### Experimenting with xgbclassifer to perform classification

did not work well, using apple price to predict apple movement only

Using only close and lag1 to 10

* Processing: 100%|██████████| 2262/2262 [21:23<00:00, 1.76it/s]
* CPU times: total: 2h 12min 23s
* Wall time: 21min 23s
* Accuracy: 17.20%
* A graph with red and blue lines

  Description automatically generated
* A blue squares with white text

  Description automatically generated

### XGBoost to perform regression

Using only close and lag1 to 10

Processing: 100%|██████████| 2262/2262 [02:44<00:00, 13.73it/s]

Wall time: 2min 44s

A lot more faster can the classifier: from 30 mins to 3 mins

Similar accuracy Accuracy: 16.22%

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Description automatically generated

Accuracy: 16.22%

precision recall f1-score support

Moderate Downtrend 0.12 0.13 0.13 232

Moderate Uptrend 0.16 0.14 0.15 348

Slight Downtrend 0.21 0.18 0.19 464

Slight Uptrend 0.20 0.20 0.20 456

Stable 0.16 0.13 0.14 310

Strong Downtrend 0.13 0.17 0.15 218

Strong Uptrend 0.12 0.16 0.14 234

accuracy 0.16 2262

macro avg 0.16 0.16 0.16 2262

weighted avg 0.17 0.16 0.16 2262

A graph with red and blue lines

Description automatically generated

#### For now, just focus on using apple data to predict apple return.

1. To optimize the processing and ensure a more streamlined approach, we have adjusted the model to run on only 10% of the original time series data.
2. Using close price only, 1 – 20 lag close price, the accuracy 20.59%
3. After the addition of volume data, we observed an accuracy improvement. The model's accuracy decreased from 20.59% to 19.12%.