Homework 1 Report

- Environment: MAC OS X Yosemite 10.10.05

- Compilation:

```
$ make
```

- Execution:

  1. Training:

```
$ ./train [iteration] model_init.txt seq_model_[xx].txt model_[xx].txt
```

  2. Testing:

```
$ ./test [iteration] model_init.txt seq_model_[xx].txt model_[xx].txt
```

  3. Accuracy Computation:

```
$ ./accuracy [iteration] model_init.txt seq_model_[xx].txt model_[xx].txt
```

- Results:

  The final correction rate is about 86.08% if we run learning process of every model for 1000 iterations.

- Features:

```
$ ./run.sh      /* run compilation, execution, and accuracy computation */
```

  An interesting feature is that the accuracy isn't proportional to the iterations of learning, while the time cost is proportional to the iterations obviously. The chart below shows the trend of accuracy and time cost with respect to the iterations.
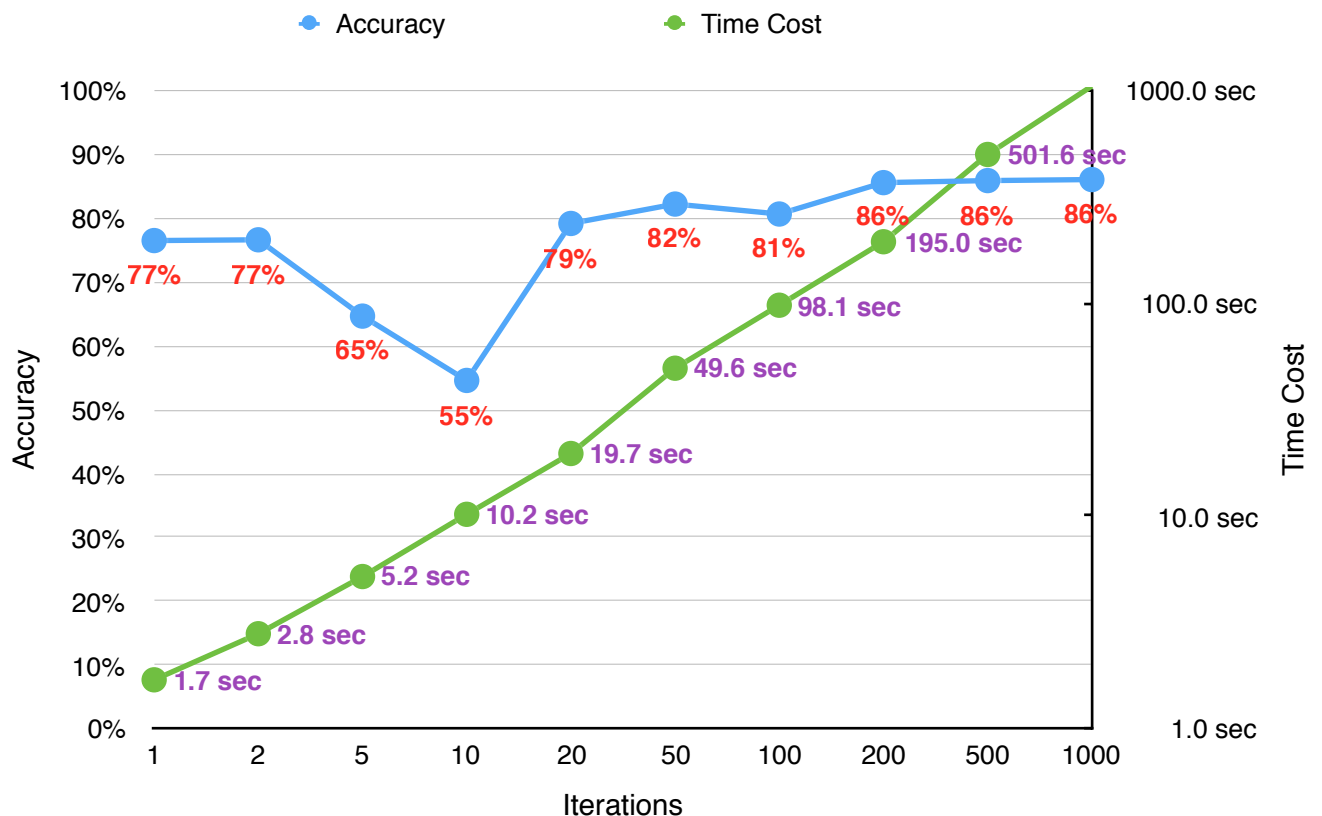
- Testing Screen Shot

```
[Qhan@Qhan-Mac: ~/dsp/hw1/final_version] 44
$ time ./run.sh
gcc -O3 train.c -o train
gcc -O3 test.c -o test
gcc -O3 accuracy.c -o accuracy
./train 1000 model_init.txt seq_model_01.txt model_01.txt
./train 1000 model_init.txt seq_model_02.txt model_02.txt
./train 1000 model_init.txt seq_model_03.txt model_03.txt
./train 1000 model_init.txt seq_model_04.txt model_04.txt
./train 1000 model_init.txt seq_model_05.txt model_05.txt
./test modellist.txt testing_data1.txt result1.txt
./test modellist.txt testing_data2.txt result2.txt
./accuracy result1.txt testing_answer.txt
accuracy: 0.860800

real    17m31.595s
user    17m19.643s
sys     0m5.163s
```