CIS 680

Homework 3

1.1)
Final test accuracy = 67.54 %
Total training time : 2.5 hours
Number of multiplications = 1554432

1.2)

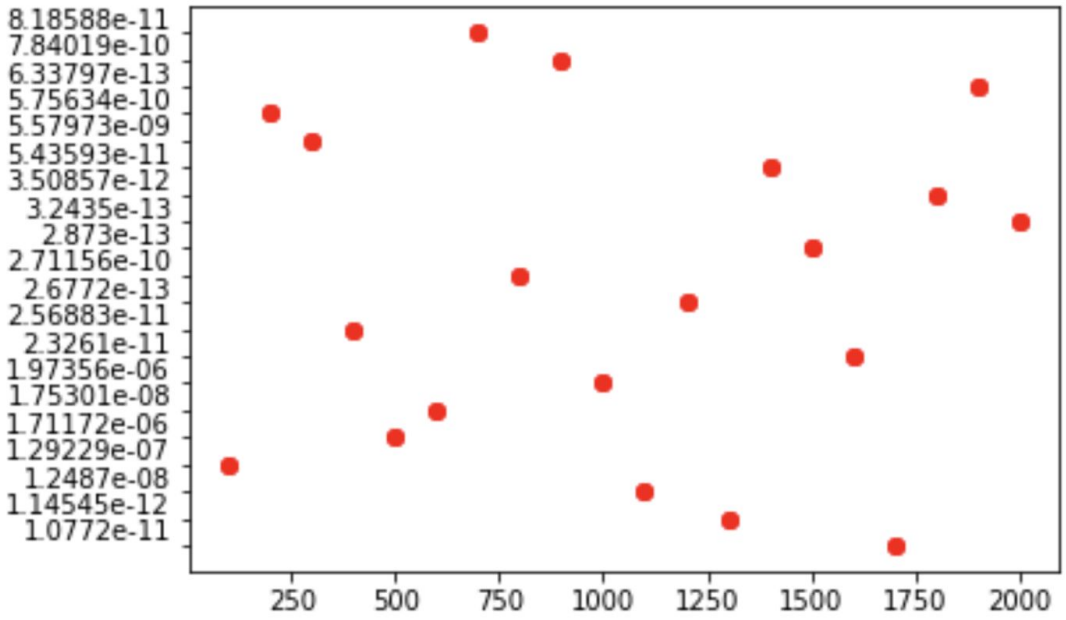
Final test accuracy = 32.6 %
Total training time : 1.5 hours
Number of multiplications = 380928

1.3)

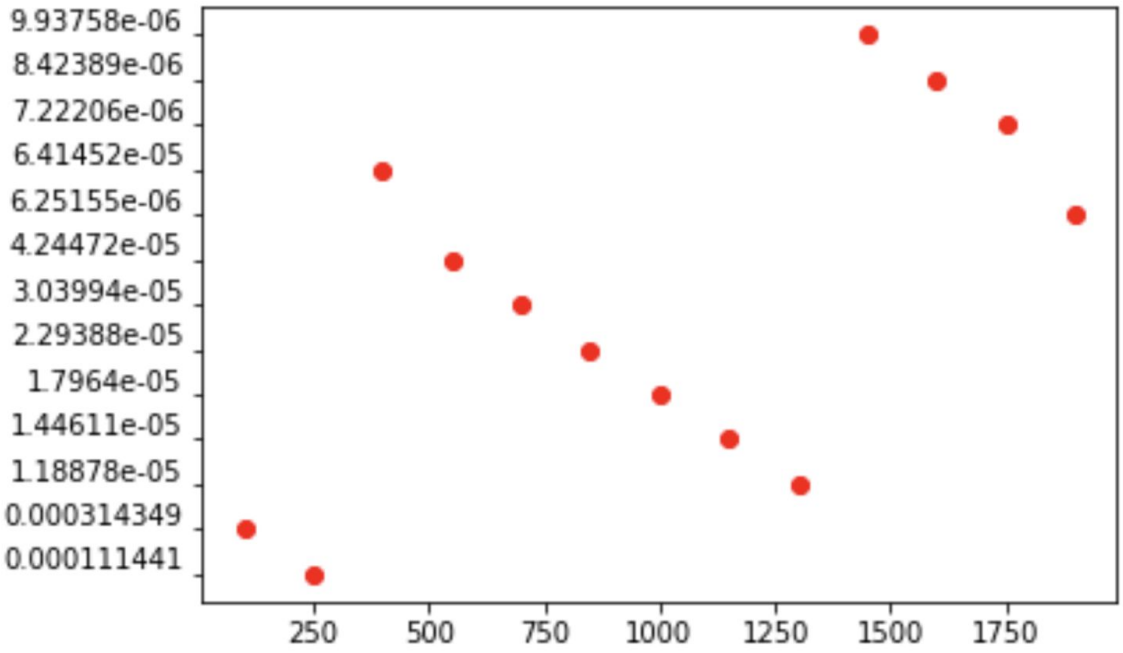
Final test accuracy = 72 %
Total training time : 3 hours
Number of multiplications = 1259025

