**REPORT**

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| **Date:** | **06/06/20** | **Name:** | **GaganashreeP** |
| **Course:** | **Python** | **USN:** | **4AL15EC024** |
| **Topic:** | **Project Exercise on Building a Geocoder Web Service** | **Semester & Section:** | **8TH & A** |
| **Github Repository:** | **Gaganashree-P** |  |  |

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| **AFTERNOON SESSION DETAILS** |
| **Image of session** |
| **Report –**  Geocoding is the [computational](https://en.wikipedia.org/wiki/Computational) process of transforming a [physical address](https://en.wikipedia.org/wiki/Address_(geography)) description to a [location](https://en.wikipedia.org/wiki/Location_(geography)) on the Earth’s surface (spatial representation in numerical coordinates)  Anaconda environment setup.  pip install geopandas pip install geopy  If you do not want to install libraries and directly interact with the accompanied Jupyter notebook of this tutorial, there are Github link with MyBinder at the bottom of this article. This is a containerised environment that will allow you to experiment with this tutorial directly on the web without any installations. The dataset is also included in this environment so there is no need to download the dataset for this tutorial.  **Geocoding Single Address**  To geolocate a single address, you can use Geopy python library. [Geopy](https://geopy.readthedocs.io/en/stable/" \t "_blank)has different Geocoding services that you can choose from, including Google Maps, ArcGIS, AzureMaps, Bing, etc. Some of them require API keys, while others do not need. Geocoding addresses from Pandas Let us read the dataset for this tutorial. We use an example of Store addresses dataset for this tutorial. The CSV file is available in this link.  Download the CSV file and read it in Pandas.  df = pd.read\_csv(“addresses.csv”) df.head()  The following table provides the first five rows of the DataFrame table. As you can see, there are no latitude and longitude columns to map the data.  https://miro.medium.com/max/607/1*85umjG3K78b9EeUMEKxwFA.png  Ddataframa  We concatenate address columns into one that is appropriate for geocoding. For example, the first address is:  Karlaplan 13,115 20,STOCKHOLM,Stockholms län, Sweden  We can join address columns in pandas like this to create an address column for the geocoding:  Once we create the address column, we can start geocoding as below code snippet.  Geocoding is a critical task in many location tasks that require coordinate systems. In this article, we have seen how to do geocoding in Python. There are a lot of other services that provide either free or paid geocoding services that you can experiment within GeoPy. I find Google Maps geocoding services more powerfull than the Openstreetmap services we have used in this tutorial, but it requires an API key.  **End of the Course**  **Ladies and gentlemen, congratulations on completing the course! I wanted to tell you that this is a huge achievement that not everyone has the willpower to do. I can see that from the course statistics.**  **I am sure this is a huge step to kickstarting your programming career. I am very happy you were my student and followed everything I had to teach you throughout this long course which I have created with a lot of commitment and passion.**  **I wish you great success in your future projects and hope to have given you a positive push in your endeavors!**  **Ardit Sulce**  **Certificate** |
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