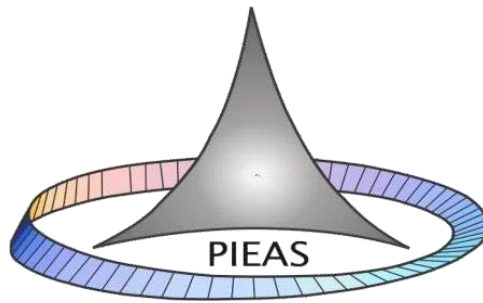


Stock Price Prediction



Submitted to:

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Submitted by:

Group:

Aniq Javed

Usman Asad

Ahmed Raza

**Pakistan Institute of Engineering and
Applied Sciences (PIEAS)**

- **Implementation of Single LSTM layer Model:**

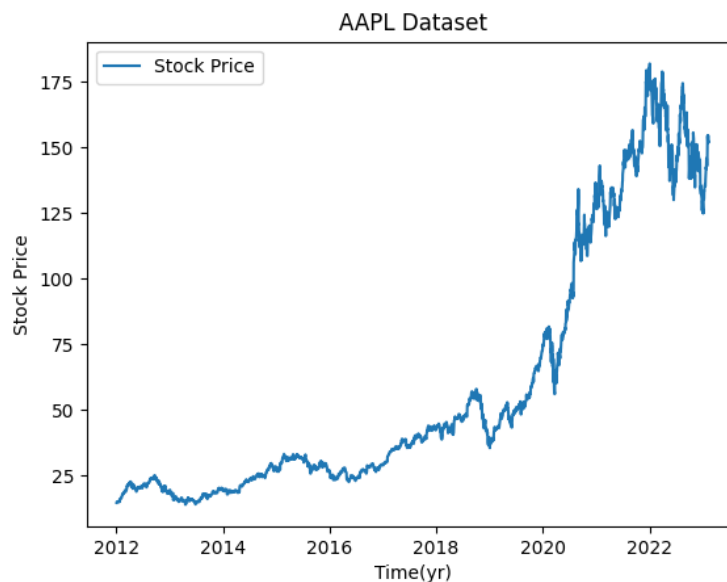
Model:

We have trained and tested our model on four stocks that are Apple, Google, Microsoft, Amazon. We have set batch size to 16 and epochs were 20 an learning rate of 0.0005 of ADAM optimizer and window size of 100.

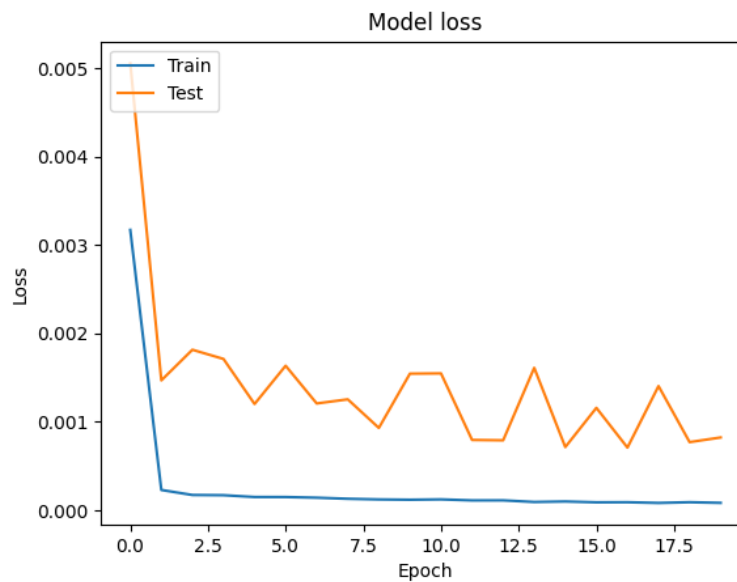
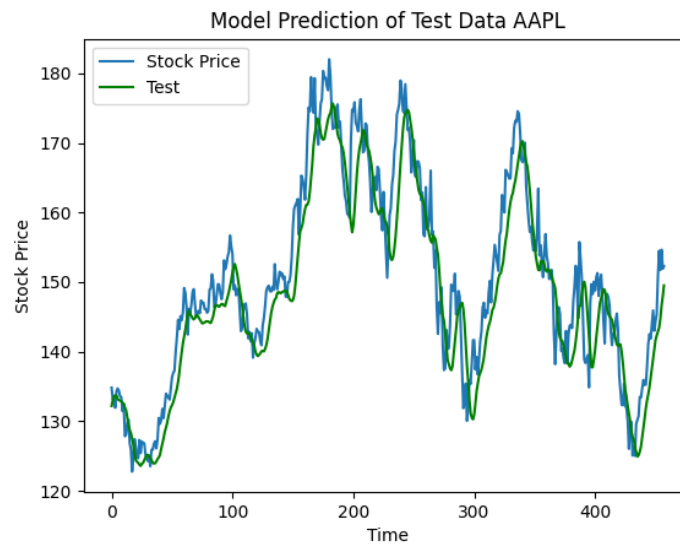
| Layer (type) | Output Shape | Param # |
|--------------------------|--------------|---------|
| lstm_1 (LSTM) | (None, 50) | 10400 |
| dense_1 (Dense) | (None, 1) | 51 |
| Total params: 10,451 | | |
| Trainable params: 10,451 | | |
| Non-trainable params: 0 | | |