1.4) We see highest accuracy in Residual network . This is because of the number of parameters in the network. Mobile net has the least number of parameters among the three and hence its accuracy is so low. Networks with residual blocks have comparable accuracy with the base network. Mobile net has the fastest training time due to the low number of parameters. It is mostly used in smartphones for various small tasks. Hence the accuracy obtained from this should suffice for these purposes.

2.1) Test accuracy = **98.8 %**



2.2) Test regression loss = **7.28492 e-05**

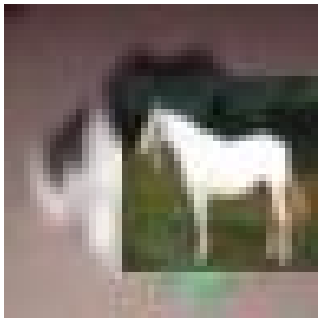


3.1)

Image 1:

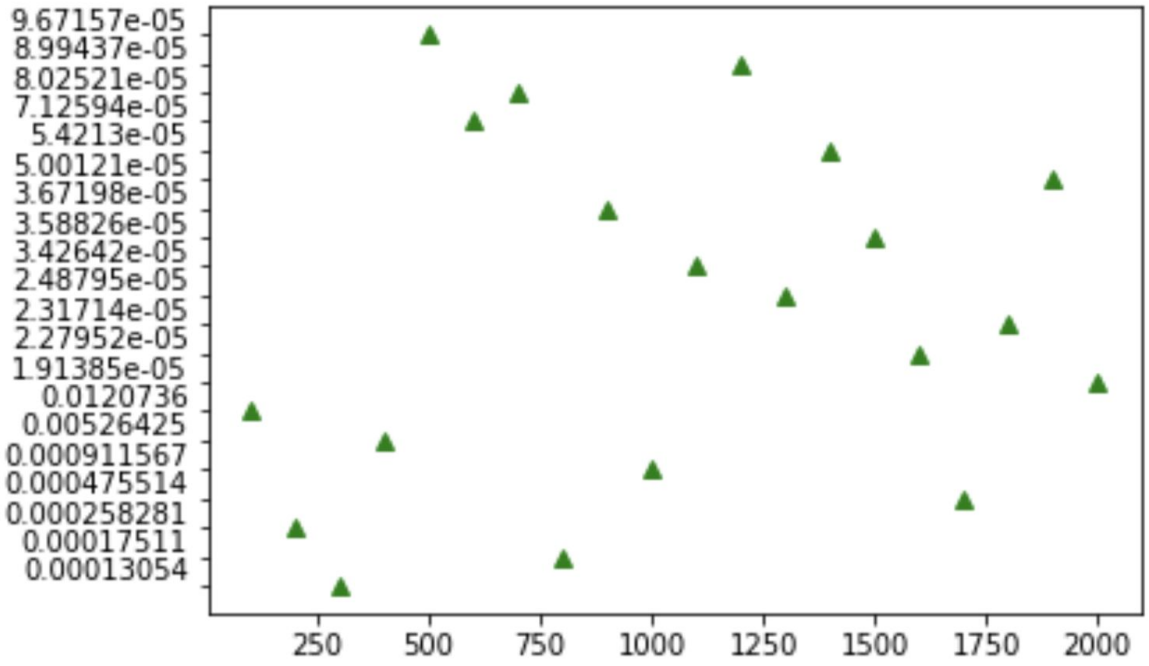

Image 2:


Image 3:

