R Lab Assignment 1

Stavros Nikolakopoulos*
Department of Statistics, AUEB

Introduction

This assignment is to be done on an individual basis. The scoring will be 0-10, and it will have a wight of 40% of the overall R Labs grade (which counts for 10% of the overall course grade).

The data to be used for this assignment can be found in the file `Toilets_AUS.csv`. It includes data published by the Australian government's department of health on details of public and private toilet facilities across the country. A selection of the variables (but all the toilets) is included in the dataset. The full dataset can be accessed via `https://data.gov.au/dataset/national-public-toilet-map`. The variables in the dataset are mostly self-explanatory, but feel free to explore to get a better grip.

Please answer the questions below. Make sure you name the Data as indicated below so the script is run-able. Submit the script as a solution. Assignment is due Friday 19/10/2018 at 23:59.

Questions

1. Load the data in an object named TAUS. What kind of object is the data, and in which format is each variable coded? (1 point)

2. How many toilets are in Australia? (obviously, not including private toilets, that is, how many toilets are in the database) (1 point)

3. How many verified toilets are located more west than 120° (1 point)

4. Which is the city with the most toilets and in which state is it located? (1 points)

5. Transform the variables `Parking`, `Showers` and `DrinkingWater` into logical vectors. Create a matrix by putting these three vectors together as columns. By means of the `apply` function, create a vector that counts how many of these characteristics each toilet has (parking, shower and drinking water). How many toilets have all of them? (2 points)

6. Create a scatterplot with `Longitude` on the x-axis and Latitude on the y-axis. Main title should be "Toilets in Australia" and the axes named accordingly. Color the dots according to state and show the colors in a legend (2 points).

7. You are located here: goo.gl/fNRdk7. You really need a shower, and you are by car. Which is the closest toilet you can visit (name) ? (2 points)

*e:sknikolak@aueb.gr