PLSCS 2200: Mapping & Spatial Analysis with GIS
Fall 2021

Assignment Sheet for Lab 4: Creating & Editing Data

Directions:
1) Create a folder on the desktop of your lab computer called "Lab4."
2) From Canvas, download the zipped file called "Lab4Data.zip" to your new Lab4 folder. **NOTE: This Lab 4 zipped folder contains the data for two chapters (Module 6 AND Module 7).**
3) After it's downloaded, right-click on the file and "Extract All…" . Make sure it is going into your Lab4 folder! You should have two folders of data (Module6 and Module7).
4) Within Canvas, access the textbook (Instant Access – Vital Source) and find **Module 6**.
5) Begin ArcGIS Pro and name your project **Lab4**.
6) Proceed through the software instructional steps for Module 6.
   a. Name the map you create "**My Campus Map – Module 6**" (instead of just "Campus" as the instructions say).

Question 1. What is a shapefile? How many essential "sub-files" comprise a shapefile and what do they do? Are all of the essential sub-files necessary? What other types of sub-files might be present with a shapefile?

A shapefile is a series of files that make up one vector data file. It is a file that contains GIS data. Several files must be present but there needs to be at least including .shp, .shx, and .dbf files.

Question 2: How is a shapefile similar to a feature class within a geodatabase? How are they different?

A shapefile and a geodatabase are similar in which they store GIS data. However, the type of data they store is different. Geodatabases is a structure of a single item that contains multiple datasets with its own feature classes such as points, lines, or polygons. Shapefile contains objects of specific types; so one shape but multiple attributes such as the shapes location and boundaries.

Question 3. Take two screenshots from your computer of the listing of "campusbound.shp" data set from within its Module 6 data folder. The first should be from within the Catalog (from within ArcGIS Pro), and the second from Windows Explorer. Label which is which.
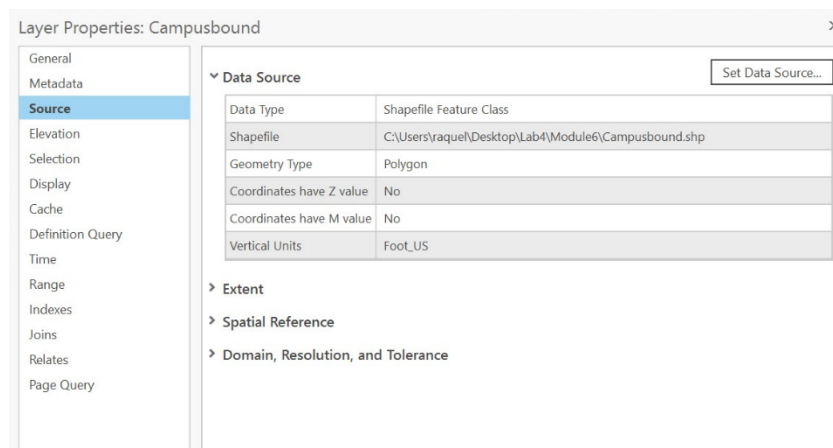

From ArcGIS

Question 4. How many separate segments of sidewalks did you create? What was the total mileage of sidewalk that you created?

I created 12 segments of sidewalks. Thee total milage of sidewalk is 0.8029381.

Lab Directions, continued:

7) When you are done with the software steps of Module 6, **save your project**.
8) Stand up and walk around for a few minutes. THEN, open up Module 7 of your textbook.
    a. **Do NOT** create a new project, etc. in ArcGIS Pro.
    b. Instead, **in the existing Lab4 project** that you were using for Module 6, **Inser**t a **New Map**. Call it "**Campus Map – Module 7**", and then continue on in your textbook with the Module 7 instructions.
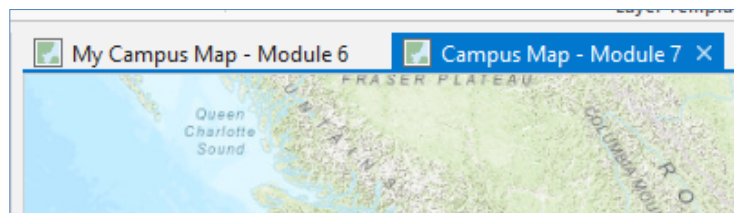
9) At the end of Module 7, complete the **11 different things** that need fixing from the five feature classes in the Edittests data.

