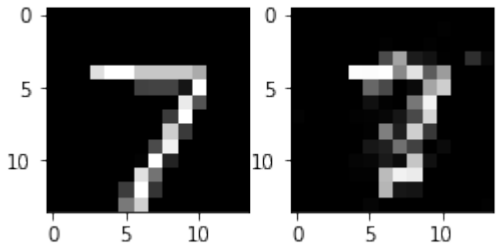
Sparsity AutoEncoder -

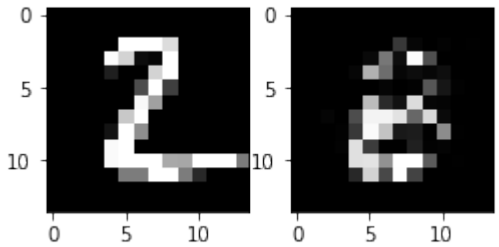
1) Learning rate = 1*e-4 & sparsity = 0.1

```
Epoch: 1  Loss: 3368957.6918975683
Epoch: 2  Loss: 2402929.634990212
Epoch: 3  Loss: 1923783.6323897403
Epoch: 4  Loss: 1651474.673853553
Epoch: 5  Loss: 1504166.36875371
Epoch: 6  Loss: 1420939.6700983313
Epoch: 7  Loss: 1366613.6591664867
Epoch: 8  Loss: 1327127.264635439
Epoch: 9  Loss: 1296167.7281040756
Epoch: 10  Loss: 1271047.6538024924
Epoch: 11  Loss: 1249535.6617194344
Epoch: 12  Loss: 1230668.9034344275
Epoch: 13  Loss: 1213672.3513468308
Epoch: 14  Loss: 1198052.9157260505
Epoch: 15  Loss: 1183609.498093937
Epoch: 16  Loss: 1170138.3562950934
Epoch: 17  Loss: 1157530.048422691
Epoch: 18  Loss: 1145717.7647868318
Epoch: 19  Loss: 1134815.05532221
Epoch: 20  Loss: 1124514.0833880862
Epoch: 21  Loss: 1114995.285087452
Epoch: 22  Loss: 1105925.18325028
Epoch: 23  Loss: 1097526.4354822696
Epoch: 24  Loss: 1089382.2684094887
Epoch: 25  Loss: 1081696.000810501
Epoch: 26  Loss: 1074112.5818626473
Epoch: 27  Loss: 1066849.799929598
Epoch: 28  Loss: 1059797.1273492046
Epoch: 29  Loss: 1052978.6675585741
Epoch: 30  Loss: 1046346.4880389076
Epoch: 31  Loss: 1040019.7079633353
Epoch: 32  Loss: 1033816.737801115
Epoch: 33  Loss: 1027912.3481645291
Epoch: 34  Loss: 1022369.5336456005
Epoch: 35  Loss: 1017136.3717254831
Epoch: 36  Loss: 1012132.3144084552
Epoch: 37  Loss: 1007497.7130712189
Epoch: 38  Loss: 1003027.5966546332
Epoch: 39  Loss: 998780.4080901564
Epoch: 40  Loss: 994629.0718193055
Epoch: 41  Loss: 990644.4018592389
Epoch: 42  Loss: 986730.1143096929
Epoch: 43  Loss: 982955.1986123009
Epoch: 44  Loss: 979371.7774240264
Epoch: 45  Loss: 975939.9364995128
Epoch: 46  Loss: 972607.6324105962
Epoch: 47  Loss: 969417.3280849153
Epoch: 48  Loss: 966316.913399142
Epoch: 49  Loss: 963457.8938717805
Epoch: 50  Loss: 960507.1743253325
Epoch: 51  Loss: 957779.8821590255
Epoch: 52  Loss: 955001.054625012
Epoch: 53  Loss: 952275.2823717336
```

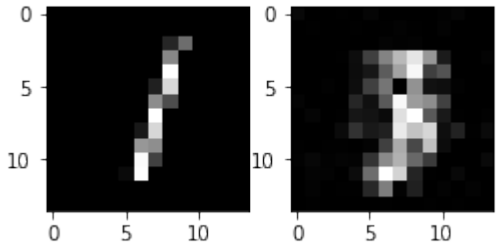
```
Epoch: 54  Loss: 949527.7267816252
Epoch: 55  Loss: 946793.1186644211
Epoch: 56  Loss: 944093.4969078844
Epoch: 57  Loss: 941307.1234707756
Epoch: 58  Loss: 938482.4568571697
Epoch: 59  Loss: 935416.1474989405
Epoch: 60  Loss: 932090.2157968605
Epoch: 61  Loss: 928348.3273069063
Epoch: 62  Loss: 924226.19546547
Epoch: 63  Loss: 919779.1674679986
Epoch: 64  Loss: 915078.2401353857
Epoch: 65  Loss: 910223.7463206481
Epoch: 66  Loss: 905276.8690305906
Epoch: 67  Loss: 900273.7389636479
Epoch: 68  Loss: 895459.5512202884
Epoch: 69  Loss: 890804.4035853966
Epoch: 70  Loss: 886356.7272656596
Epoch: 71  Loss: 882236.7280012697
Epoch: 72  Loss: 878369.3308133013
Epoch: 73  Loss: 875109.4650573498
Epoch: 74  Loss: 872515.5672799172 &so on
```



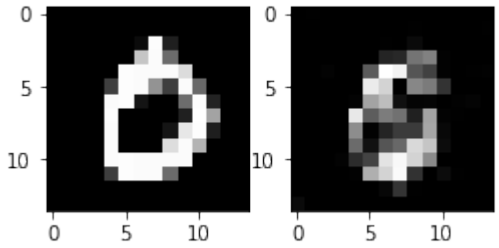
0.10804155687104096



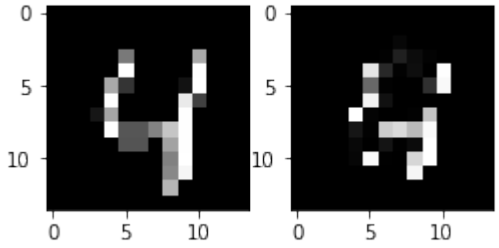
0.10706568864178621



0.04438378954587863



```
0.07812827369433466
```



```
0.24219476162175088
```

2) Learning rate = 2*e-4 & sparsity = 0.05

You can observe in both the caes average value calculated is equal to sparsity.