AAPL:

1. Dataset



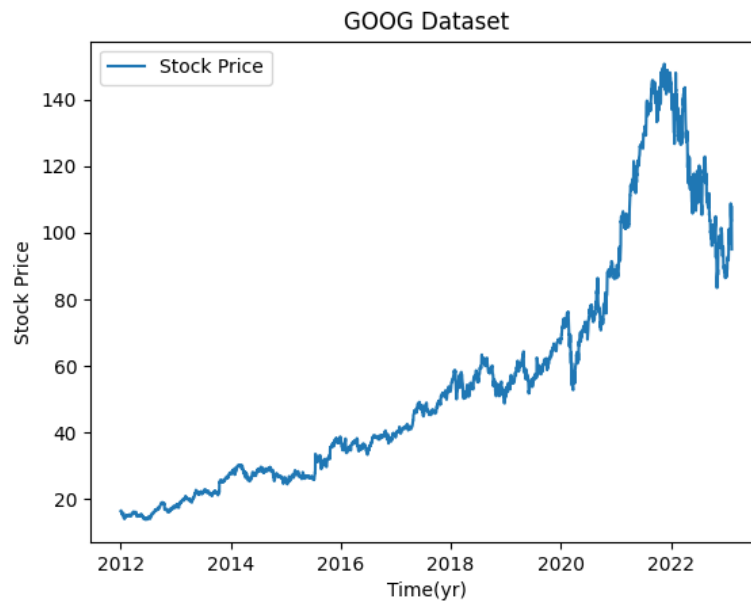
2. Test prediction



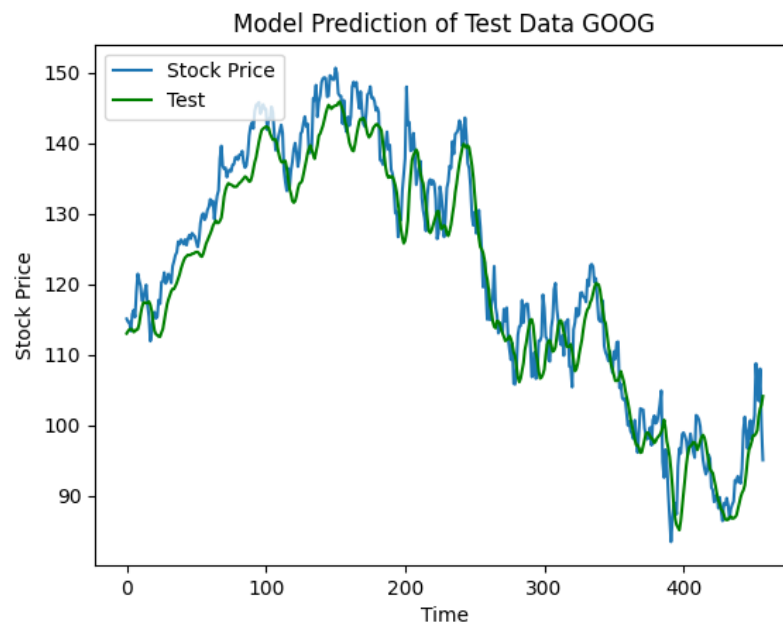
```
Train RMSE: 1.5075059581241295
Train MSE: 2.2725742137797496
Train MAPE: 2.233786100677944
Train MAE: 0.8992847875912237
Test RMSE: 4.824911679196496
Test MSE: 23.27977271204675
Test MAPE: 2.504593302896316
Test MAE: 3.8114546896588855
```

