Introduction to Geographic Information Science
Lab 04

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Directions

The Stata portion of the lab requires you to use the census dataset that you cleaned for Problem Set 1.

The ArcGIS aspect of this lab will require the geodatabase `Midhill.gbd`, which is included in the Goor and Kurland (2011) data release. You can find it in `GIST1\Data\Pittsburgh`. Complete Assignment 1-2 pp. 45-46 **except** for the final section where you are asked to use Microsoft PowerPoint. The instructions given on those two pages are repeated below with two changes in questions 18, 27 and 28. Please note those changes.

Once you are done, submit the assignment 1-2 PDF file, the assignment 1-2 Excel file, the Stata do-file, and the Stata log file in a single .zip file.

Part 1 - Working with Spatial Data in Stata

1. Create a directory on your flash drive called `lab-04-work`.
2. Create a sub-directory within `lab-04-work` called `stata-work` to store all Stata files you generate for this lab assignment.
3. Open Stata and begin by constructing a do-file that is well documented and contains all of the relevant opening and closing commands. This should be based on the template available on GitHub. Save this file in `lab-04-work\stata-work`. Make sure the appropriate changes are made to the log file and change directory commands.
4. Open the census dataset that you have already cleaned for Problem Set 1.
5. Save a new copy of the file.
6. Relabel the dataset and add at least one note to the dataset - these should be used to document that changes have been made, who made those changes, and when.
7. Remove the following variables from the dataset - `pop10`, `white`, `black`, `nativeAmerican`, `asian`, `nativeHawaiian`, and `twoMore`.
8. Remove the variable labels from all remaining variables.

9. Apply new variable labels to each of these remaining variables.
10. Remove the value labels from `division10` and `region10`.
11. Apply newly defined value labels to both of these variables.
12. Drop all observations for states located in the `South` census region.
13. Execute your do-file and debug it (fix errors) until it runs cleanly.

Part 2 - Working Spatial Data in ArcGIS

14. Create a sub-directory of `lab-04-work` called `arc-work` to store all spatial files you generate for this lab assignment.
15. Save a new map in ArcGIS to `lab-04-work\arc-work` named `assignment_1-2_YourName.mxd`.
16. Add the following shape files to your map:
    (a) `Midhill.gbd\Bldgs` - Buildings in the Middle Hill neighborhood of Pittsburgh
    (b) `Midhill.gbd\CADCalls` - police calls in the Middle Hill neighborhood
    (c) `Midhill.gbd\Curbs` - Curb lines in the Middle Hill neighborhood
    (d) `Midhill.gbd\Streets` - Street center lines in the Middle Hill neighborhood
17. For each layer, open up the Attributes Table and explore the attributes for the layer.
18. Shift the order of the layers so that `CADCalls` appear as the top layer.
19. Display buildings and curbs as medium-light gray (20%).
20. Display CAD calls as bright red circles.
21. Display streets as *no color* (this removes the streets from the map but allows us to visualize the street names)
22. Label the street names using the `FNAME` field.
23. Create a spatial bookmark of the zoomed area of 100 Erin Street. The 100 block of Erin Street is the segment of Erin Street where addresses range from 100 to 199 and is perpendicular to Webster and Wylie streets.
24. Set `CADCalls` as the only selectable layer and select the calls on either side of Erin Street between Webster, Wiley, Davenport, and Trent. There appear to be 6 incident points. However, some addresses have more than one incident.
25. Save these selected data as a new layer named `Erin Street Crimes` and add it to your map.
26. Change the symbols for this layer to blue squares.
27. Click File > Export Map and save your map zoomed to Erin Street as a PDF file with the name `Assignment_1-2_YourName.pdf` at 300 dpi resolution.

28. Using the Attributes Table of the Erin Street Crimes layer, turn on the fields `NATURE_COD`, `ADDRESS`, and `CALLDATE` only. Click Table Options and Export. Save the selected records as an `dBASE Table` database file.

29. Open these data in Excel to verify the export, and change the column headings to `CRIME TYPE`, `ADDRESS`, and `DATE`. When you go to open the file, there will be a number of files. You want to open the file with the `.dbf` file extension that is a `DBF` file. Do not open the `XML` file.

30. Save your Excel file using the Excel file format `.xls` or `.xlsx`.

31. Save a second copy of your data using the CSV file format (`.csv`).