SMAI Assignment 2

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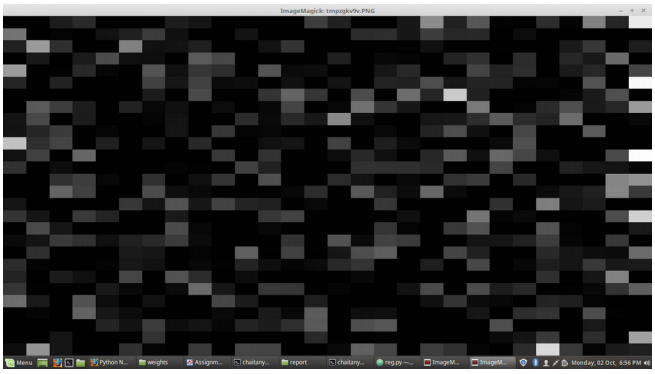
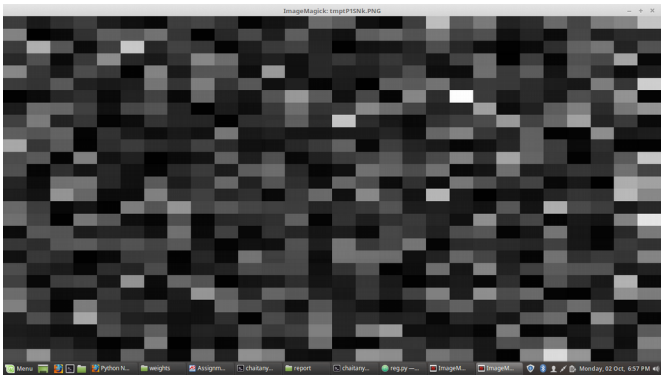
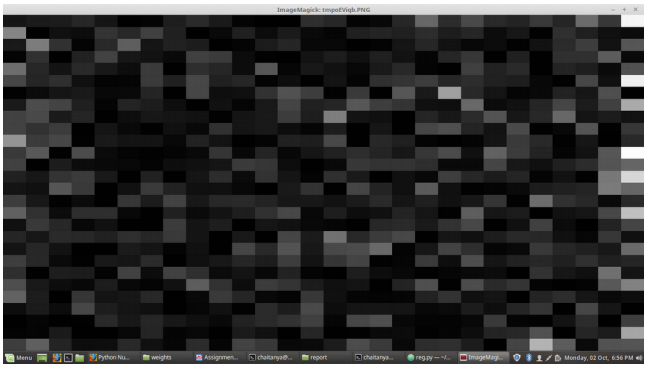
Question 3

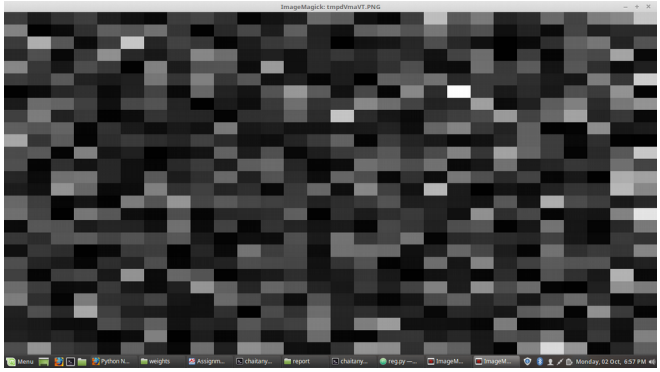
lambda = 0.1 (L1 / L2)





lambda = 1 (L1 / L2)





Testing of different values of lambda

method , lambda : accuracy

l1 , 0.001 : 0.955516014235

l1 , 0.01 : 0.953736654804

l1 , 0.1 : 0.940391459075

l1 , 1.0 : 0.94128113879

l1 , 10.0 : 0.938612099644

l1 , 100.0 : 0.94128113879

l1 , 1000.0 : 0.939501779359

l2 , 0.001 : 0.936832740214

l2 , 0.01 : 0.936832740214

l2 , 0.1 : 0.935943060498

l2 , 1.0 : 0.936832740214

l2 , 10.0 : 0.934163701068

l2 , 100.0 : 0.936832740214

l2 , 1000.0 : 0.935943060498

lambda = 0.001 is giving better accuracy

l1 , 0.01 : 0.953736654804

l1 , 0.05 : 0.942170818505

l1 , 0.1 : 0.940391459075

l1 , 0.5 : 0.938612099644

l1 , 1 : 0.943060498221

l1 , 5 : 0.940391459075

l2 , 0.01 : 0.936832740214

l2 , 0.05 : 0.936832740214

l2 , 0.1 : 0.935943060498

l2 , 0.5 : 0.935053380783

l2 , 1 : 0.936832740214

l2 , 5 : 0.935053380783

l1 , 0.0001 : 0.946619217082

l1 , 0.001 : 0.955516014235

l1 , 0.01 : 0.952846975089

l2 , 0.0001 : 0.940391459075

l2 , 0.001 : 0.936832740214

l2 , 0.01 : 0.936832740214

Finding near best value

1 , 0.001 : 0.955516014235

l1 , 0.003 : 0.959964412811

l1 , 0.005 : 0.957295373665

l2 , 0.001 : 0.936832740214

l2 , 0.003 : 0.935053380783

l2 , 0.005 : 0.935943060498

Hence L1 with C=0.003 is the best working model.