Lab 04: Making static maps

Read the instructions COMPLETELY before starting the lab

This lab builds on many of the discussions and exercises from class, including the "frankenmap" exercise from class.

Formatting your submission

This lab must be placed into a public repository on GitHub (www.github.com). Before the due date, submit **on Canvas** a link to the repository. I will then download your repositories and run your code. The code must be contained in either a .R script or a .Rmd markdown document. As I need to run your code, any data you use in the lab must be referenced using **relative path names**. Finally, answers to questions I pose in this document must also be in the repository at the time you submit your link to Canvas. They can be in a separate text file, or if you decide to use an RMarkdown document, you can answer them directly in the doc.

Introduction

This lab is much more free-form than previous assignments. You will be completing your own version of the in-class "frankenmap" using proper cartographic principles. I encourage you to use whatever resources you find useful, including the relevant sections of the Lovelace chapter and online resources such as: https://mgimond.github.io/Spatial/good-map-making-tips.html

Your tasks

1. Using the same descriptions as the in-class frankenmap, create a map that follows "good" cartographic principles. I have included the instructions below for reference. The data can be found in: `./data/static_mapping/`

Original description:

Ohio scale

1. Ohio counties, symbolized (filled) by some variable of interest. You will need to use a tabular join (`left_join()`, most likely) between spatial and tabular data
2. Borders symbolized using NON-DEFAULT symbols
3. A scale bar

Local scale

1. Municipal boundaries within Portage AND Summit counties, with labels for names (see `oh_places.gpkg`)
2. Parks within Portage AND Summit counties, symbolized using different shades of green according to the park TYPE
3. Linear water features (streams, rivers) in Portage AND Summit counties. Symbols should indicate which linear features intersect a park

Putting it together

1. Use the provided DEM to plot elevation behind a semi-transparent Portage and Summit counties
2. A north arrow
3. Code to make Group 1's code (all of Ohio) an inset into Group 2's Portage + Summit counties study area
4. A title

One NOTE:

EVERYTHING NEEDS DONE PROGRAMMATICALLY REFERENCING DATA LOCATIONS IN THE REPO

2. Make a second static map of your choosing. You may choose any spatial extent, domain, or technique. I'm looking for creativity, good coding practices (including comments), and for you to demonstrate independent thinking. There are minor restrictions you must follow:
    1. It must include vector AND raster data in some manner
    2. It must include spatial data relating to a social process (e.g., political boundaries) AND spatial data relating to an environmental process (e.g., water resources)
    3. The map should "stand on its own" and communicate its purpose without additional text
    4. That's it!

Questions:

1. Describe and justify your choices in making map 1.
2. Compare the cartographic decisions you made in your *individual* process to the decisions made *by the groups in-class*. Make direct reference to how your group made decisions in-class, and how those decisions impacted the final "frankenmap".
3. Describe your choices in making map 2 (the one of your choosing). Include why you chose the problem and where you obtained your data. Finally, your map is a communication piece. What was the intent of your communication and do you feel as though you achieved your goal?
4. With respect to `tmap` and the process of creating static maps, what did you learn?