Lab: Digitizing Geographic Databases

PURPOSE

- Learn how to create and edit vector data in QGIS.
- Create a model dataset that can be used to help solve future GIS problems: a vignette for learning.
- Start building competencies for experimental learning.
- Practice working with attribute tables (FIELD CALCULATOR and JOIN ATTRIBUTES BY FIELD VALUE)
- By the end of lab, show an instructor your completely and accurately digitized geographic database of Central Falls.

OUTCOMES

- Digitized vignette of Central Falls data for learning

DATA

We will construct several data layers in this lab, so let's think about the *metadata* for those layers ahead of time. Some of the metadata elements would be identical for each layer:

- **Responsible Party**: Created by GEOG 261 instructors and …
- **Spatial Coverage**: Central Falls, RI
- **Spatial Resolution**: 250 meters
- **Spatial Reference System:** EPSG:6567 NAD83(2011) / Rhode Island state plane
- **Temporal Coverage:** n/a
- **Lineage**: Digitized by …   on …   based on the GEOG 261 course manual.
- **Distribution**: Geopackage file format.
- **Constraints**: There are no constraints. By default, the data is copyright Joseph Holler, Niwaeli Kimambo, and …

Others would be unique to each layer, e.g. the parks layer:

- **Title**: parks
- **Spatial Representation Type**:
- **Attributes:**

- **Name***: id* - **Description***: primary key* - **Data type**: nominal integer - **Accuracy***: synthesized data for learning purposes* - **Domain***: unique integer values* - **Missing Data**: n/a	- **Name***: park* - **Description***:* - **Data type**: - **Accuracy***: synthesized data for learning purposes* - **Domain***: unique Park names* - **Missing Data**: no missing data	- **Name***: pArea* - **Description***: park area in square meters, calculated from feature geometry* - **Data type**: - **Accuracy***: synthesized data for learning purposes* - **Domain***: minimum: 62500 and maximum: 187500* - **Missing Data**: no missing data

… and the `park_parking` layer:

- **Title**: `park_parking`
- **Spatial Representation Type**: none (simple table)
- **Distribution**: comma-separated values file format
- **Attributes:**

- **Name***: `park_name`* - **Description***:* - **Data type**: - **Accuracy***:* synthesized data for learning purposes - **Domain***:* unique Park names - **Missing Data**: no missing data	- **Name***: `lot_spots`* - **Description***:* - **Data type**: - **Accuracy***:* synthesized data for learning purposes - **Domain***:* minimum: 0 and maximum: 120 - **Missing Data**: no missing data	- **Name***: `street_spots`* - **Description***:* - **Data type**: - **Accuracy***:* synthesized data for learning purposes - **Domain***:* minimum: 0 and maximum: 20 - **Missing Data**: no missing data

WORKFLOW PRACTICE

How could you start with the `parks` geographic layer and the `park_parking.csv` data file, and map parking congestion by park as the number of total parking spots per 250 m by 250 m grid (62,500 square meters) at each park? Try drawing a workflow diagram below:

LAB PROCEDURE

Please find the course website page for this lab, which will contain a link to a video tutorial playlist and starter project data.

1. Project Startup
2. Geographic Database Schema
3. Verify Schema
4. Snapping
5. Digitize LUSTs
6. Symbolize LUSTs
7. ECG
8. Digitize Parks
9. Park Area
10. Park Area
11. Digitize Zones
12. Check Zones
13. Digitize Watersheds
14. Oops!
15. Field Calculator
16. Statistical Summary
17. Park Parking Check
18. Join (Parking) Attributes by Field Value
19. Parking per 250m grid
20. Back up Work
21. Optional: Join by Attribute

AM I DONE?

❑ Data and project are in unzipped folder named `central_falls`
❑ Created new geopackage named `cf_digitize.gpkg` in the `raw` folder
❑ Created new layers in that geopackage…
❑ Each of the layers digitizes and symbolized correctly:

Layer	Layer in cf_digitize.gpkg Geopackage	EPSG: 6567	Shapes Digitized identically	Symbolized similarly to handouts	Attributes Correct and id is primary key
Lusts					
ecg					
parks					
zones					
watersheds					

❑ Field Calculator of population density

❑ With the statistical summaries answer the following questions about parks:
  ◦ How many parks are there?

  ◦ How large is the largest park?

  ◦ How large is the smallest park?

  ◦ What is the average park size?

  ◦ What is the total Area of all of the parks?

❑ Parks_parking joind to Parks and saved in derived folder

❑ Parking lots per 250m by 250m grid square calculated, with the following results:

park	pArea	lot_spots	street_spots	parking_per_grid
Blackstone	187500	40	5	15
Spintex	125000	20	0	10
Macomber	187500	100	20	40
Jenks	62500	0	5	5
FC	125000	120	10	65