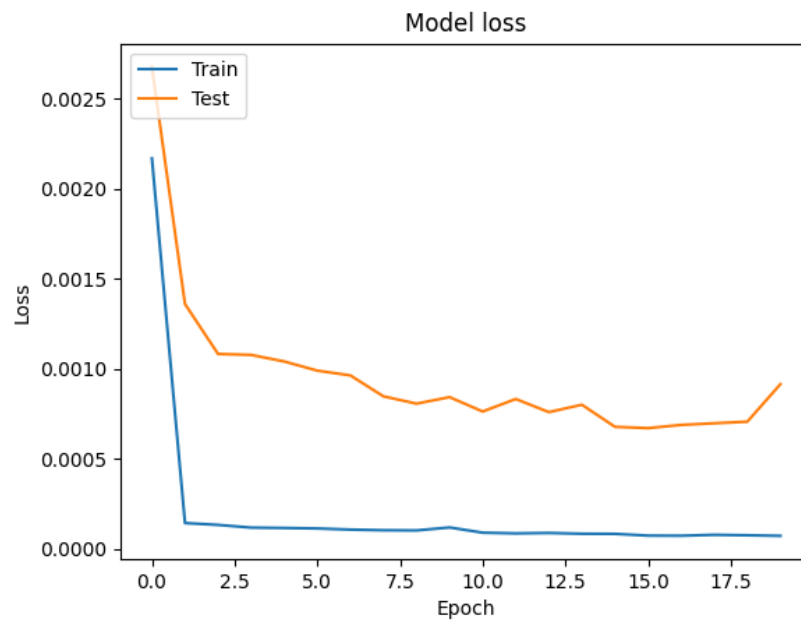
GOOG:

