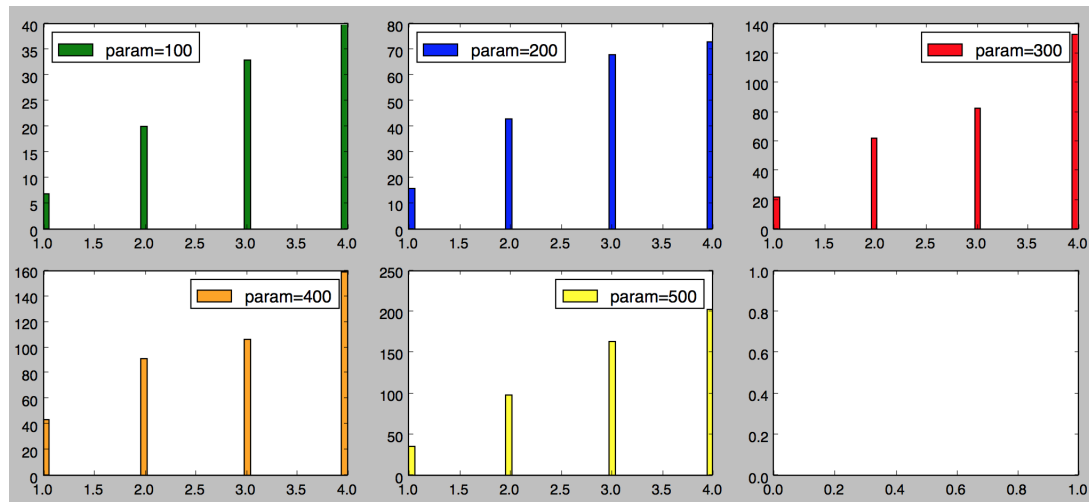


## Problem 1 (boosting)

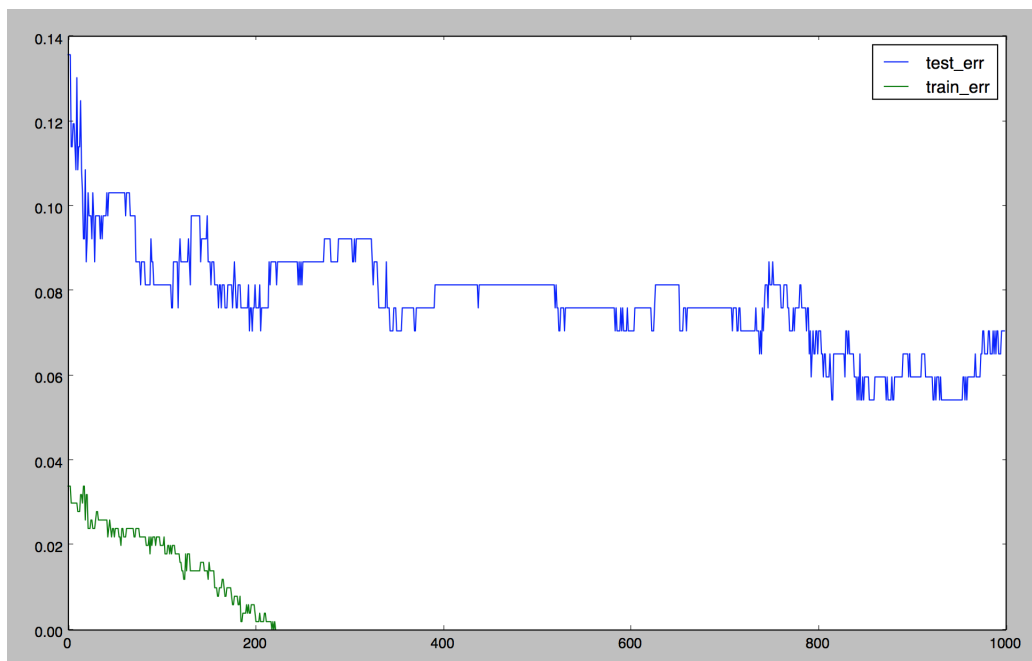
### Part 1

My solution involved creating a cumulative sum of weight vector  $w$ , and selecting an element from this vector by using python's `random.random()` function.



