**CS421/621 Lab04**

**Python & API**

**Objectives:**

* Python programming and retrieving data using API (lecture 5)

In this lab tutorial on APIs in Python, you will learn how to retrieve data from remote websites. Most of the popular websites make some part of the their data available for others through their **A**pplication **P**rogramming **I**nterface.

You have learned the importance and the practical aspects of the API usage in lecture 5. Today, we will be using APIs to retrieve data related to Covid-19. I recommend you to use Anaconda& Jupyter notebook for this lab. If you haven’t tried iPython before, I suggest you to do so. (You can use any IDE or editor for this lab, anaconda and Jupyter iPython is just a suggestion)

Here are the links for installation;

Anaconda <https://www.anaconda.com/products/individual>

Jupyter Notebook. <https://jupyter.readthedocs.io/en/latest/install.html#installing-jupyter-using-anaconda-and-conda>

A useful tutorial about jupyter <https://www.youtube.com/watch?v=HW29067qVWk&feature=youtu.be>

**What is CURL?**

It is a tool to transfer data from or to a server without user interaction. CURL stands for “Client URL” and it provides a library and command-line tool. It is a widely used tool because of its ability to be flexible and complete complex tasks.

**Syntax:**

curl [options] [URL...]

**Covid19 API**

Let’s get started with the Covid19 API. We can list all the current routes available with detail on each



We can get a summary of new and total cases per country updated daily



We can list the available countries and provinces. (country slugs are also included)



Finally, let’s get all live cases by case type for a country



**Exercise 1**

Use the last example to get the live case numbers for United States of America. Display the information of the state’s which has the most confirmed cases and least confirmed cases. Additionally, display the average number of active cases. You can use any method you feel comfortable to manipulate the data (NumPy or Pandas are recommended )

Now, we will use another API and library to manipulate the Covid19 data.

We will start by installing COVID19Py ;

A screenshot of a cell phone

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In order to retrieve the data, we will first import the package and then create a new instance;

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There are 3 different data sources available in this API, we will be using John Hopkins University Center for Systems Science and Engineering (JHU CSSE). Thus, we can retrieve the data only from this data source;



We can get the latest update for all countries;

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Finally, let’s try to retrieve the information by location

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**Exercise 2**

Display a table which shows the total number of cases for each state in US. A sample table is provided below;

|  |  |
| --- | --- |
| **State** | **Total Number of Cases** |
| **Alabama** |  |
| **Alaska** |  |
| **…..** |  |

**If you return these two exercise before the deadline, a bonus points will be provided. You can submit your solution directly to the Canvas. The deadline is 07/06/2020 Monday 11:59pm**

**References & Recommended Links**

<https://rapidapi.com/blog/how-to-use-an-api-with-python/>

<https://documenter.getpostman.com/view/10808728/SzS8rjbc?version=latest>

<https://towardsdatascience.com/covid-19-data-collection-a-python-api-story-347aafa95e69>

<https://github.com/ExpDev07/coronavirus-tracker-api/blob/master/README.md#picking-data-source>

<https://github.com/Kamaropoulos/COVID19Py>

<https://curl.haxx.se/>

<https://man7.org/linux/man-pages/man1/curl.1.html>