**Assignment2**

**Q1:**

The code is submitted in the code files section.

Chart, bar chart, histogram

Description automatically generated**Q2:**



Chart, bar chart, histogram

Description automatically generated

1. * Sample size:  
     We expected that smaller sample size will have smaller training error because there is a better chance that the sample have larger soft margin. In addition, we expected that smaller sample will have larger test error because it might not reflect the distribution as well. The results of both experiments matche our expectations.
   * Training error as function of   
     Since Soft-SVM goal is to find that minimize: , we expected that larger values of will take over the hinge loss, which means that the quadradic program will prefer to minimize and ignore the error on the sample. that is why we expected that the training error as a function of will be increasing, just like we see in the second plot.
   * Test error as a function of :