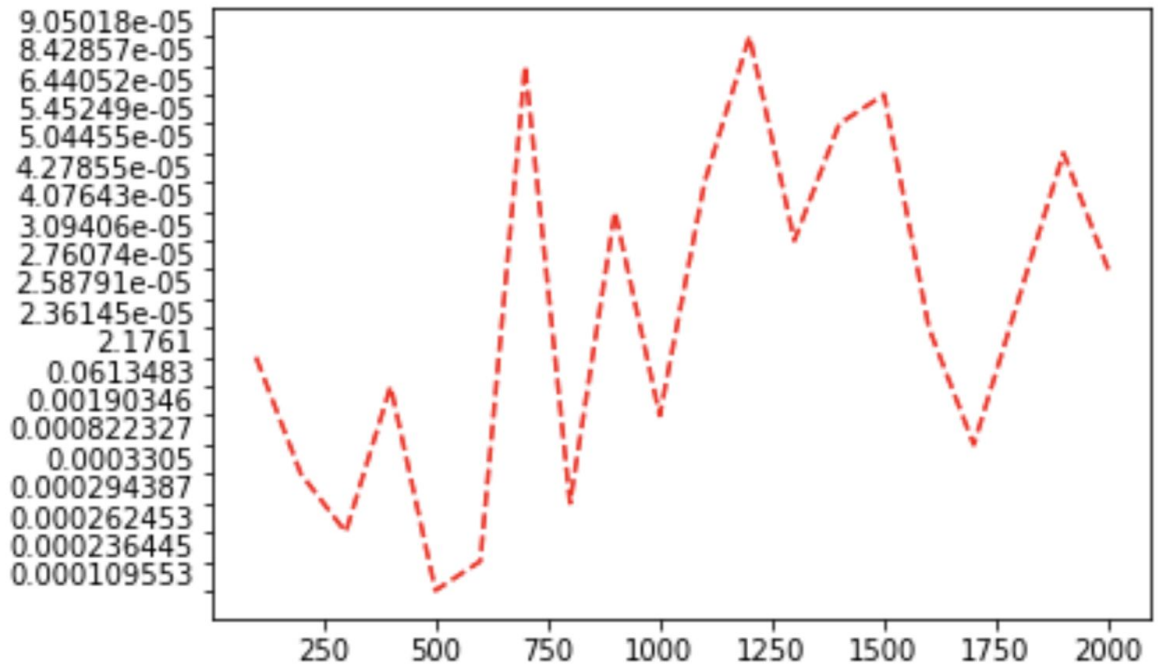



3.2)

