Task 1 Report

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16/08/2024

Environment set-up

IntelliJ, PyCharm, and JADE were installed. JDK already installed on system.

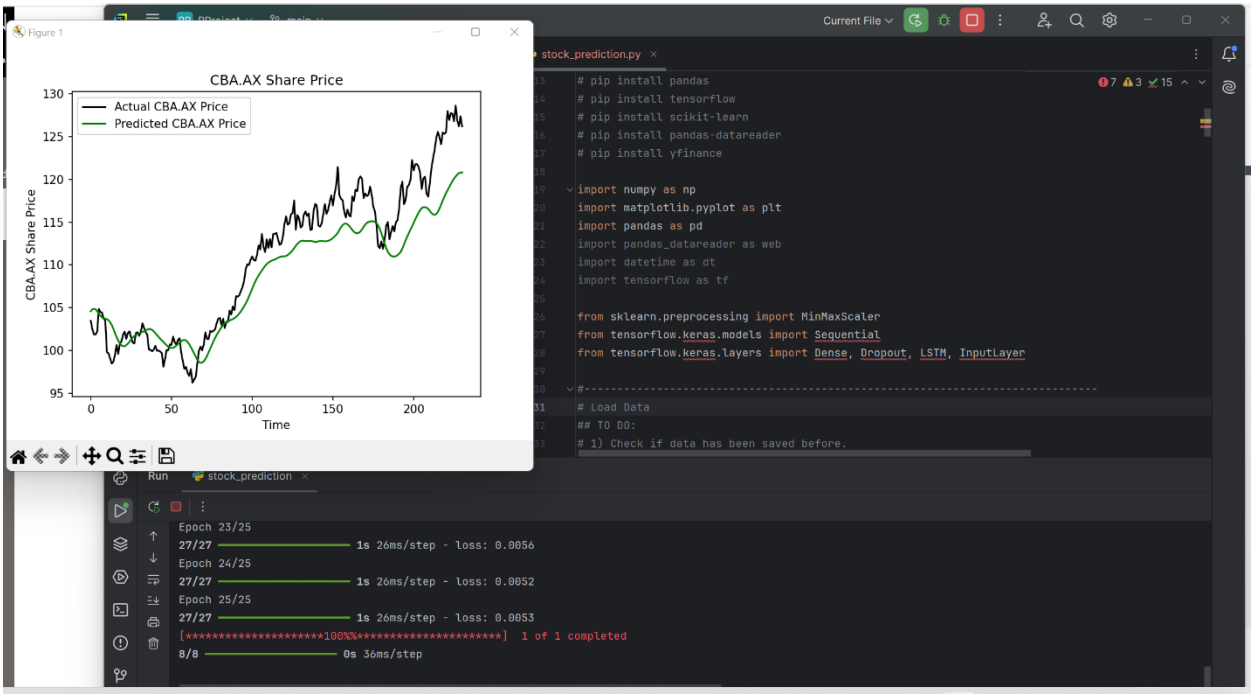
GitHub Desktop already installed on system. Remote git started via GitHub.

Project files v0.1 and P1 downloaded and imported to Git successfully.

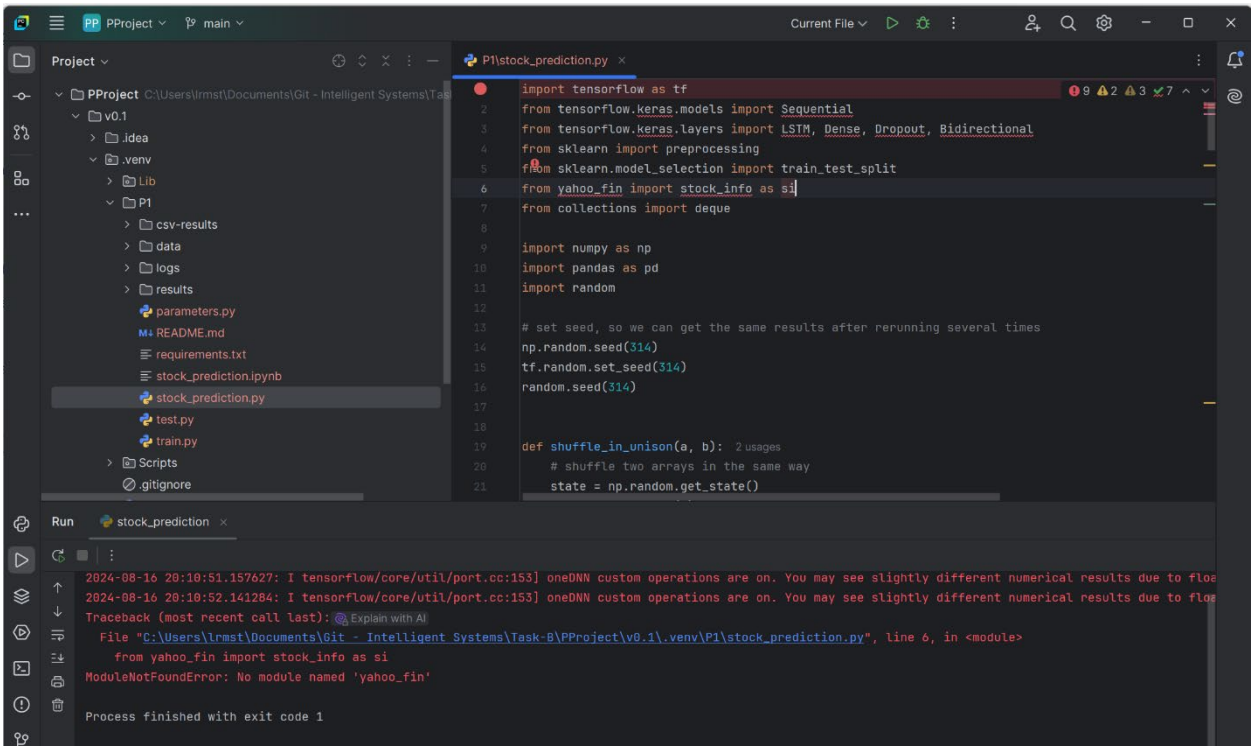
Python 3.12.5 installed, including pip. Project folder including virtual environment established. Documentation on pip requirements files read. Necessary libraries (numpy, matplotlib, pandas, tensorflow, scikit-learn, pandas-datareader, yfinance) installed. Requirements.txt generated for these libraries using pip freeze.

