**Lab 1-2**

Due two weeks from the date of assignment

**Deliverables**

1. CSV file from Part 1
2. Jupyter notebook that runs in ArcPro
3. Flask app.py file with /geojson\_polygon endpoint
4. PDF with a link to the video recording, and a screenshot of the ArcOnline web content layer displaying the polygon from deliverable 3

**Part 1 – Fill out the following** [**table**](https://docs.google.com/spreadsheets/d/148PCOvJ7AcEAnDstNtJcraKot98RbIab/edit?usp=sharing&ouid=117926763410213500553&rtpof=true&sd=true) **as a csv or Excel file.**



**Part 2 – Pipeline Infrastructure**

Your goal is to use an ArcPro Jupyter notebook to

1. create a polygon using arcpy geometry primitives,
2. convert it to WKT,
3. and use psycopg2 or sqlalchemy to import the polygon to your PostGIS database,

On your VM on Google Cloud running Linux Ubuntu

1. then use Flask to allow anyone to retrieve this polygon from PostGIS as a GeoJSON object (see tutorial here: <https://github.com/runck014/iot_bootcamp/tree/master/web_server>)
2. import the polygon as a content layer into ArcOnline
   1. If this doesn’t work (and it very likely won’t), you should deploy your flask app using [Google Cloud Run](https://cloud.google.com/run/). In part three, analyze why your VM didn’t work and describe how cloud run fixes the problem. See here for a [tutorial](https://cloud.google.com/run/docs/quickstarts/build-and-deploy/deploy-python-service) and [here](https://cloud.google.com/run/docs/quickstarts/deploy-continuously) for another.

The final result will be a pipeline where you can rerun the jupyter notebook and it will take whatever point geometry you create and then nearly immediately display it on an ArcOnline content map.

**Part 3 – Create a video recording of yourself explaining the data flow from Part 2**

You can use whatever desktop video recording you want (Zoom recordings are easy), but you should walk through each step of the data flow and explain the code and how it works. Upload this to google drive and make it accessible by a link.