**Cloud Computing and Big Data Analytics**

**HW3 report**

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1. Brief introduction to implemented algorithms

I implemented two model and use the first one to generate the final prediction

1. stock-prediction.py

Use one layer LSTM model to predict the **Closed Price** of the future day

X\_Input: 60 (continuous data) \* 10 (features)

Y\_Input: Closed Price of 1-60th day

Output: Closed Price of 61th day

Features: Open, High, Low, Close, Adj Close, Volume, Year, Month, Date, Dayofweek

Loss function: mean squared error

1. stock-rate-prediction.py

Same model as A except of adding a softmax layer and the output is the **Rate of Change** of the closed price between two days

Y\_Input: One hot of the rate of change of the closed price

Output: Rate of Change of 61th day

Loss function: binary crossentropy

Accuracy: 70%

1. Reference
2. LSTM reference

<https://www.ycc.idv.tw/tensorflow-tutorial_6.html>

1. 利用Keras建構LSTM模型

<https://medium.com/@daniel820710/%E5%88%A9%E7%94%A8keras%E5%BB%BA%E6%A7%8Blstm%E6%A8%A1%E5%9E%8B-%E4%BB%A5stock-prediction-%E7%82%BA%E4%BE%8B-1-67456e0a0b>

1. Github link

<https://github.com/jasonyl13579/CCBDA-2019-Spring-0760222/tree/master/HW3>

Input data : HW3/data/0510/

Training file: [stock-prediction.py](https://github.com/jasonyl13579/CCBDA-2019-Spring-0760222/blob/master/HW3/stock-prediction.py), [stock-rate-prediction.py](https://github.com/jasonyl13579/CCBDA-2019-Spring-0760222/blob/master/HW3/stock-rate-prediction.py)

Analyze file: [model\_analyze.py](https://github.com/jasonyl13579/CCBDA-2019-Spring-0760222/blob/master/HW3/model_analyze.py)