### Part 2

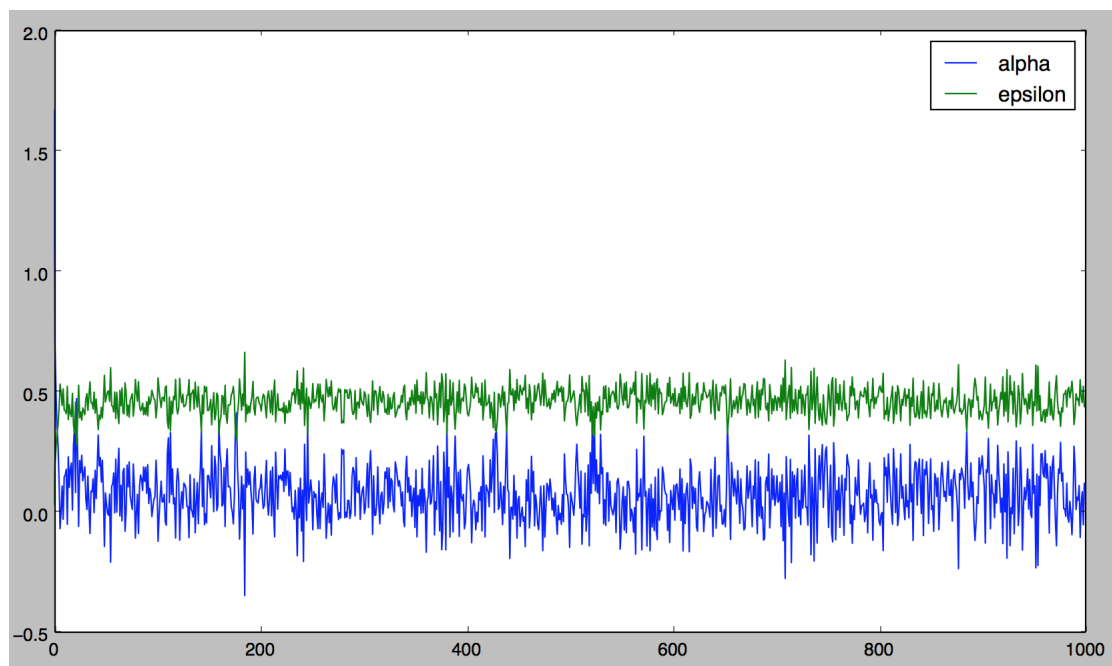
2. On a single plot, show the training and testing error as a function of iteration  $t$ .



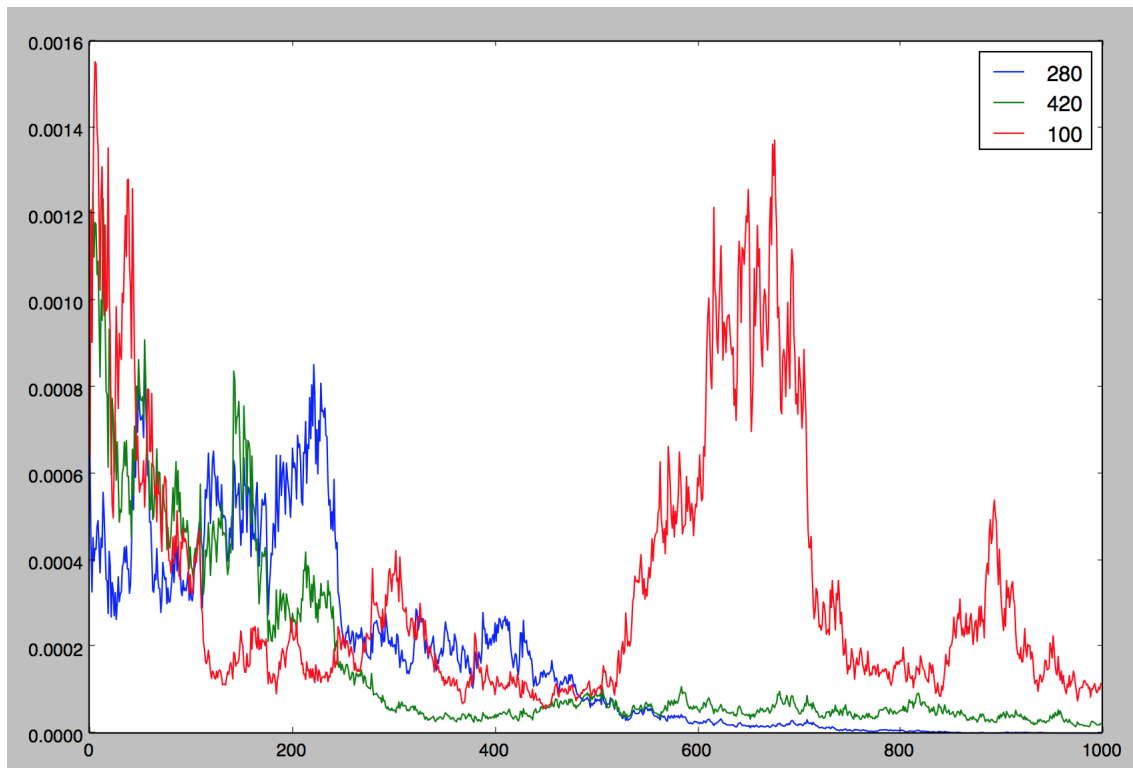
3. Indicate the testing accuracy by learning the Bayes classifier on the training set without boosting.
4. Plot  $\alpha_t$  and  $\epsilon_t$  as a function of  $t$ .

