Lab 1-2

Due two weeks from the date of assignment

Deliverables

1. CSV file from Part 1git clon
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 as a csv or Excel file.

	Instruction Sets			
How to...	ArcPro GUI	ArcPy	Fiona/Shapely	PostGIS
Create a feature class	Catalog > right click database > New > Feature Class > INSERT DETAILS			
Add points to a feature class	Be sure Feature Class was created as a a Feature Class "Point" Type > ...			
Add line to a feature class	Be sure Feature Class was created as a a Feature Class "Line" Type > ...			
Add polygons to a feature class	Be sure Feature Class was created as a a Feature Class "Polygon" Type > ...			
View each row in an attribute table for a feature class	In contents > right click layer > click attribute table			
View each geometry object in a feature class	In map pane > pan and zoom			
Summarize the contents of a feature class	In attribute table, view headings			
Export to shapefile	In contents pane > right click layer > data > export features > choose folder location > name it <name>.shp			
Export to geodatabase	INSERT DETAILS			
Export WKT to file				
Import WKT from file				
Export GeoJSON to file				
Import GeoJSON from 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(python library) or sqlalchemy to import the polygon to your PostGIS database,

On your VM on Google Cloud running Linux Ubuntu
then use Flask to allow anyone to retrieve this polygon from PostGIS as a GeoJSON object (see tutorial here:

git clone [link to repo] → see Bryan's links in the repo

https://github.com/runck014/iot_bootcamp/tree/master/web_server)

4. import the polygon as a content layer into ArcOnline
    a. If this doesn't work (and it very likely won't), you should deploy your flask app using Google Cloud Run. In part three, analyze why your VM didn't work and describe how cloud run fixes the problem. See here for a tutorial and here 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.