Deep Learning HW1

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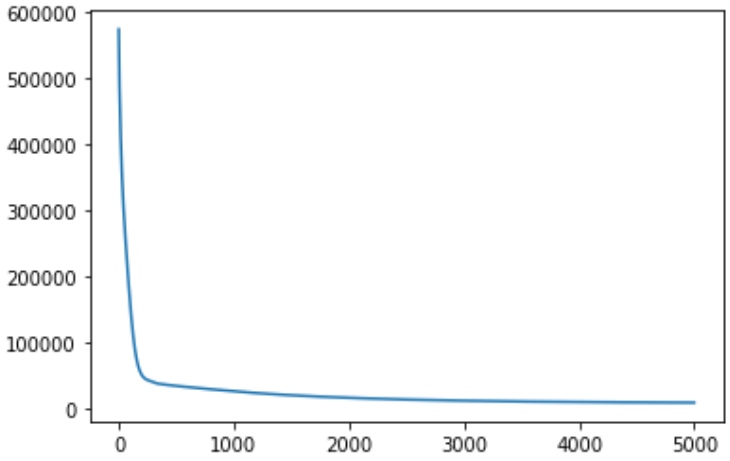
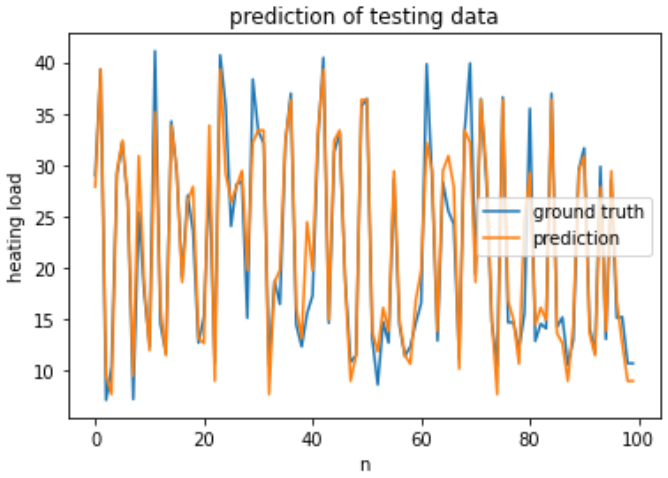
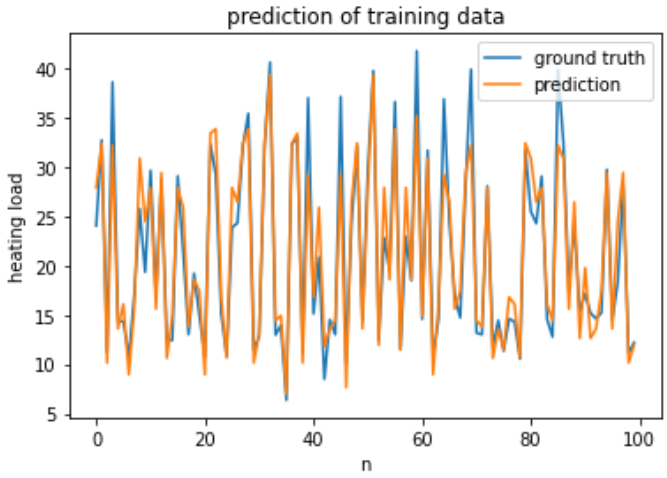
1. Regression

Network architecture	17 – 8 – ReLU – 1
Selected feature	# Relative Compactness, Wall Area, Roof Area, Overall Height, Glazing Area

```
train_RMS 2.9242025153436026
test_RMS 2.7398012244328807
```







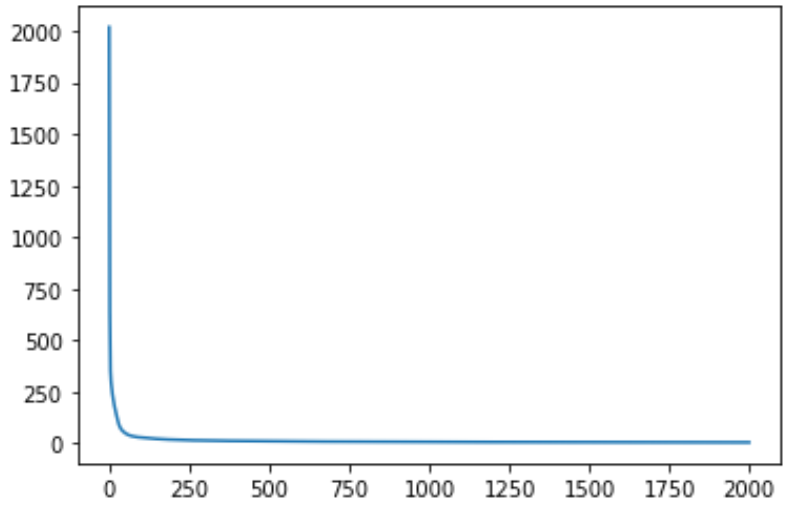
(c) Procedure of choosing different features:

