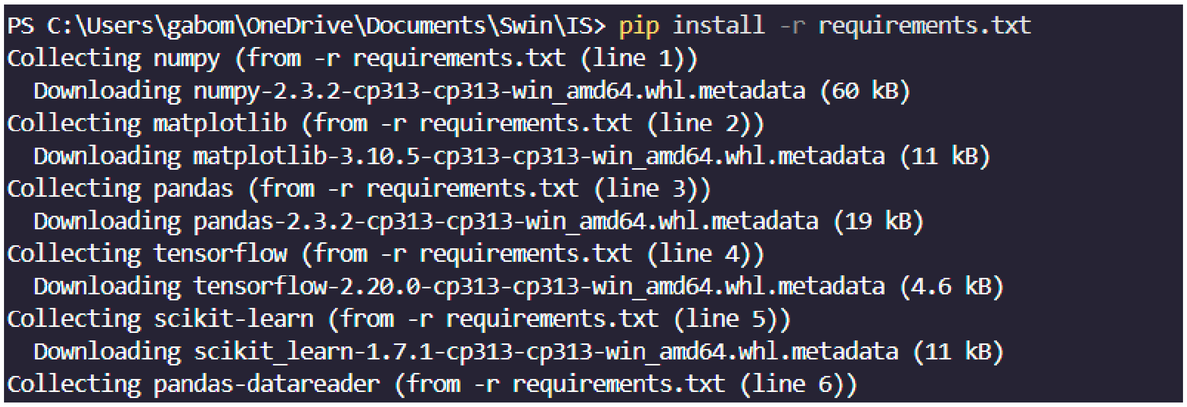
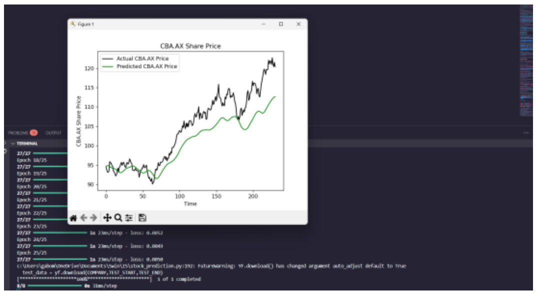
Report Task 1: Setup

Install dependencies



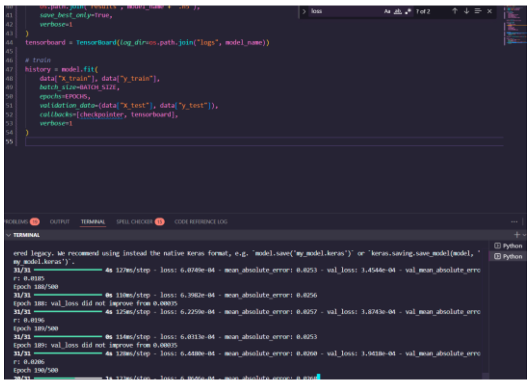
```
PS C:\Users\gabom\OneDrive\Documents\Swin\IS> pip install -r requirements.txt
Collecting numpy (from -r requirements.txt (line 1))
  Downloading numpy-2.3.2-cp313-cp313-win_amd64.whl.metadata (60 kB)
Collecting matplotlib (from -r requirements.txt (line 2))
  Downloading matplotlib-3.10.5-cp313-cp313-win_amd64.whl.metadata (11 kB)
Collecting pandas (from -r requirements.txt (line 3))
  Downloading pandas-2.3.2-cp313-cp313-win_amd64.whl.metadata (19 kB)
Collecting tensorflow (from -r requirements.txt (line 4))
  Downloading tensorflow-2.20.0-cp313-cp313-win_amd64.whl.metadata (4.6 kB)
Collecting scikit-learn (from -r requirements.txt (line 5))
  Downloading scikit_learn-1.7.1-cp313-cp313-win_amd64.whl.metadata (11 kB)
Collecting pandas-datareader (from -r requirements.txt (line 6))
```

