Exercises for the meeting of May 10, 2018

Exercises related to simple features in R (1). Try to upload your answer to the LearnWeb assigned as a .zip file (not a .rar file) containing two files: (i) an R markdown file and (ii) an html file that resulted from knitting the R markdown file. (If this is problematic, use pdf or something else.)

1. Look for a shapefile; download it; import it with `sf::st_read`, and plot it. What does it show?
2. Try plotting one of the attribute variables using a different color scheme.
3. What is the class of the object plotted? Plot only the geometry using `st_geometry`.
4. Which layers does the GeoPackage `http://www.geopackage.org/data/sample1_2.gpkg` have? Import them both in R, using `sf`. Call the object with feature geometries `x1`.
5. Create an `sf` object with a point geometry at latitude 36.21 and longitude -81.19.
6. Query the features of `x1` at this point: plot the resulting geometry, and show the attributes associated with this geometry.
7. For the `nc` dataset that ships with package `sf`, compute the area of county `Columbus`
8. Compute also the same area after transforming the geometry to EPSG 2264, and compare the value with that obtained from the unprojected data; express the difference in a percentage.
9. create a plot with the nc states outlines that has all states that are partly within 50 km from Columbus filled with color green.
10. create a plot with the nc states outlines that has all states that are entirely within 100 km from Columbus filled with color red.