PROBLEM --- Feature Conditioning - Forward Selection

By implementing forward selection algorithm, select the optimal number of features for best performance in classification by using Naive Bayes optimal classifier[3].(Consider Gaussian parametric estimate of pdf's). Plot CCR as a function of the number of selected features to find the optimal number of features.

Note1: You may need to normalize your data for better results.

Note2: From this exercise on, use Cancer diagnosis dataset. Consider train data size = 200 and test data size = 85.

PROBLEM --- Linear Discriminant Analysis

Consider class labels and compute within (S_w) and between scatter (S_B) matrices.

a. Use Linear Discriminant Analysis (LDA) to sort and plot Eigen-values of the separability matrix ($S_W^{-1}S_B$) in the descending order.
b. Plot separability measure ($trace(S_W{}^{-1}S_B)$) vs. the number of features, and discuss about the effect of combining features on separability percentage.