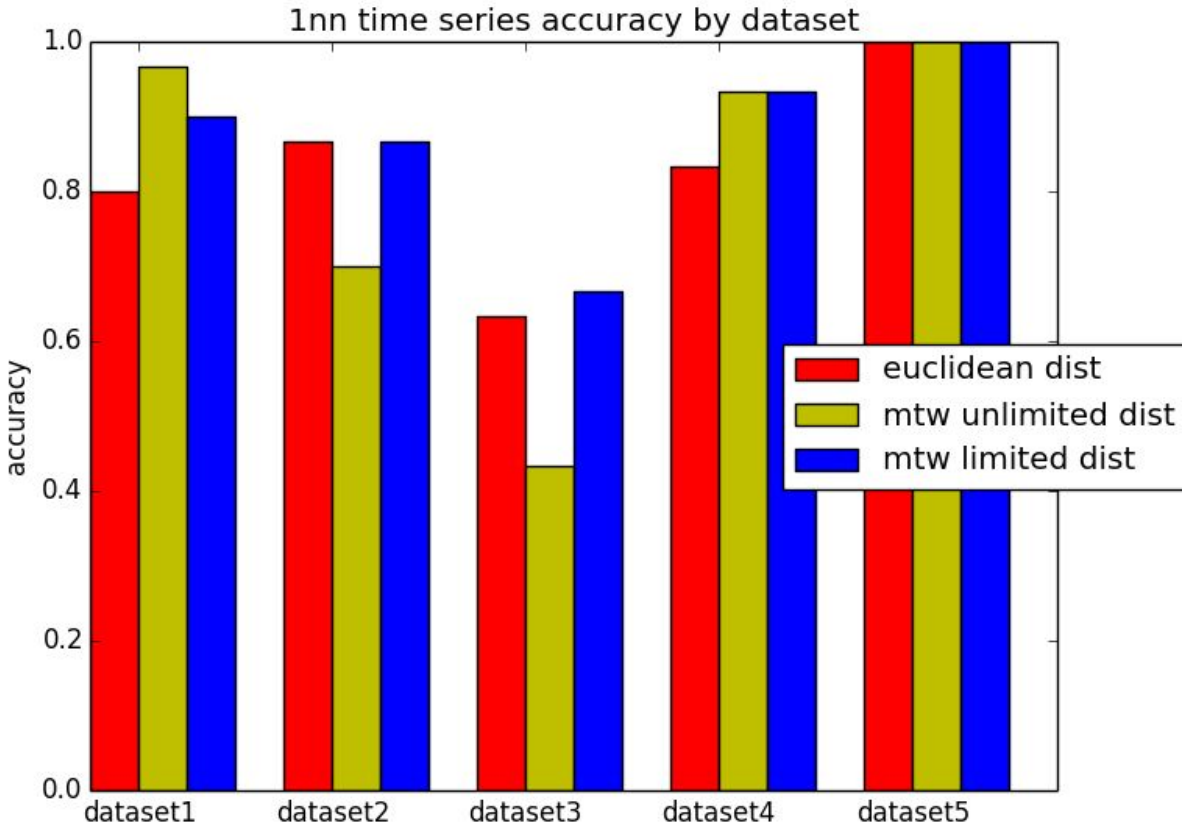
Assignment #1: Times Series Classification by Dynamic Time Warping Accuracy Report

Class: CS 674
Name: Won Cho
Email: wcho3@gmu.edu

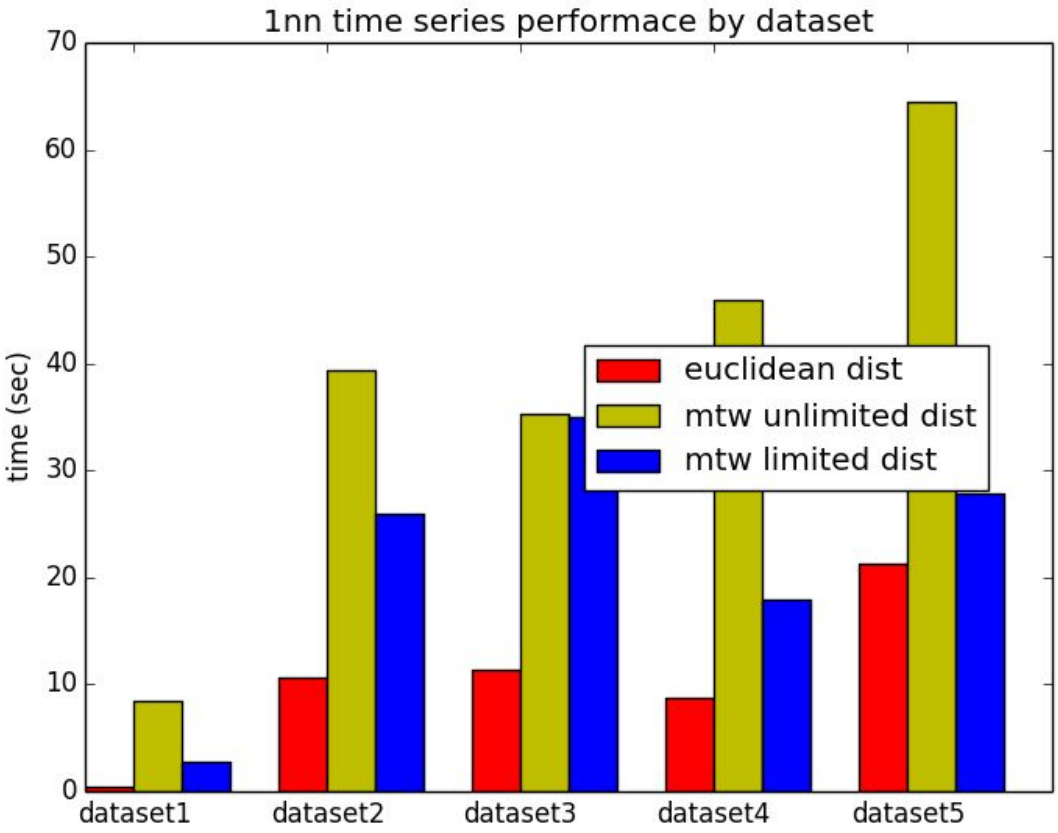
1. Classification Accuracy Result by Different Datasets and Different Methods

The following result is showing that the accuracy is different by different data set and different algorithms. 1-Nearest Neighbor (1NN) algorithm is used for classifying the time series. The dataset 5 has the best accuracy and the dataset 1 has the worst accuracy. The reason for the different accuracy could be related to length of time series, noisy time series, similarities between classes, and etc. There are lots of rooms to improve accuracy in this experiments



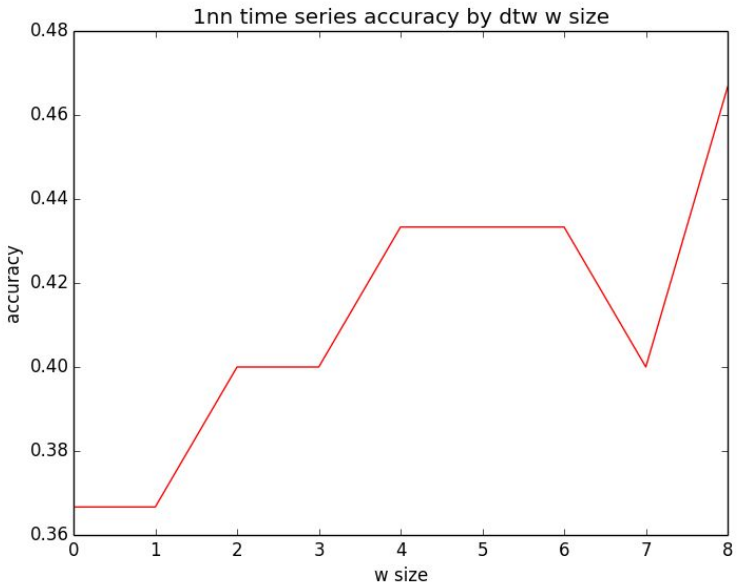
2. Running Time Result by Different Datasets and Different Methods

The following result is showing that different ways of calculating distance between time series effect running time. Euclidean distance method gives the best result and the DTW with unlimited w gives the worst result. The DTW with limited w gives better performance than unlimited w.



3. Classification Accuracy Result by Warping Boundary Size (w)

The following result is show that the accuracy is increasing while increasing DTW w size because increasing w size will give more room to adjust similarity between two time series.



4. Running Time Result by Warping Boundary Size(w)

The following result is showing that the running time is decreasing while w size is increasing. I am not sure why the running time is decreasing. It should be increasing.