20170410_Batch28_CSE7112c_R Basics_Assignment

This assignment is an opportunity to try the R statistical package and to start to learn some of its behaviors and options.

Problem 1: Use R as a calculator to compute the following values

(a) 27(38-17)
(b) ln(14^7)
(c) $\sqrt{\frac{436}{12}}$

Problem 2: Create the following vectors in R.

a = (5, 10, 15, 20, ..., 160)

b = (87, 86, 85, ..., 56)

Use vector arithmetic to multiply these vectors and call the result d. Select subsets of d to identify the following.

(a) What are the 19th, 20th, and 21st elements of d?
(b) What are all of the elements of d which are less than 2000?
(c) How many elements of d are greater than 6000?

Problem 3: Using d from problem 2, use R to compute the following statistics of d:

(a) sum
(b) median
(c) standard deviation

Problem 4: Use R to create the following two matrices and do the indicated matrix multiplication.

$$\begin{bmatrix} 7 & 9 & 12 \\ 2 & 4 & 13 \end{bmatrix} \times \begin{bmatrix} 1 & 7 & 12 & 19 \\ 2 & 8 & 13 & 20 \\ 3 & 9 & 14 & 21 \end{bmatrix}$$

What is the resulting matrix?

Problem 5: The dataset longley is a built-in dataset in R. Understand the variables in this data. Save this file and use read.table to import it into R.

What are the means and standard deviations for the data variables?

Would you get these means and standard deviations for all the variables?

Problem 6: From the longley data, examine the histograms and boxplots of variables you feel are appropriate.

Problem 7: Do you find any relationship between the year and the unemployed in the data. Show this relation, using a numeric value and in gragh/image.