Assignment 3

Train set

1 is for when a word in the bag of words is detected and 0 otherwise.

Happy	Great	Bad	Return	Outcome
1	0	1	0	Positive
1	1	0	0	Positive
1	1	1	0	Positive
1	1	0	0	Positive
1	1	1	0	Positive
1	0	1	0	Positive
o	0	1	1	Negative
0	0	1	0	Negative
1	1	1	1	Negative
0	0	0	1	Negative

	Positive	Negative
Happy	1	1/4
Great	2/3	1/4
Bad	2/3	3/4
Return	0	3/4

Testing Set

Happy	Great	Bad	Return	Classification
0	1	0	1	Negative
1	1	0	1	Positive

For testing data 1:

x = (Great, return)

P(positive | x) = (2/3)*(0)(3/5) = 0

P(negative | x) = (1/4)(3/4)(2/5) = 0.075

For testing data 2:

x = (Happy, Great, return)

P(positive | x) = (1)(2/3)(1/4) (3/5)= 0.1

P(negative | x) = (1/4) (1/4)(3/4) (2/5)= 0.019

For Number 2:

The solution to make the predictions more accurate could be have more data and also increasing the number of iterations and changing the learning rate. I know that at some point during the learning process, the perceptron won't be able to update its weights by much; that's a caveat to keep in mind.