Step 1: Map two or more spatial datasets together with north arrow and scale bar

This lab is preconfigured to include all dependencies (libraries, packages, and datasets) you'll need to complete your work in RStudio. You can practice, run test cases, and work on assignments from your browser.

Assignment Overview

This assignment aims to test if you can use ggplot() to map two or more spatial datasets together with north arrow and scale bar. In this lab, you are required to use the data provided to conduct a lab "spatial data visualization" based on the steps mentioned below. All data can be found in the Module 12 -> data folder.

Please use the data provided to conduct a "Spatial Mapping" based on the steps mentioned below.

Steps:

1. Install and load required packages and datasets.
2. There are three datasets:
   (1) US states
   (2) Indiana watershed
   (3) Place (Cities) in Indiana
3. Select out the state Indiana and two cities "Carmel" and "Muncie".
   - Select Indiana from the "states" data.
   - Select cities from the "place" data.
4. Plot a basic spatial mapping for the state Indiana, watersheds, and all cities.
   - Without scale bar, north arrow etc.

5. Plot a professional spatial mapping for the state IN, watersheds and two selected cities.
   - With scale bar (using scalebar()), legends for all items.
   - With north arrow (using annotation_north_arrow()).
   - There are three legends: a legend for the polygon boundaries of Indiana and watershed in Indiana; a legend for the two cities with different filled colors; a legend for the watershed in Indiana with different filled colors. Please check the example file for more details.
6. Please knit your R Markdown file into a HTML file and upload or submit your file for autograding in the Module12 folder in your lab.

Important Reminder on Knit in this In-Browser RStudio option for this lab This lab is hosted in an iframe that facilitates lab management features but consequently will prevent Knitting to HTML or Preview Notebook working by default. However, you can still Knit your files in lab by taking the following steps:
- Step 1: Go to the "Help" icon in your lab toolbar (top right corner).
- Step 2: Select the "Switch Back to the Old Experience" hyperlink (right click select if you'd like to keep both the submit and knit windows open). - Step 3: Knit your files to HTML or Preview Notebook.
You should now be able to load and preview them in your lab appropriately.

More details can be found in the RStudio Lab - In-Browser Option Reading :
https://www.coursera.org/learn/ball-state-university-data-visualization/supplement/E9jjS/rstudio-lab-in-browser-option

Grading Criteria

This week, your code will be graded on the following elements:
1. Your code should match the sequential operations required by the instructor.
2. Your code chunks should not be hidden. So, we can grade your code.
3. You should select Indiana from the "states" data.
4. You should select cities from the "place" data.
5. You should map a basic map without the north arrow, legends and scale bar using ggplot() and geom_sf() for the state Indiana, watersheds and all cities.
6. You should map a professional map with the north arrow, legends, and scale bar for the state IN, watersheds and two selected cities.
7. Your code should be run successfully.
8. You should provide comments for each step.
9. You should submit the file with extension of .html from your Module12 folder within your lab.

How to Submit Your Work for a Grade

This week you'll have your work partially autograded, with a solutions guide unlocking after you pass in the following item "Step 2: Solutions Example - Map two or more spatial datasets together with north arrow and scale bar."