# Report Option B - Task 1: Setup

1. **Environment Setup Summary:**

I use Anaconda to setup virtual environment and download the libraries needed for the assignment

**Requirements**:

* 1. The provided code requires several Python packages, which can be installed using pip. The packages are:
     1. pip install numpy
     2. pip install matplotlib
     3. pip install pandas
     4. pip install tensorflow==2.14 (because in this assignment only work with version under 2.15)
     5. pip install scikit-learn
     6. pip install pandas-datareader
     7. pip install yfinance

1. **Testing the Provided Code Bases:**
   1. **Summaries of your attempts to test the provided code bases (v0.1 and P1) with screenshots**

**A screenshot of a computer

Description automatically generatedA graph showing a price of cba

Description automatically generatedA screenshot of a computer program

Description automatically generated**

1. **Understanding the Initial Code Base (v0.1):**

* **Code Summary**:s
  + The script stock\_prediction.py is designed to predict stock prices using an LSTM model. It starts by loading historical stock data using yfinance, processes the data by scaling it, and then sets up an LSTM neural network model with TensorFlow's Keras API.
  + **Key Components**:
    - **Data Loading**: Utilizes the yfinance library to download historical stock prices for a specified company within a given date range.
    - **Data Preprocessing**: The stock prices are scaled using MinMaxScaler to ensure that the data is normalized for the neural network.
    - **Model Architecture**: An LSTM network with multiple layers, dropout for regularization, and a dense layer for output is used to predict future stock prices.
    - **Training**: The model is trained on the historical data for a specified number of epochs.
    - **Prediction and Visualization**: After training, the model is used to predict stock prices on the test data, and results are visualized using matplotlib.