**Introduction into arcpy and Python in ArcGIS Pro**

## Exercise Week 13

In this exercise you will use python to retrieve data from a public endpoint, transform the data, calculate some additional attributes and save your retrieved datasets to a table layer in arcgis online. The Task-Functionality will help you to periodically update your data. In the second part you will build a presentation about your proposed topic for your final project.

**When writing python code, please provide meaningful comments.**

## 13.1 Scraping data (5 Points)

The city of Bonn offers an API endpoint, where you can download the current occupancy for the public parking places in the premises of the city. The data is returned as XML data. The endpoint is available at: <https://www.bcp-bonn.de/stellplatz/bcpext.xml>

Write a script, that uses the requests module to download the xml data. You should then parse the incoming XML data into a pandas dataframe. Use the functionality of pandas to add a new column and calculate how many % of the parking spots are occupied. To interact with XML data, there are various modules available, examples are xml, xmltodict or minidom. Its your choice, which you want to use.

After calculating the percentage of occupancy, add the downloaded data to a hosted table in ArcGIS Online. Please refer to the following link on how to create a hosted table: <https://community.esri.com/t5/arcgis-online-blog/create-a-hosted-table-from-the-content-tab/ba-p/891299>

Make sure to drop all unnecessary columns from your DataFrame (and the hosted table).  
When you use the arcgis.features.FeatureSet.from\_dataframe() function you can easily create a FeatureSet from your Dataframe, which can then be added via the edit\_features() function of the arcgis package. Refer to the web help for the proper syntax  
[https://developers.arcgis.com/python/api-reference/arcgis.features.toc.html#featureset](https://developers.arcgis.com/python/api-reference/arcgis.features.toc.html" \l "featureset)  
<https://developers.arcgis.com/python/guide/editing-features/>

Please upload the resulting notebook to arcgis online (or use ArcGIS Online as your IDE from the beginning) and set up a task so it is executed every 15 minutes. Add the URL of your notebook here:

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https://ivv6.maps.arcgis.com/home/item.html?id=1e177dfcc6d74f839c982fb1fafdab9a

## 13.2 Prepare your final project (5 Points)

Please prepare a Slidedeck that outlines your plans for the final project. Please make sure to answer the following questions:

* Describe What you want to do, and why it is a good match for this course
* Give an outline about the number of hours you expect to invest
* Describe the final result of your idea

Please put some effort into the design and outline, since in the end you need to convince us that your idea is suitable for the final project.   
If you have trouble coming up with an idea for the final project please get in touch with us and we will support you while brainstorming.

Please upload a Zip File with this Exercise sheet (with the notebook url) and the powerpoint as the solution for this exercise.