	-1	1
-1	54	27
1	2	101

Table 1: Confusion matrix for Binary Bayes Classifier, accuracy .8423

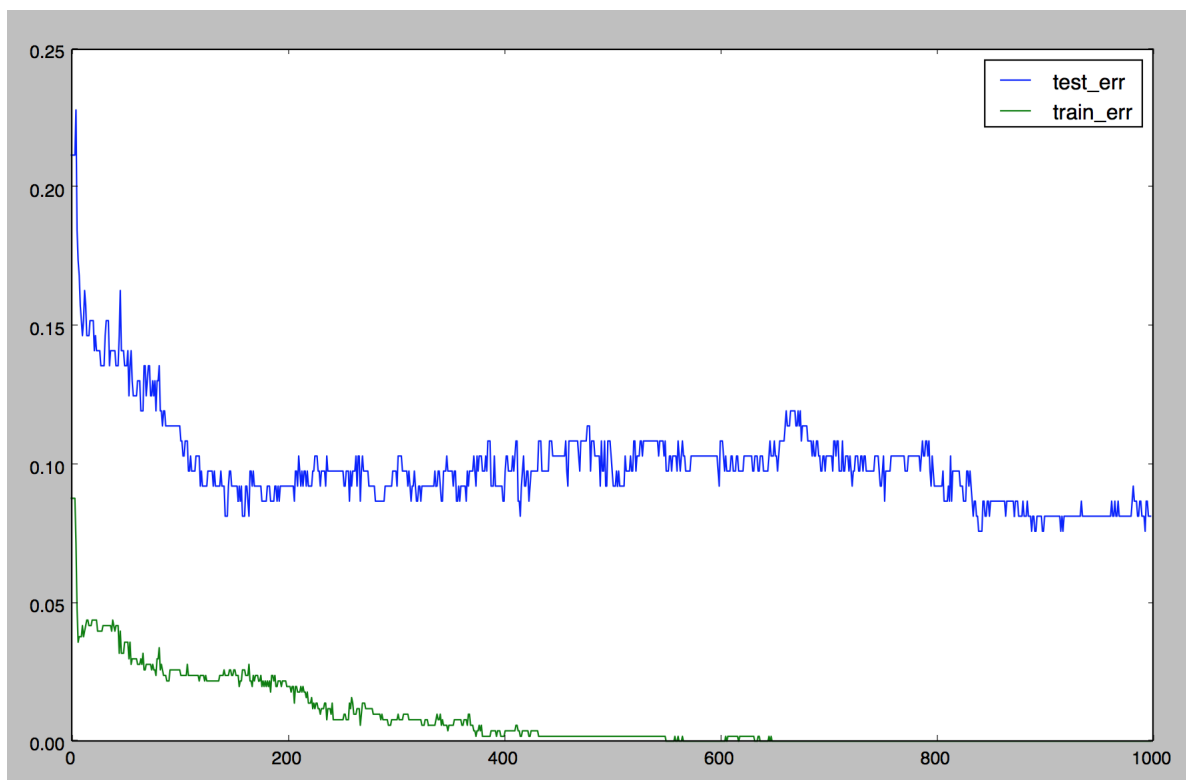


5. Pick 3 data points and plot their corresponding  $wt(i)$  as a function of  $t$ . Select the points such that there is some variation in these values.



