Stat 460: Homework 3

Spring 2019

Due: Tuesday, March 28, 2019 (at the beginning of class)

Use R-Markdown to organize your work.

You will need to carry out a principal components analysis on three data sets. You should type up approximately a 1-2 page summary on your analysis. At a minimum, this will include:

- Give the covariance and correlation matrices used for the analysis.

- Make a decision on using the covariance or correlation matrix and justify your decision.

- Describe the eigenvalues and fractional contributions to the variance.

- Describe the criteria you used for how you many PCs you decide to keep.

- Give the eigenvectors for the principal components you retain.

- Make appropriate plots of pairs of principal components. Make observations about the plots.

- Use any additional plots or analysis to make conclusions if appropriate.

The data sets that are to be analyzed are on Canvas and are:

1. Mali Farm data
2. Flea Beatle data
3. Temperature data