1. **Polygon error:** M30 parking deck was only half-digitized—need to be reshaped to cover entire area.
2. **Polygon error**: M30 Parking deck (building) is incorrectly within the YSU Buildings Layer. It should be remade or replaced in the Parking Lots layer.
3. **Polygon error:** The Public library has been digitized as a YSU building—needs to be remade or replaced into the Non-YSU Building layer.
4. **Polygon error:** Meshel Hall has been digitized as a parking lot—needs to be remade or replaced into the YSU Buildings layer.
5. **Polygon error**: The building called Sculpture Studio does not exist —it should be deleted.
6. **Polygon error:** The V33 Parking Lot was digitized much too large—needs to be reshaped to its proper size.
7. **Overshoot/undershoot line error:** There is an overshoot at a sidewalk intersection near the walkway between the McDonough Museum and Meshel Hall, just off of Wick Avenue.
8. **Overshoot/undershoot line error:** Three sidewalk lines behind the McDonough Museum need to be snapped together at their intersection. They currently are all undershoots.
9. **Other line error:** Walkway over Wick Ave. is digitized as a road—needs to be deleted.
10. **Attribute error:** St. John's Church is misnamed as the McDonough Museum—needs its attributes updated to proper name.
11. **Attribute error:** McDonough Museum is misnamed as Bliss Hall—needs its attributes updated to proper name.

Question 5: Low data quality and data uncertainty are significant problems within GIS. Write down

simple definitions of each of these types of accuracies and characteristics of data quality. For each one, give a possible example based on any of the labs (1-4).

1) Temporal accuracy: time period and currentness of a dataset.
   a. Ex: Lab 2: Percent of seasonal homes in 2010 is best presented with the most up to date for real estate and future home owners.
2) Positional or location accuracy: how closely the spatial features of a dataset match their real-world locations
   a. Ex: Lab 4: the locations and the boarders of the buildings are accurate to the Imagery basemap.
3) Attribute accuracy: how closely the non-spatial features of a dataset math their real-world counterparts
   a. Ex: Lab 1&4: labeling airports and parking places have to be exact to not confuse the audience/reader.
4) Completeness: a measure of the wholeness of a dataset and can be judged in errors of omission and errors of commission.
   a. Ex: Lab 1 contained the entire number of airports, roads, and structures in Ohio.
5) Errors of omission: an error in which items that should be part of the dataset are left out of it
   a. Ex: Lab 4: we added parking lots and YSU buildings into the map for a more informed map of that specific square space.
6) Errors of commission: an error in which extra items that should not be part of a dataset are added to it
   a. Ex: Lab 4: the Sculpture Studio does not exists and should not be added into an informational map on YSU.
7) Logical consistency: a measure of whether the same rules were used throughout the dataset
   a. Ex: Lab 4: creating the sidewalks for Module 6 and measuring the total distance of sidewalk needs to be the same units.

Question 6. Reflect on the experiences you had with creating and editing data. Describe any situations from your own research (or classes, or work) when it would be helpful to add point data to a map from an Excel spreadsheet, or digitize from an aerial photograph. How did the editing processes go today for you? Which of the types of "corrections" that you had to complete were the most frustrating to execute, if any?

The correction that I believed was tedious were adding features to the map based on layer. I was questioning if a corner should be added or counting a side of the building as the roof. Times where I believed I could have added data was on a class project on grey squirrel observations. When observing grey squirrels on campus, we had to have a certain range of observation for every time we counted and observed the squirrels. This also meant that our geographical limitations could also limit the amount of data we could have observed. I understand that adding limits to our observations is meant to decrease bias but having additional points to our data would have helped pursue our research questions.

IF you have not completed your lab exercise by the end of the lab period, then save your project and **upload a Project Package (.ppkx) to your ArcGIS Online Account**. Reference Smartbox 1.10 if you need a reminder for how to do this.