Lab 4

Exercise 1: Part 1

Most Underfit - > Most Overfit using K=5 = Fit_cpas , Fit_selected, Fit_over, Fit_additive

Most Underfit - > Most Overfit using K=100 = Fit_cpas , Fit_selected, Fit_over, Fit_additive

My conclusion did not change even after running it at 100 folds

Part 2

The best model in this case was the Spam_predicted_over model. This model provided the greatest level of accuracy with the data given when compared to the other models. The Spam_predicted_over model had a high level of both Sensitivity and Specificity. The Spam_predicted_over model had roughly a 93.9% accuracy when predicting non-spam emails in the test data compared to the next highest of 93% which was the Spam_prediction_additive model and from there it decreased. Meanwhile, the Spam_predicted_over model also had a a relatively high accuracy when assessing the spam emails of 84%. Overall, the best model to use in this case would be the the Spam_predicted_over model.

Exercise 2:

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address          -3.037376e-03 very likely y= no

all               3.126571e-03 likely y = yes _number_ is the change of make
while all else held equal

num3d             2.630331e-03 likely y = yes _number_ is the change of make
while all else held equal

our              -4.319617e-03 very likely y= no

over              1.499582e-02 likely y = yes _number_ is the change of make
while all else held equal

remove           -3.079723e-02 very likely y= no

internet         -4.131627e-02 very likely y= no

order             5.081685e-02 likely y = yes _number_ is the change of make
while all else held equal

mail             -3.995122e-03 very likely y= no
receive           1.985402e-01 likely y = yes _number_ is the change of make
while all else held equal

will              2.400678e-02 likely y = yes _number_ is the change of make
while all else held equal

people            1.803947e-02 likely y = yes _number_ is the change of make
while all else held equal

report            3.670703e-03 likely y = yes _number_ is the change of make
while all else held equal
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addresses        -5.120239e-02 very likely y= no

free              9.536537e-03 likely y = yes _number_ is the change of make
while all else held equal

business          2.192055e-02 likely y = yes _number_ is the change of make
while all else held equal

email             9.706415e-03 likely y = yes _number_ is the change of make
while all else held equal

you               4.209195e-03 likely y = yes _number_ is the change of make
while all else held equal


credit           -1.836019e-02 likely y = no

your              2.742165e-02 likely y = yes _number_ is the change of make
while all else held equal

font             -3.649664e-03 very likely y= no

num000            8.724692e-02 likely y = yes _number_ is the change of make
while all else held equal

money             1.001032e-01 likely y = yes _number_ is the change of make
while all else held equal

hp               -3.486732e-03 very likely y= no

hpl              -1.612372e-03 likely y= no

george           -2.460999e-03 likely y = no

num650            5.753361e-04 likely y = yes _number_ is the change of make
while all else held equal

lab              -1.207411e-02 likely y = no

labs             -1.043915e-02 likely y = no

telnet            2.091521e-04 likely y = yes _number_ is the change of make
while all else held equal

num857           -4.062194e-01 very likely y= no

data             -9.277274e-03 very likely y= no

num415            4.752238e-01 likely y = yes _number_ is the change of make
while all else held equal

num85            -3.586306e-03 very likely y= no

technology       -1.468312e-02 likely y = no

num1999          -2.092207e-02 likely y = no

parts            -2.160756e-03 likely y = no

pm                9.849910e-03 likely y = yes _number_ is the change of make
while all else held equal

direct           -3.883208e-02 very likely y= no
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cs                   1.442177e-02 likely y = yes _number_ is the change of make
while all else held equal

meeting             -2.018069e-05 likely y = no

original             1.424988e-02 likely y = yes _number_ is the change of make
while all else held equal

project             -3.060649e-03 very likely y= no
re                  -3.819777e-03 very likely y= no
edu                 -4.773336e-03 very likely y= no
table               -7.154606e-03 very likely y= no
conference          -6.799879e-03 very likely y= no
charSemicolon       -1.295985e-02 likely y = no

charRoundbracket    9.884413e-03 likely y = yes _number_ is the change of make
while all else held equal

charSquarebracket -5.070037e-02 very likely y= no

charExclamation     8.570596e-03 likely y = yes _number_ is the change of make
while all else held equal

charDollar           4.677421e-02 likely y = yes _number_ is the change of make
while all else held equal

charHash            -1.508674e-03 likely y = no

capitalAve           3.101407e-04 likely y = yes _number_ is the change of make
while all else held equal

capitalLong         -2.177273e-05 likely y = no

capitalTotal         1.724873e-05 likely y = yes _number_ is the change of make
while all else held equal
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