IRTM
Wi 20/21
Assigment 4

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Task 1

Vocabulary = { happy, new, year, holiday, term, starts, work, celebrations }
|Vocabulary| = 8

Prior:

$P(c_1) = \frac{3}{5} = 0.6$
$P(c_2) = \frac{2}{5} = 0.4$

Posterior: (with Add-One-Smoothing)

$P(happy|c_1) = \frac{2+1}{5+8} = \frac{3}{13}$ $P(happy|c_2) = \frac{0+1}{5+8} = \frac{1}{13}$

$P(new|c_1) = \frac{2+1}{5+8} = \frac{3}{13}$ $P(new|c_2) = \frac{0+1}{5+8} = \frac{1}{13}$

$P(year|c_1) = \frac{2+1}{5+8} = \frac{3}{13}$ $P(year|c_2) = \frac{0+1}{5+8} = \frac{1}{13}$

$P(holiday|c_1) = \frac{1+1}{5+8} = \frac{2}{13}$ $P(holiday|c_2) = \frac{0+1}{5+8} = \frac{1}{13}$

$P(term|c_1) = \frac{0+1}{5+8} = \frac{1}{13}$ $P(term|c_2) = \frac{1+1}{5+8} = \frac{2}{13}$

$P(starts|c_1) = \frac{0+1}{5+8} = \frac{1}{13}$ $P(starts|c_2) = \frac{2+1}{+}15+8 = \frac{3}{13}$

$P(work|c_1) = \frac{0+1}{5+8} = \frac{1}{13}$ $P(work|c_2) = \frac{1+1}{5+8} = \frac{2}{13}$

$P(celebrations|c_1) = \frac{0+1}{5+8} = \frac{1}{13}$ $P(celebrations|c_2) = \frac{0+1}{5+8} = \frac{1}{13}$

$P(c_1|d) = \frac{3}{13} * \frac{3}{13} * \frac{3}{13} * \frac{1}{13} = \frac{27}{28561} = c_{map}$
$P(c_2|d) = \frac{1}{13} * \frac{1}{13} * \frac{1}{13} * \frac{1}{13} = \frac{1}{28561}$

The model assigned the class c_1 to the document.

Programming Task

OUTPUT: