

COL 774 : Assignment 2

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1. Spam Classification

a. Cutoff : $0.0001 < \alpha < 0.999$

Number of Support Vectors = 156 . (listed in table **s_v** in 1b_workspace)

b. Using Linear Kernel

- i. All observations are listed in 1b_workspace
- ii. Weight Vector **w** : listed in table **w** in 1b_workspace
- iii. Intercept Term, $b = 0.0879$
- iv. accuracy = 91.4%,
where accuracy = (correct prediction/total test cases)*100
= $(914/1000)*100$
= 91.4%

c. Using Gaussian Kernel

- i. All observations are listed in 1c_workspace
- ii. Number of Support Vectors = 871. (listed in table **s_v** in 1c_workspace)
- iii. accuracy = 46.9%

d. Using libSVM Library

- i. All observations are listed in 1d_workspace
- ii. Accuracy for Linear Kernel = 91.3%
- iii. Accuracy for Linear Kernel = 89.2%