Tests

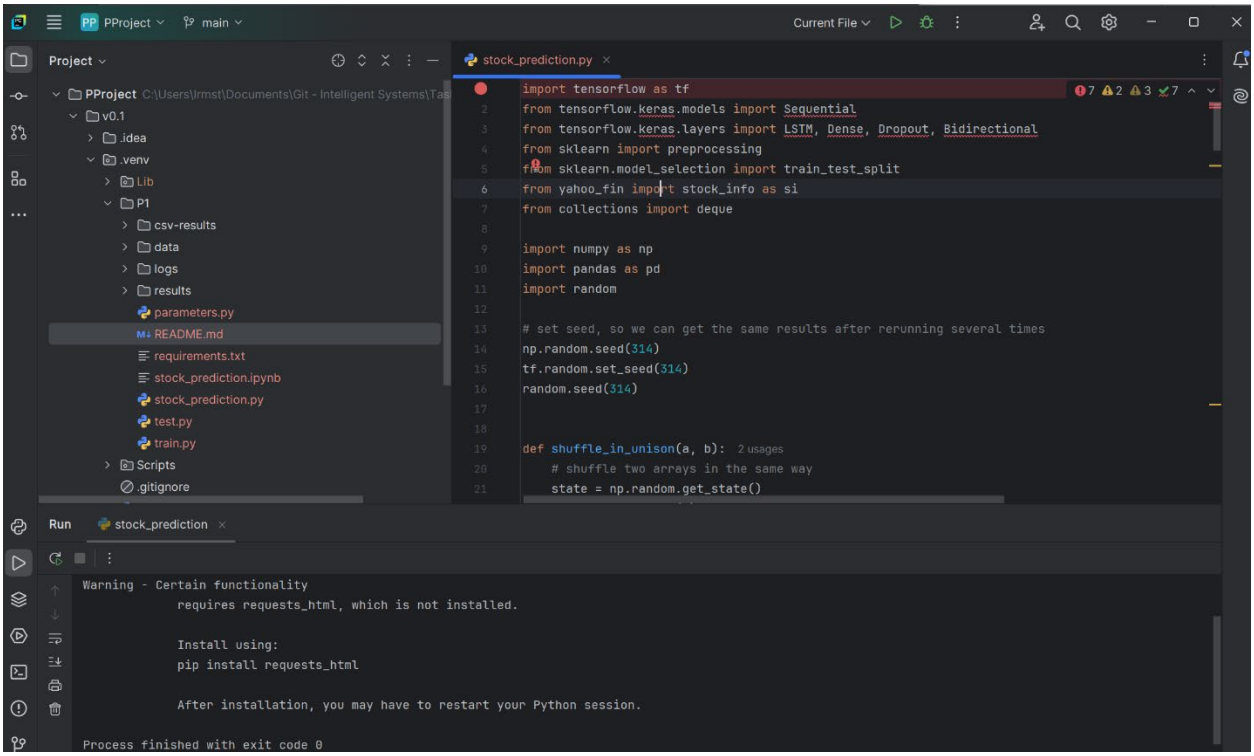
V0.1 initial test successful – generated graph of projected CBA share price



P1 test 1 failed – missing yahoo_fin library



P1 test 2 failed – missing requests_html



Subsequent tests identical.
Installing requests_html does not solve issue – may be related to incompatibilities with library beyond Python 3.6.

May also be solved by updating code with modern libraries, such as yfinance.

Understanding

V0.1 initially imports various libraries for use in the codebase. It collects data from Yahoo Finance about the Commonwealth Bank of Australia's performance on the ASX share market between 01/01/2020 and 01/08/2023. This data is normalized and converted into training data for a sequential neural network model, based on a 60-day rolling input.

The model is trained on the training data for 25 epochs to create a trained model. This model is then used on the real world data from 02/08/2023 to 02/07/2024 to predict the closing prices during this time period.

The code then charts this predicted data output from the model alongside the real world data and displays it to the user in a line chart. It also provides a numerical estimated share price value for the following day.