1. Dataset



2. Test prediction

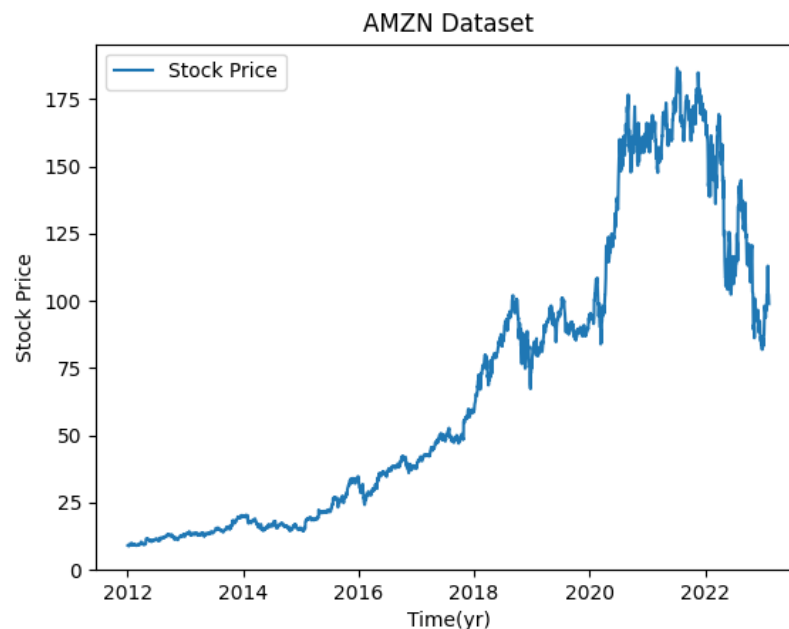




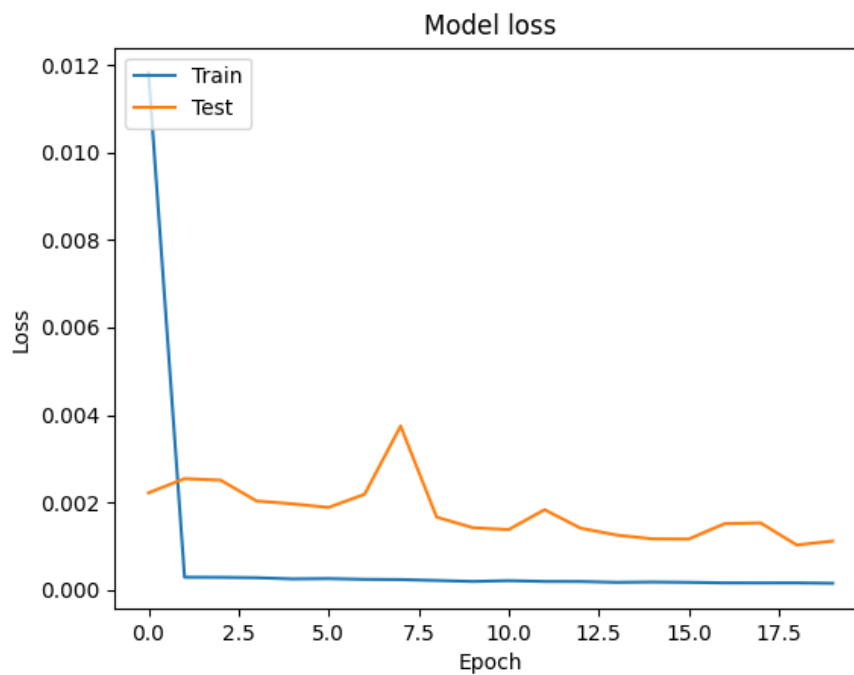
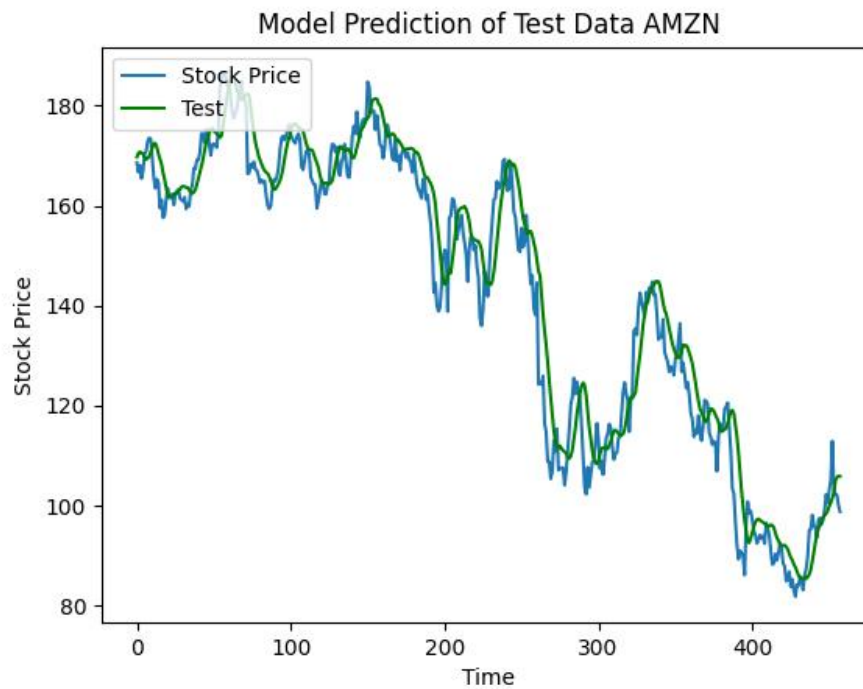
```
Train RMSE: 1.231453256796243
Train MSE: 1.5164771236740737
Train MAPE: 2.0135285276828165
Train MAE: 0.8698847755056913
Test RMSE: 4.138291455119171
Test MSE: 17.125456167512347
Test MAPE: 2.772112886329052
Test MAE: 3.385393634113164
```

AMZN:

1. Dataset



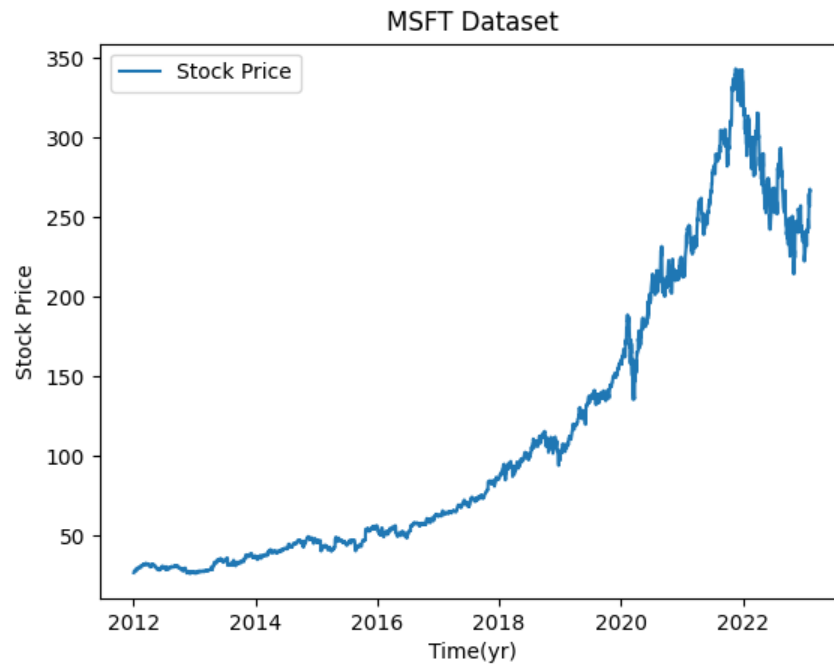
2. Test prediction



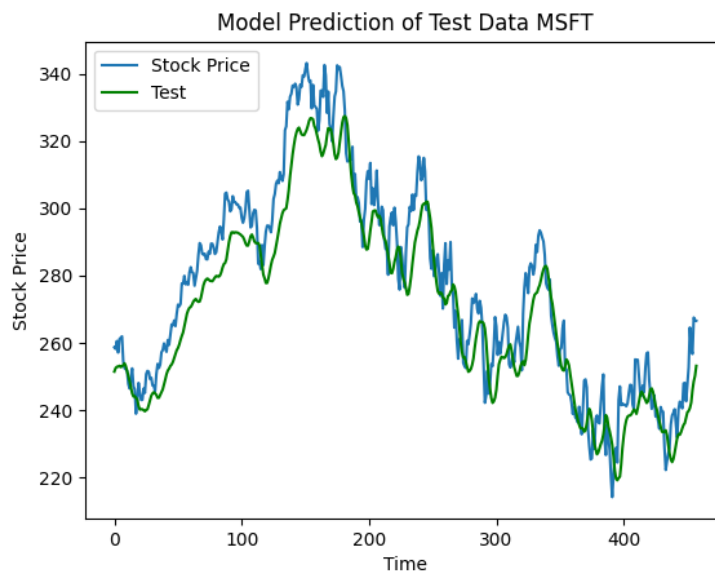
```
Train RMSE: 2.1398851834251644
Train MSE: 4.57910859824255
Train MAPE: 2.3340735431436173
Train MAE: 1.2175147527833174
Test RMSE: 5.95053990626751
Test MSE: 35.40892517608214
Test MAPE: 3.4990023997587967
Test MAE: 4.572759270147464
```

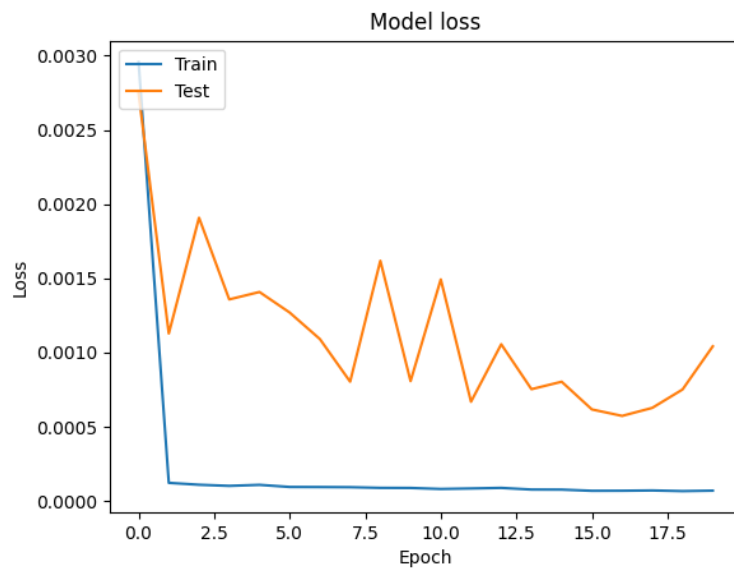
MSFT:

1. Dataset



2. Test prediction





Train RMSE: 3.1489427779660395
Train MSE: 9.915840618904479
Train MAPE: 3.275584583742514
Train MAE: 2.334659638058666
Test RMSE: 10.227107498255634
Test MSE: 104.5937277808766
Test MAPE: 3.0457512395463917
Test MAE: 8.57193549543489