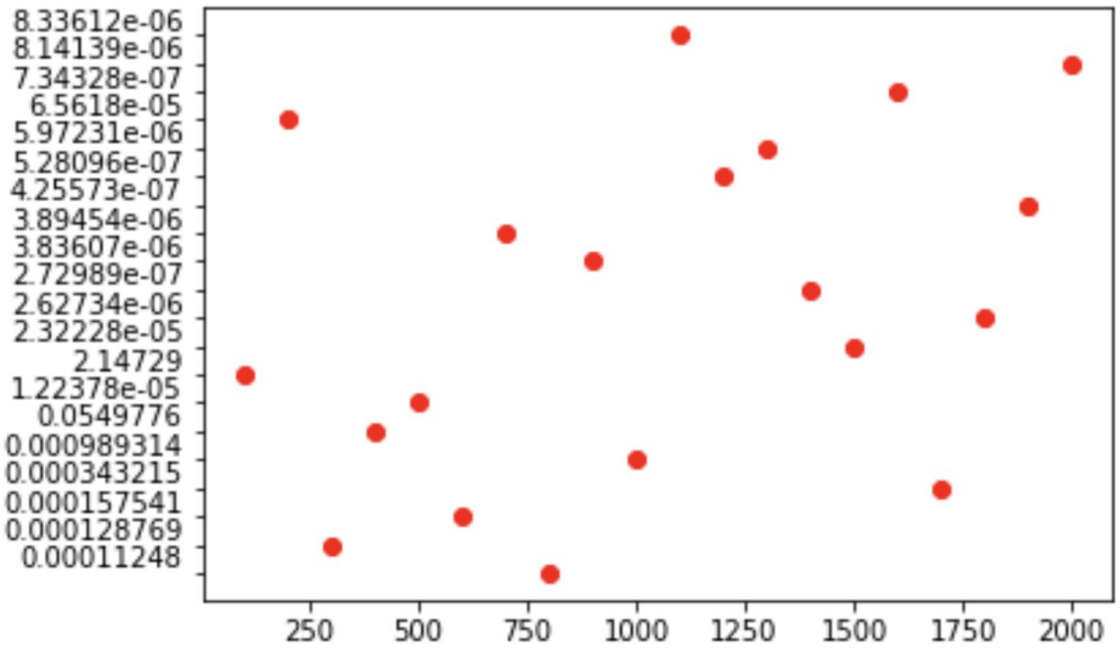
Regression loss vs training iterations



Object Classifier loss vs Training iterations



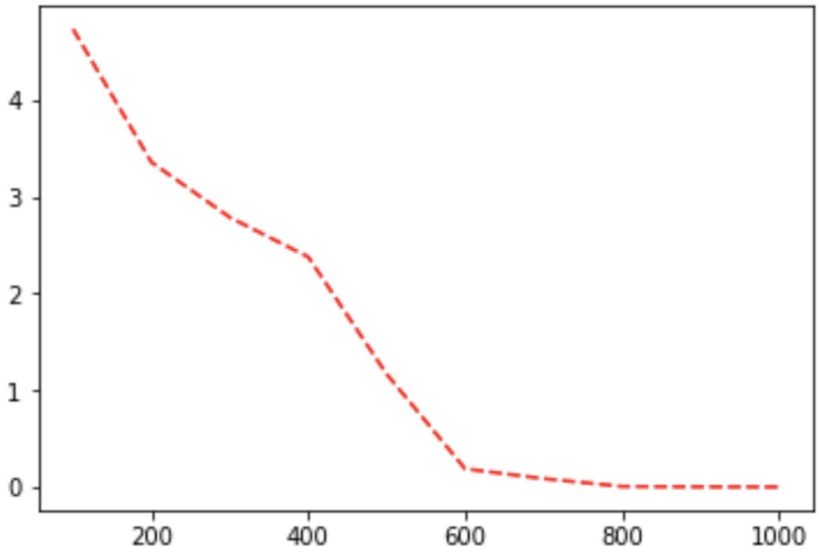
Proposal classification loss vs Training iterations



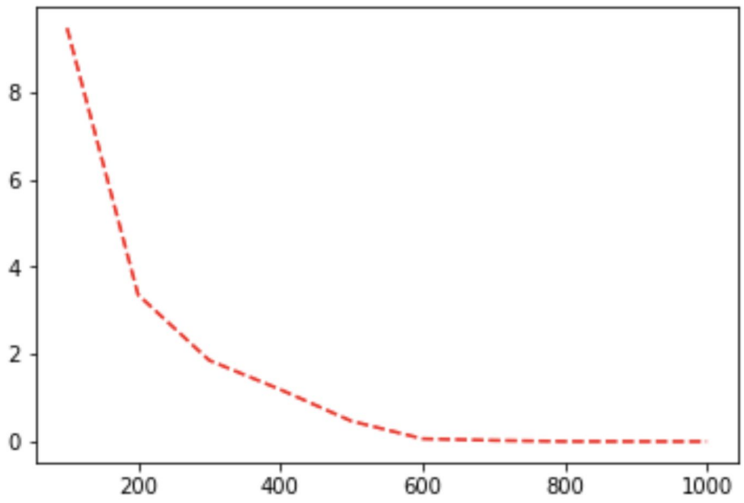
Classification accuracy : 51.5 %

3.3) Here the network was trained only for 1000 iterations using GPUs on AWS. Since the openly available ones are not very powerful GPUs the training took really long time. Hence the results are accordingly.

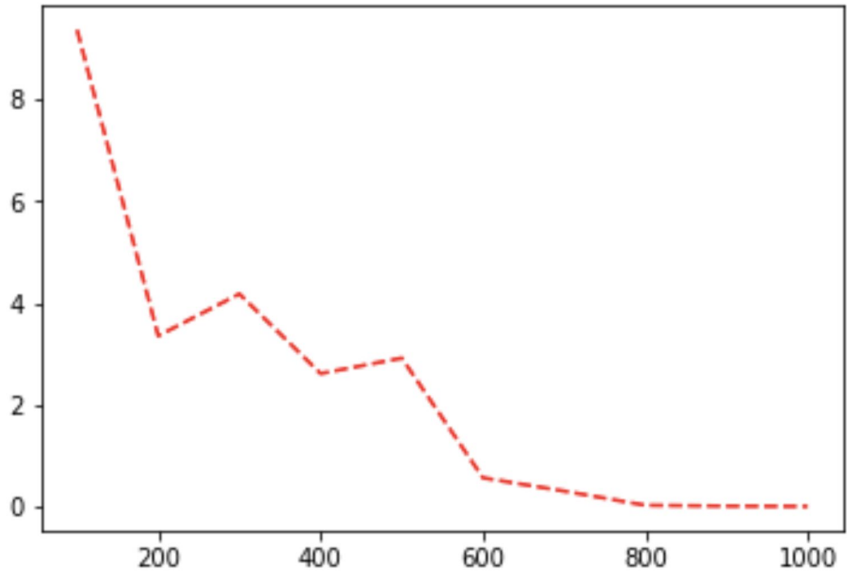
Regression loss **vs** training iterations



Object Classifier loss **vs** Training iterations



Proposal classification loss vs Training iterations



As the network was not completely trained the test accuracy was very low, 28 %.