CS486 A4 Q3

1.

```
#define ACCEPT_TRAIN  0.5
#define MAX_EPOCH  2
#define MIN_ERRORS  2000
#define TRAINING_PROPORTION  0.1

nn.n_input = 64;
nn.n_hidden = 50;
nn.n_output = 10;
nn.learning_rate = 0.300;
nn.k = 2.000;

Training epochs =     1
Classification errors on training data = 229 (/282)
Classification errors on test data = 1440 (/2541)
```

I think I need to increase the max_epoch, training_proportion and min_errors.

2.

```
#define ACCEPT_TRAIN  0.49999
#define MAX_EPOCH  10
#define MIN_ERRORS  50
#define TRAINING_PROPORTION  0.5

nn.n_input = 64;
nn.n_hidden = 50;
nn.n_output = 10;
nn.learning_rate = 0.300;
nn.k = 2.000;

Training epochs =     6
Classification errors on training data = 49 (/1411)
Classification errors on test data = 137 (/1412)
```

I will try minimizing the hidden nodes, minimizing the min_error on next round.

3.

```
#define ACCEPT_TRAIN  0.49999
#define MAX_EPOCH  100
#define MIN_ERRORS  5
#define TRAINING_PROPORTION  0.5

nn.n_input = 64;
nn.n_hidden = 30;
```

```
nn.n_output = 10;
nn.learning_rate = 0.300;
nn.k = 2.000;

Training epochs =    52
Classification errors on training data = 5 (/1411)
Classification errors on test data = 58 (/1412)
```

I am considering trying different learning rate and k next step.

4.
I try different k from 0.3 to 3.6, and different learning rate from 0.2 to 0.35. I cannot find any better performance. I believe that the trial 3 above is the best situation.

Then I repeat the same setting as in trial 3 a few times and submit the best performance trial.