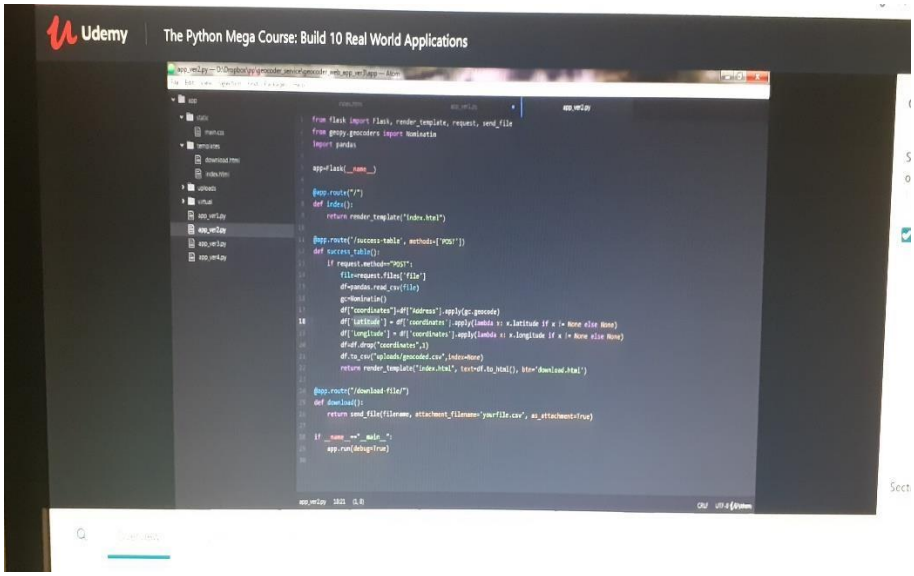



Fig 1: Project Exercise on Building a Geocoder Web Service

Project Exercise on Building a Geocoder Web Service

Geocode

We can start now geocoding, and below function uses Nominatim geocoder. The function returns a geocoded data frame with Latitude and Longitude columns. Once we geocode the data, we can display it in a map. This below function uses the Plotly Express. To pass a figure to Streamlit, you can use st.plotly_chart() . Keep in mind also that you can use other libraries to plot your data.

Download Geocoded CSV File

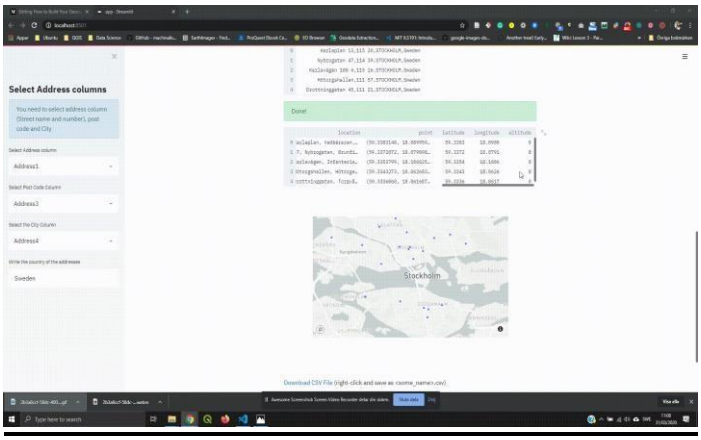
Once the data is geocoded, the App shows the data frame again with Latitudes and Longitudes. It would be nice also to be able to download the geocoded data.

To download the file, we can write the function below, and it allows us to right-click and save the file with a given name.

The App

Putting together all the code, the geocoding application code looks like this.

We can add some more functionality and build on top of this to allow other use cases if we want. Here is a glimpse of how to download the geocoded file in the App.



Geocoding App — Download geocoded file

Basics of Geocoding

- Street Addresses
- Placenames
- Administrative Boundaries
- Esoteric Localities
- High-risk and PHI Geocoding

Preparing Your Address Table

Formatting a Table for Use in ArcGIS

Things GIS hates about your tables:

- Spaces or special characters (other than _) in field names
- Field Names that start with a number
- Empty Rows
- Merged Cells
- Excel Formulas

Specifics on tabular data for geocoding

- Most geocoding services prefer street addresses in a single field, with City, State, Postal Codes, etc… in separate fields.
- For placenames, concatenate administrative units, as follows:

Dallas, TX, USA Collapse your addresses/placenames into a table of UNIQUE addresses/placenames!

That is, if you have a database of 2 million addresses, but there are many duplicates, use a summary or frequency tool to collapse those records into unique localities. For example, the Photogrammar data we will use with our custom ArcGIS Address Locator has 98k+ records, but only about 4000 unique locations. They can easily be joined back to the original dataset in a many-to-one join.This should always be the first step in a geocoding job, as it saves time, processing and often credits or money.

Building an Address Locator with ArcMap

Prepare the reference data

1. Open ArcMap and bring the US_county_1930_conflated.shp data into an empty Map Document
2. Open the attribute table, using Add Field create a new Text field called PLACE, with a length of 100
3. Right-click on the new PLACE field header and Field Calculator

- If you get a warning about doing a calculate outside an edit session, click Yes.

4. Use the following code to concatenate the COUNTY and STATE fields, adding appropriate commas and ‘United States’:

[NHGISNAM] &" County, " & [STATENAM]&", United States"

This should result in values like this:

Adair County, Missouri, United States Create

the Address Locator

1. In the Catalog Panel of ArcMap, right-click on your ‘data’ folder and select New>Address locator…
2. Under Address Locator Style select General - Single Field as the locator type.
3. Set Reference Data to US_county_1930_conflated.shp.
4. In the Field Map, select *keyfield and in the second column, set it to PLACE.
5. Confirm the Output Address Locator path, and click OK to run the tool.
6. Right click on the resulting Address Locator and inspect the Properties to see what changes you can make.
7. Close the properties and drag the locator into the Map Document to make it the default locator.

Running the Geocoding Job

1. Bring the photogrammar_image_count.csv table into ArcMap.
2. Right-click to select Geocode Addresses, and verify that your new address locator is selected, otherwise select it. Click OK
3. Change to Single Field and Select Column 1 as the key
4. Click on Geocoding Options and:
   - Change the Spelling Sensitivity and Minimum Match Score to 50
   - Uncheck Match if Candidates tie
5. Click OK, twice, to run the geocoder.

6. Wait until the progress bar shows 100% and says Completed. the
7. Click Rematch to explore the results, then click Close.
8. Use a Spatial Join to add the Geocoding Results attributes to original US_county_1930_conflated.shp file