EE5373: Data Modeling Using R
Fall, 2022
Department of Electrical and Computer Engineering
University of Minnesota

Lab 1: Introduction to R

Due date: See the due date shown on the class web site.

Goal: This lab will introduce you to the R environment, including how to read a source file, how to modify an R program, and how to generate graphical output.

What to do:

First start RStudio. If it is not available on your system, you can download the free "RStudio Desktop" version from here: https://www.rstudio.com/products/rstudio/download/

Next download and execute the program "lab1-code" (available on the class web site). Experiment with the program by changing the values of the parameters in the "fractal" function call, by changing the computation within the "for" loop in the function, etc. Note that after you make each of the changes above, you should start the next problem with the original version of the program. Specifically, try the following:

1. Change the dim parameter to 1000.
2. Change xlo to -3.6 and xhi to 1.2.
3. Change iters to 50, 100, and 1000.
4. Change heat.colors(100) to heat.colors(50).
5. Change heat.colors(100) to each of the following:
    a. topo.colors(100)
    b. terrain.colors(100)
    c. gray.colors(100)
6. Change the expression in the for loop to Z <- Z^3 + C.
7. Make one other interesting change to the program. Be sure to tell me what change you make.

What to turn in for grading:

Make each of the changes to the program above and save the resulting image to a file. Put all the images into a single lab report and upload a single pdf file to the class Canvas website. Be sure to clearly label each of the images in your report and briefly explain how the change affected the image.