Assignment 1 R Basics

Due date: see syllabus

Purpose:
In this assignment, you will have the opportunity to get familiar with the RStudio environment and practice basic R commands and functions related to data types and data structure.

Instructions:
Write an R script and an R markdown that perform the following operations in the order listed.

- - At the beginning of each task, write a comment marking the task number. For example
  "# Task 1"

- In the markdown file, include the code for each task in one block.

- Name the files as: lab1-<your last name>.R and lab1-<your last name>.Rmd (for markdown)

- After you complete the markdown file, using the 'knit' function to create the HTML report that contains both the code and the output. Since Blackboard does not allow upload of HTML files, print the HTML file to a PDF file and submit to Blackboard.

Tasks:

1. Learning RStudio environment: examine the 4 panes: source editor, console, workspace browser(objects/variables), and plots. Make sure you understand the purpose and content of each pane. (No script needed for this task)
2. Set the working directory to your Lab1 folder. (No script needed for this task)
3. Create 4 vectors: studentID, firstName, lastName, passFail. Each vector should contain appropriate type of data (e.g., numeric, character, logical) and at least 5 data elements. Print each vector, check the type and structure of each vector. (1 point)
4. Create a data frame named 'studentTable' using the 4 vectors that you created in task 3. Print the data frame and check the structure of the data frame. (1 point)
5. Create 2 matrices. Each matrix should contain at least 20 data elements and at least 3 rows and 3 columns. The two matrices should contain different types of data. Print each matrix. Check the type and structure of each matrix. (2 points)
6. Create 2 arrays. Each array should contain at least 20 data elements and at least 3 tables. The two arrays should contain different types of data. Print each array. Check the type and structure of each matrix. (2 points)

7. Create 1 list. The list should have at least 4 vectors. Each vector should have at least 3 data elements. The vectors should have different length and contain at least 2 different types of data. Print the list and check the structure of the list. (0.5 point)
8. Create another list containing the list you create in task 7. Print the list. (0.25 point)

Submission:
Submit the following files to Blackboard via the Lab1 submission link:

- the R script (.R file) (1 point)
- the R markdown file(.Rmd file) (1 point)
- the PDF report produced by the R markdown (1 point)