Run V1



```
27/27
Epoch 18/25
27/27
Epoch 19/25
27/27
Epoch 20/25
27/27
Epoch 21/25
27/27
Epoch 22/25
27/27
Epoch 23/25
27/27 ━━━━━━━━━━━━━━━━━━━━ 1s 23ms/step - loss: 0.0052
Epoch 24/25
27/27 ━━━━━━━━━━━━━━━━━━━━ 1s 23ms/step - loss: 0.0049
Epoch 25/25
27/27 ━━━━━━━━━━━━━━━━━━━━ 1s 23ms/step - loss: 0.0050
C:\Users\gabom\OneDrive\Documents\Swin\IS\stock_prediction.py:192: FutureWarning: YF.download() has changed argument auto_adjust default to True
  test_data = yf.download(COMPANY,TEST_START,TEST_END)
[*********************100%***********************]  1 of 1 completed
8/8 ━━━━━━━━━━━━━━━━━━━━ 0s 31ms/step
```

Run P1



```python
        os.path.join("results", model_name + ".h5"),
        save_best_only=True,
        verbose=1
)
tensorboard = TensorBoard(log_dir=os.path.join("logs", model_name))

# train
history = model.fit(
    data["X_train"], data["y_train"],
    batch_size=BATCH_SIZE,
    epochs=EPOCHS,
    validation_data=(data["X_test"], data["y_test"]),
    callbacks=[checkpointer, tensorboard],
    verbose=1
)
```

```
ered legacy. We recommend using instead the native Keras format, e.g. `model.save('my_model.keras')` or `keras.saving.save_model(model, '
my_model.keras')`.
31/31 ━━━━━━━━━━━━━━━━━━━━ 4s 127ms/step - loss: 6.0749e-04 - mean_absolute_error: 0.0253 - val_loss: 3.4544e-04 - val_mean_absolute_erro
r: 0.0185
Epoch 188/500
31/31 ━━━━━━━━━━━━━━━━━━━━ 0s 110ms/step - loss: 6.3982e-04 - mean_absolute_error: 0.0256
Epoch 188: val_loss did not improve from 0.00035
31/31 ━━━━━━━━━━━━━━━━━━━━ 4s 125ms/step - loss: 6.2259e-04 - mean_absolute_error: 0.0257 - val_loss: 3.8743e-04 - val_mean_absolute_erro
r: 0.0196
Epoch 189/500
31/31 ━━━━━━━━━━━━━━━━━━━━ 0s 114ms/step - loss: 6.0313e-04 - mean_absolute_error: 0.0253
Epoch 189: val_loss did not improve from 0.00035
31/31 ━━━━━━━━━━━━━━━━━━━━ 4s 128ms/step - loss: 6.4480e-04 - mean_absolute_error: 0.0260 - val_loss: 3.9418e-04 - val_mean_absolute_erro
r: 0.0206
Epoch 190/500
20/31 ━━━━━━━━━━━━━━━━━━━━ 1s 123ms/step - loss: 6.0640e-04 - mean_absolute_error: 0.0260
```

The environment setup was successful, and I was able to run the Python v1 file without any issues. I couldn't run P1 directly. I made a few changes, mainly by stopping using Yahoo and using yfinance, it was able to run.

Regarding which is "better," in my case and observation they are similar, but the version given to us directly mentions that "prediction, it missed the actual price by about 10%-13%," while the GitHub code version does not mention it directly. I consider the one in the video to be better, despite not being able to test it as it comes by default. I believe this because it seems to have more robust training and is separated, while the one given to us does everything in a single file. Even so, if what we are looking for is speed, the one given to us is better.

The code in simple explanation imports the libraries, checks the data of an action, in this case CbA.AX on certain dates, log saves and checks something to predict, in this case the closing of the following day, uses a range from 0 to 1 to scale the prices, checks 60 days in 60 days, to predict the 61st and repeats.

Setup in github: https://github.com/Gabriel-M192/2025-HS2-COS30018-Intelligent-Systems-H1#