CSE586 IR - HW 2

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Spam Filter Multinomial Naive Bayes

Not: We, actually, have not more than one class. We do have only one class. It is whether ***SPAM*** or not. So I could not figure out how can we apply ***Macro-Micro Averaging***.

|  |  |  |
| --- | --- | --- |
| ***Without Smoothing*** | is actually spam: Yes | İs actually spam: No |
| İs reported spam: Yes | 228 | 37 |
| İs reported spam: No | 12 | 203 |

|  |  |  |
| --- | --- | --- |
| ***With Smoothing***  (Laplace smoothing alfa=1) | is actually spam: Yes | İs actually spam: No |
| İs reported spam: Yes | 224 | 28 |
| İs reported spam: No | 16 | 212 |

|  |  |  |
| --- | --- | --- |
|  | is actually spam: Yes | İs actually spam: No |
| İs reported spam: Yes | TP | FP |
| İs reported spam: No | FN | TN |

***Without Smoothing***

Precision P = tp/(tp+fp) = 228/(228+37) = 0.86

Recall R = tp/(tp+fn) = 228/(228+12) = 0.95

F-Measure = 2PR/(P+R) = 2\*0.86\*0.95/(0.86+0.95) = 0.903

***With Smoothing***

Precision P = tp/(tp+fp) = 224/(224+28) = 0.89

Recall R = tp/(tp+fn) = 224/(224+16) = 0.93

F-Measure = 2PR/(P+R) = 2\*0.89\*0.93/(0.89+0.93) = 0.909