

## **HW3 Software Engineering Web Applications Course Homework 2**

### **16:332:568:01**

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Ten sets of stock data used in this assignment comes from the GOOGLE's stock. They are strock\_data\_0 to strock\_data\_9. Each of them has a data size of 30. The rest one strock\_data\_10 has the size of 655.

Assume the dataset's size is N, for all the dataset, the data from 1 to N-1 as the training data. After training, the program predicts the stock price at time N, variance absolute mean error and the relative errors. Each time's absolute mean error and the relative errors are calculated and overall absolute mean error and the overall relative mean error after 11 times are also calculated.

The average relative error is very small, which indicates that the model does a quite good job.

However, when the dataset becomes very big, it performs not that good. (See the last one, strock\_data\_10.csv. The reason is that the stock price has change a lot within many years.

The following shows the experiment results.

#### **The 1th input stock dataset from the stock\_data\_0.csv**

Data size: 30

The prediction of N+1 time is 1181.7020126607556 +- 0.2725104249831172

The real value is [1109.5706]

The absolute error is [72.13141266]

The relative error is [0.0650084]

#### **The 2th input stock dataset from the stock\_data\_1.csv**

Data size: 30

The prediction of N+1 time is 1156.6836040740955 +- 0.2725104249831172

The real value is [1106.26]

The absolute error is [50.42360407]

The relative error is [0.04558025]

#### **The 3th input stock dataset from the stock\_data\_2.csv**

Data size: 30

The prediction of N+1 time is 1054.9995339439567 +- 0.2725104249831172

The real value is [1040.61]

The absolute error is [14.38953394]

The relative error is [0.01382798]

#### **The 4th input stock dataset from the stock\_data\_3.csv**

Data size: 30

The prediction of N+1 time is 984.5584799184822 +- 0.2725104249831172

The real value is [987.83]

The absolute error is [3.27152008]

The relative error is [0.00331182]

#### **The 5th input stock dataset from the stock\_data\_4.csv**

Data size: 30

The prediction of N+1 time is 918.9556926756751 +- 0.2725104249831172

The real value is [929.57]

The absolute error is [10.61430732]

The relative error is [0.01141851]

#### **The 6th input stock dataset from the stock\_data\_5.csv**

Data size: 30

The prediction of N+1 time is 985.795028713736 +- 0.2725104249831172

The real value is [970.89]

The absolute error is [14.90502871]

The relative error is [0.01535192]

#### **The 7th input stock dataset from the stock\_data\_6.csv**

Data size: 30

The prediction of N+1 time is 972.4172645507066 +- 0.2725104249831172

The real value is [976.57]

The absolute error is [4.15273545]

The relative error is [0.00425237]

#### **The 8th input stock dataset from the stock\_data\_7.csv**

Data size: 30

The prediction of N+1 time is 852.8944676551126 +- 0.2725104249831172

The real value is [862.76]

The absolute error is [9.86553234]

The relative error is [0.01143485]

#### **The 9th input stock dataset from the stock\_data\_8.csv**

Data size: 30

The prediction of N+1 time is 848.8324670094624 +- 0.2725104249831172

The real value is [843.25]

The absolute error is [5.58246701]

The relative error is [0.00662018]

#### **The 10th input stock dataset from the stock\_data\_9.csv**

Data size: 30

The prediction of N+1 time is 843.2523224246432 +- 0.2725104249831172

The real value is [832.15]

The absolute error is [11.10232242]

The relative error is [0.01334173]

**The 11th input stock dataset from the stock\_data\_10.csv**

Data size: 655

The prediction of N+1 time is 821.8633691187424 +- 0.0954016635000952

The real value is [795.37]

The absolute error is [26.49336912]

The relative error is [0.03330949]

The overall absolute mean error is 20.26653028594687

The overall average relative error is 0.020314319395561817