

Homework 6 Stat 550

Dr. Scott

November 27, 2023

Due: Wednesday 12-13
20 Points

Instructions: This problem set is for the masters and undergraduates. We will discuss generally in class before due date. You can work in groups, but turn in your own solutions. Due date is the end of the final's period.

Where to look: <http://www.stat.rice.edu/~scottdw/stat550/HW/>.

Where to turn in: Canvas upload.

1. Extract the last 3 variables from the swiss franc notes dataset and add some uniform noise. Display the trivariate kernel density contours using the `kde` R function from the `ks` R library. Comment.
2. Read in the 3848×5 data matrix `xb.txt`. There is a hidden structure that you are to discover. What is it?

Hints: The structure is contained in a small subset of these data.

- (a.) Construct a vector that contains the distance of each point to the origin $(0, 0, 0, 0, 0)^t$.
- (b.) Construct a histogram with lots of bins of this vector to guess which points are in the small subset.
- (c.) Use a scatter diagram such as the `pairs` function to proceed.

Have a Happy New Year and a Merry Christmas over your break.