

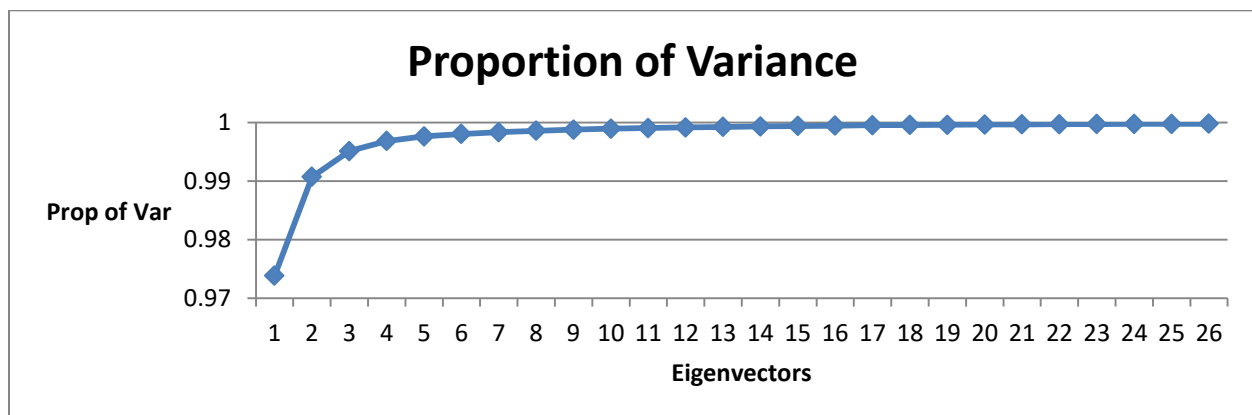
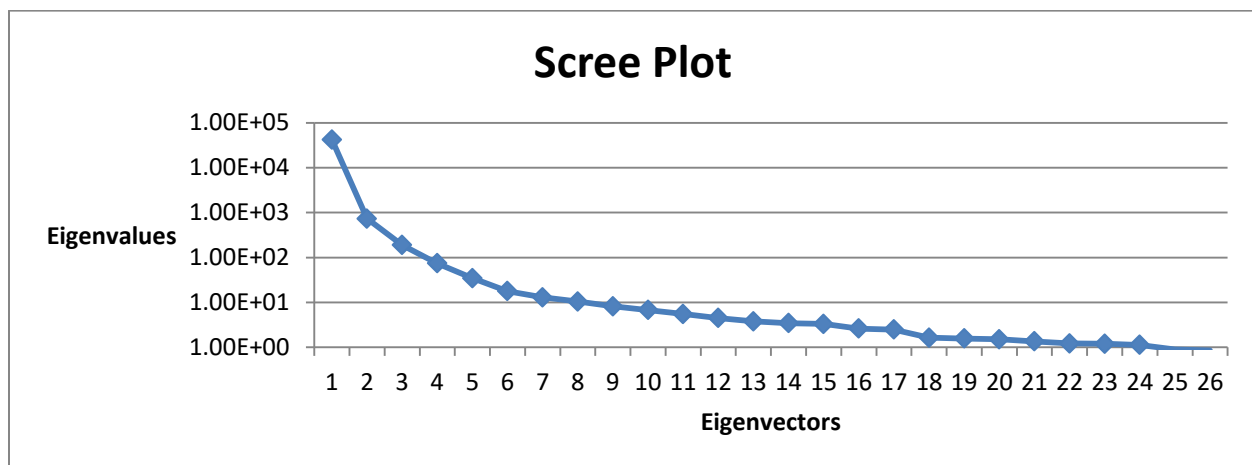
Jacob Vargo