### Part 3

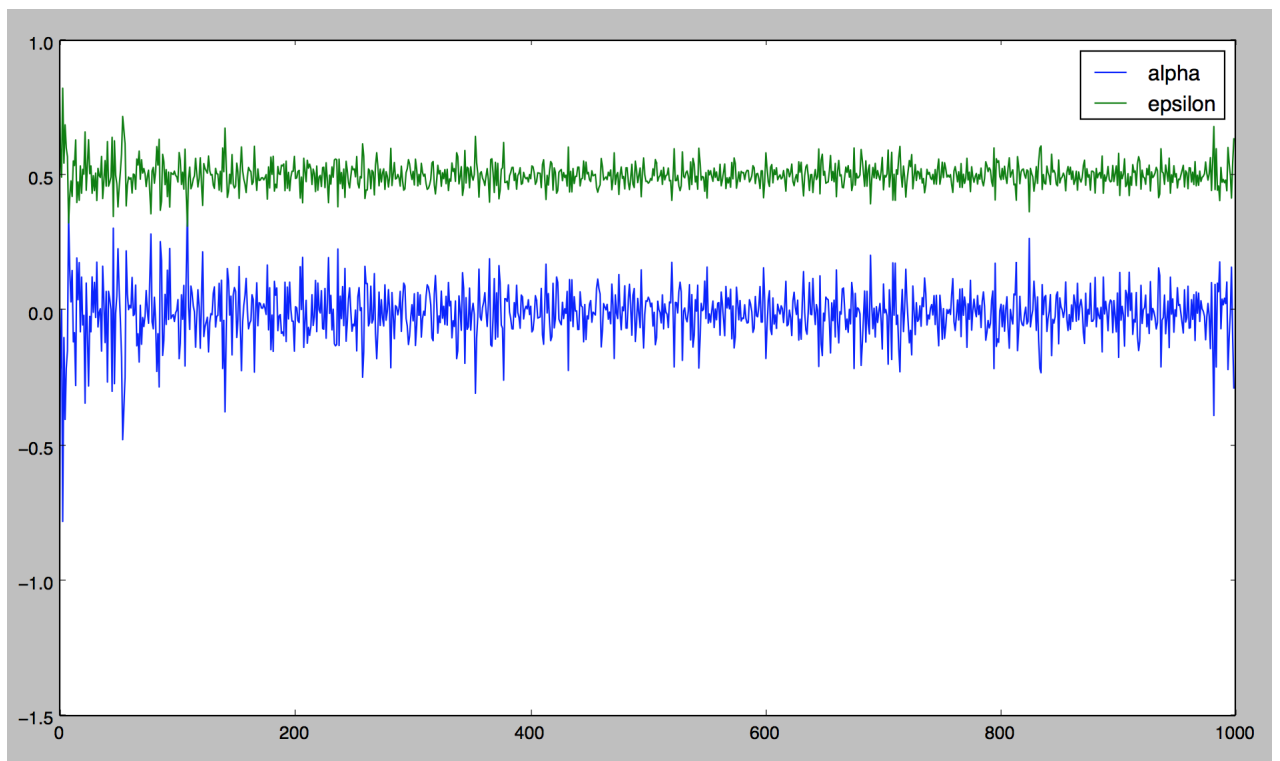
2. On a single plot, show the training and testing error as a function of iteration  $t$ .



3. Indicate the testing accuracy by learning the logistic regression model on the training set without boosting.

For this problem, I implemented a binary logistic regression classifier.

4. Plot  $\alpha_t$  and  $\epsilon_t$  as a function of  $t$ .



5. Pick 3 data points and plot their corresponding  $wt(i)$  as a function of  $t$ . Select the points such that there is some variation in these values.

