CSSS/POLS 510
Lab Session 1: R Refresher

1. Data Objects

1.1 Vectors

Create the following vectors:

vector.1: 1,2,3,4,5,6,6,6,6,6

vector.2: 10 randomly drawn numbers from a normal distribution with a mean of 10 and a standard deviation of 1

vector.3: Results of 10 single binomial trials with a probability of success of 0.4

vector.4: Sample 100 observations from a 5-trial binomial distribution with a probability of success of 0.4

Check what type of data (numeric/character) vector.2 is

Round up vector.2 to two decimal places

1.2 Matrices

Create matrix.1 which is a 5 by 5 matrix filled with NAs

Assign matrix.1 the row names (a,b,c,d,e) and the column names (1,2,3,4,5)

Replace the NAs in the first column of matrix.1 with Inf

1.3 Lists

Create a list that contains vector.1, vector.2, vector.3, and matrix.1

Locate vector.2 from the list

2. Working with a Sample Dataset

Open `lab1_data` in R

Is it a data frame? Is it a matrix?

Check the names and summary statistics of the data

Remove observations with missing values

Plot GDP per capita (on the x-axis) and polity2 (on the y-axis)

Create a new variable called "democracy".

For the new variable "democracy", assign 0 to countries with negative or zero polity2 score, and assign 1 to countries with positive score.

Use a loop to do the same recoding

3. Additional exercises

Subset the data frame to show only country name and GDP per capita

Rearrange the columns of the data frame ascending by polity score

Show only values of GDP per capita for South Africa from 2002 to 2008

Create a new variable that takes the first letter of the country and attaches it to the year of observation

Find the mean of GDP per capita for each year of observation