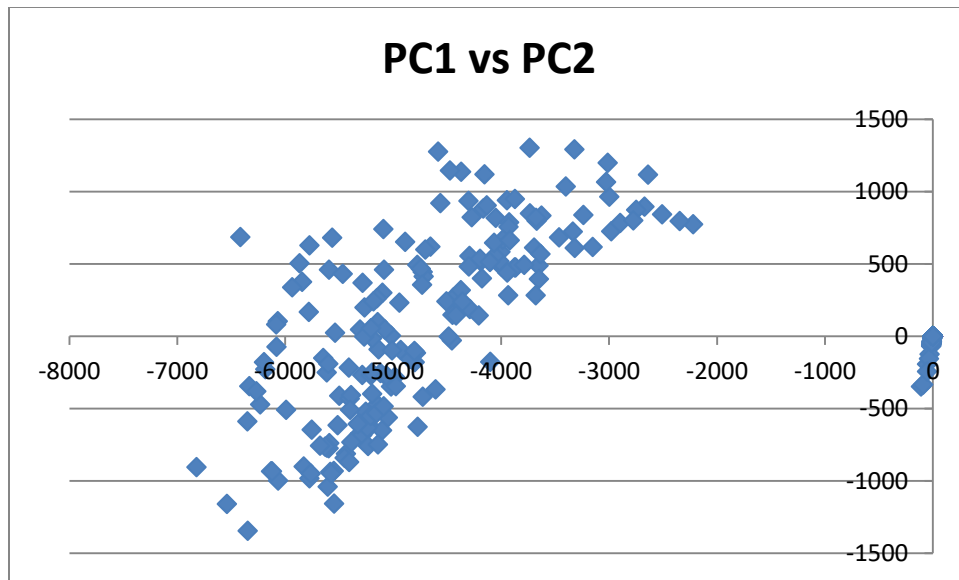
CS 425 Introduction to Machine Learning

October 23, 2017

Part 1

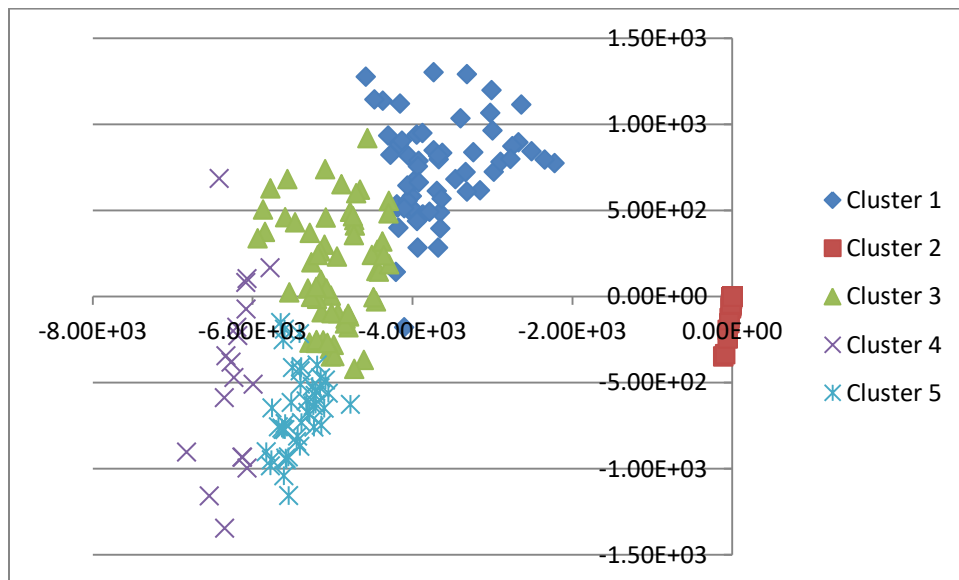
I decided the best choice of k would be one where the change in the proportion of variance would be relatively large up until that k value. Given my graph of the proportion of variance, I chose my k to be five.



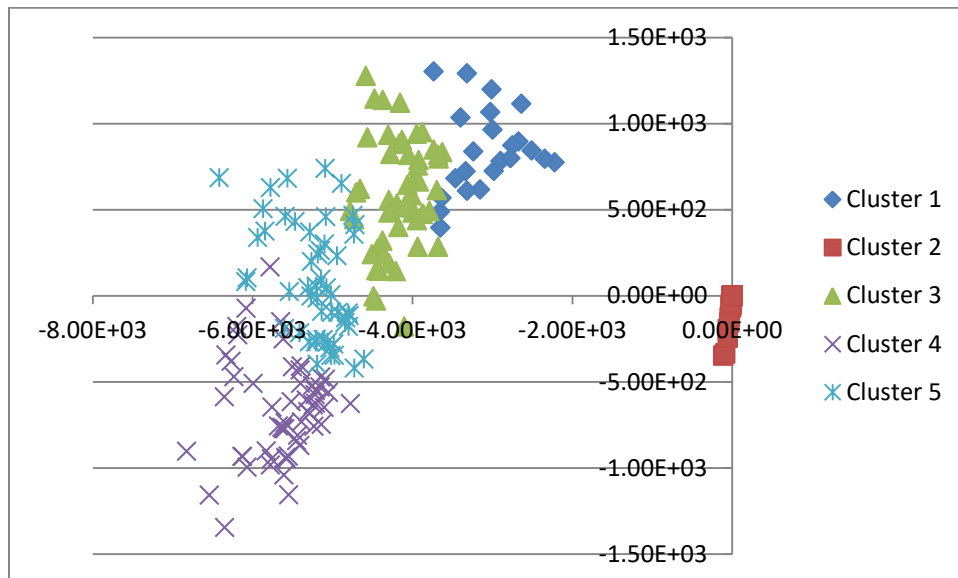


Part 2

When using the original data, my k-means clustering algorithm converged after 12 iterations. The minimal inter-cluster distance was 119.9. The maximal intra-cluster distance was 2599.1. The Dunn index was 21.7.



When using the data represented by its principle components, my k-means clustering algorithm converged after eleven iterations.



When using the data represented by only its first two principle components, my k-means clustering algorithm converged after eighteen iterations.