The network has a hidden layer which dimension is 8, so the weights between the input layer and the hidden is (15x8), I added elements in each row, and get 15 values at the right figure, which I thought are the weight if importance of each input feature. Hence, I picked up the first five features.

```
12.024158778320254
8.607848474318187
27.539509264728796
19.788094071028354
34.7325965393892
15.908152057966543
6.529355981082303
7.818680570009844
7.842636794483871
7.091907268884539
8.132472501175988
7.940996129584173
5.703566926524596
5.824413640345829
4.517863322907406
7.542512555303574
8.870858763221001
```

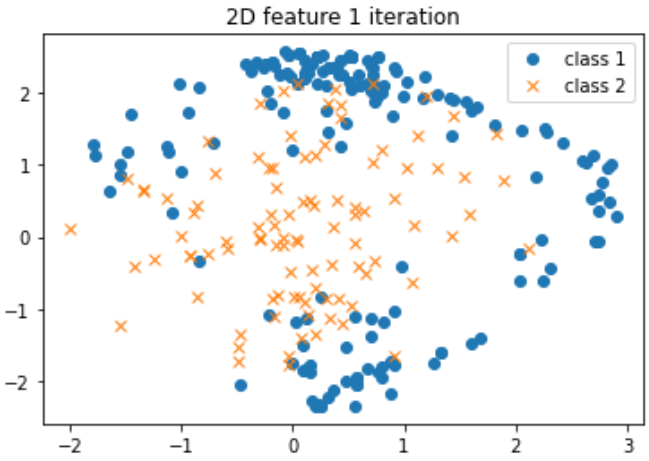
2. Classification

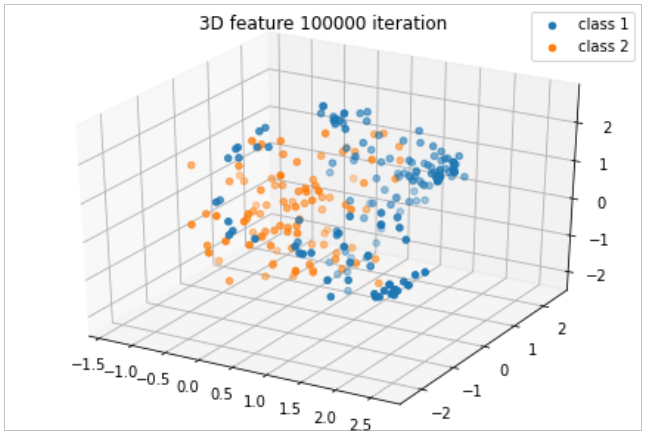
Network architecture	35 – 50 – ReLU – 1
Training error rate	0 / 280
Test error rate	7 / 71

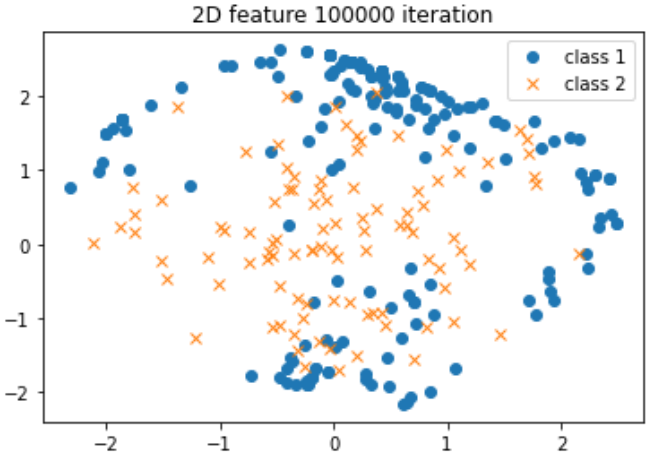


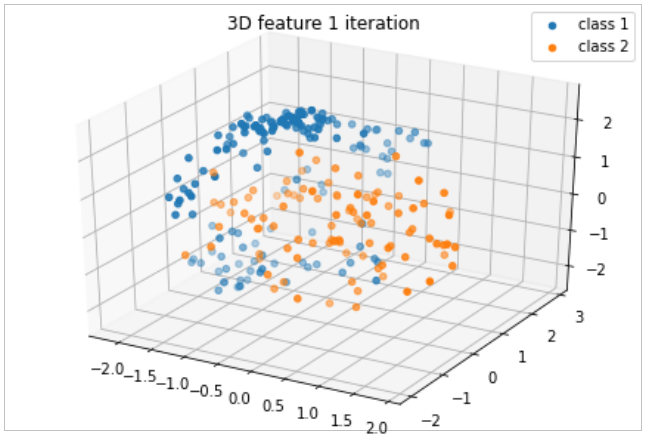
(c)

1. train with one hidden layer, dimension=50









2. train with one hidden layer, dimension=100