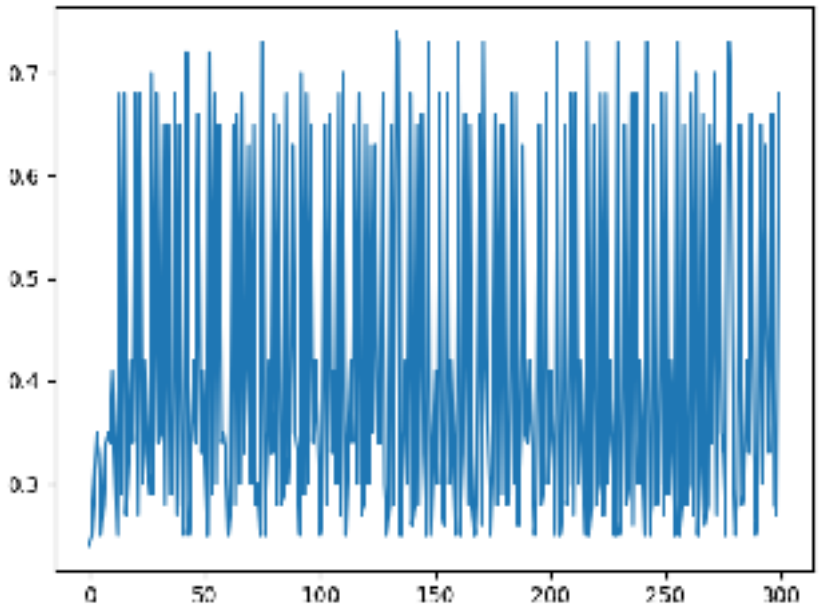
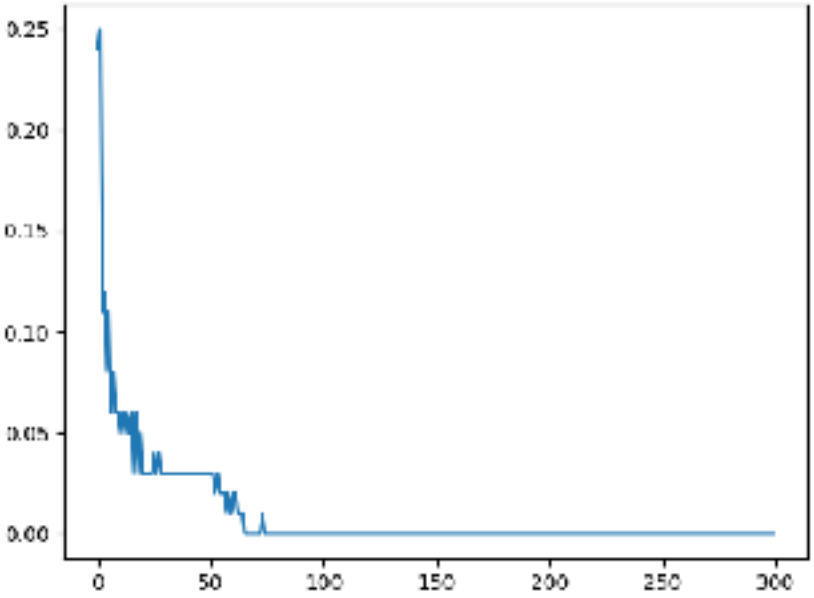
11.
Ein(g1) = 0.24
Alpha1 = 0.5763397549691924
Figure 1: t versus Ein(gt)



