Results:

Confusion Matrices for HAM and SPAM classes

MODEL

HAM CLASS	ACTUAL IN CLASS	ACTUAL ~IN CLASS
IN CLASS	394	67
~ IN CLASS	6	333

SPAM CLASS	ACTUAL IN CLASS	ACTUAL ~IN CLASS
IN CLASS	333	6
~ IN CLASS	67	394

HAM CLASS EVALUATION

ACCURACY	90.88 %
PRECISION	85.47 %
RECALL	98.50 %
F1-MEASURE (beta=1)	91.52 %

SPAM CLASS EVALUATION

ACCURACY	90.88 %
PRECISION	98.23 %
RECALL	83.25 %
F1-MEASURE (beta=1)	90.12 %

The program gives decision on each test file weather it be ham or spam and we compared it to the actual categorization of these files and generated the above confusion matrices. Using below formulas we generated the above evaluations for each class.

Accuracy = TP+TN/TP+TN+FP+FN PRECISION = TP/TP+FP

RECALL = TP/TP+FN F1-MEASURE = 2 x PRECISION x RECALL/PRECISION+RECALL

The system evaluates SPAM files with higher precision compared to HAM files. But it has higher recall for HAM class compared to SPAM class. The F1-measure is comparable to accuracy for both classes.

References:

Course material related to Naïve Bayes and general Google searches related to python syntax.