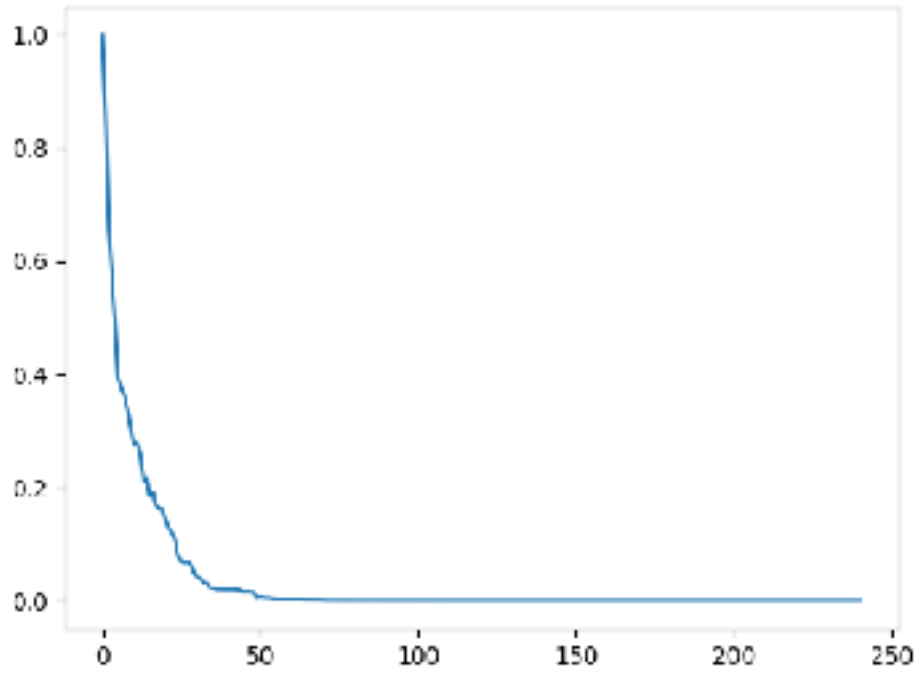
12.

Ein(gt) does not always decreases or increases while t getting larger. Instead, it seems that there are several peak along with a fast decreasing. From the course, we know that adaBoost decides a new g by modifying the weight of the data. In this case, g only depends on one dimension. Therefore, it cannot fit the real answer very well. Moreover, it can be mislead by the weighted data so that the error increases.

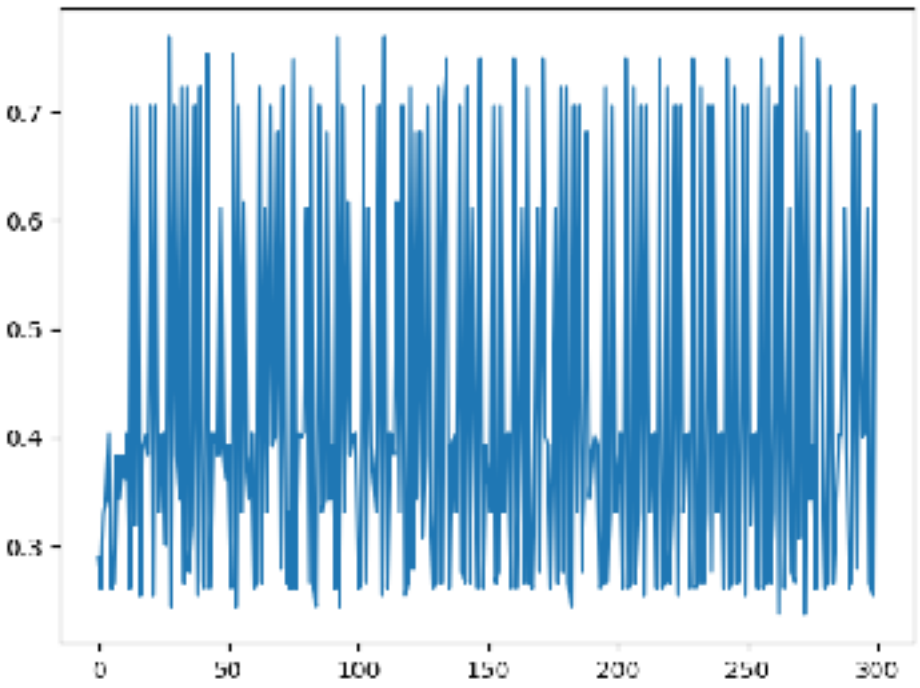
13.
Ein(G) = 0
Figure 2: t versus Ein(Gt)



14.
U2 = 0.8541662601625051
Ut is too small and becomes NaN.
Figure3: t versus Ut



15.
Eout(g1) = 0.29
Figure 4: t versus Eout(gt)



16.
Eout(G) = 0.132
Figure 5: t versus Eout(G)