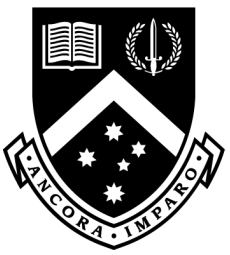

MONASH University

FIT3164: User Guides
(Semester 2, 2022)

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Table of Contents

1 End User Guide

This section guides the user on how to access the software and provides step by step instructions on how to use the website to forecast stock market prices. For guidance on the installation of the software, please refer to Section 2.0 Technical User Guide.

1.1 Web Application Layout

Figure 1 shows the layout of the website divided into sections with clear labels of the section numbering on it. The purpose of each section is as following:

Section	Name	Purpose
1	Sidebar	Interacts and enter the input fields for prediction
2	Header	Shows the stock name and the latest update on the stock price.
3	Prediction Graph	Shows the prediction results in a line chart to visualise the results.
4	Statistics Overview	Shows the detailed statistics of the stock.
5	Financials Tabs	Allow user to switch between different tabs to view different contents
6	Financials Information	Shows the company information from a financial perspective

Table 1: Web layout section and purpose

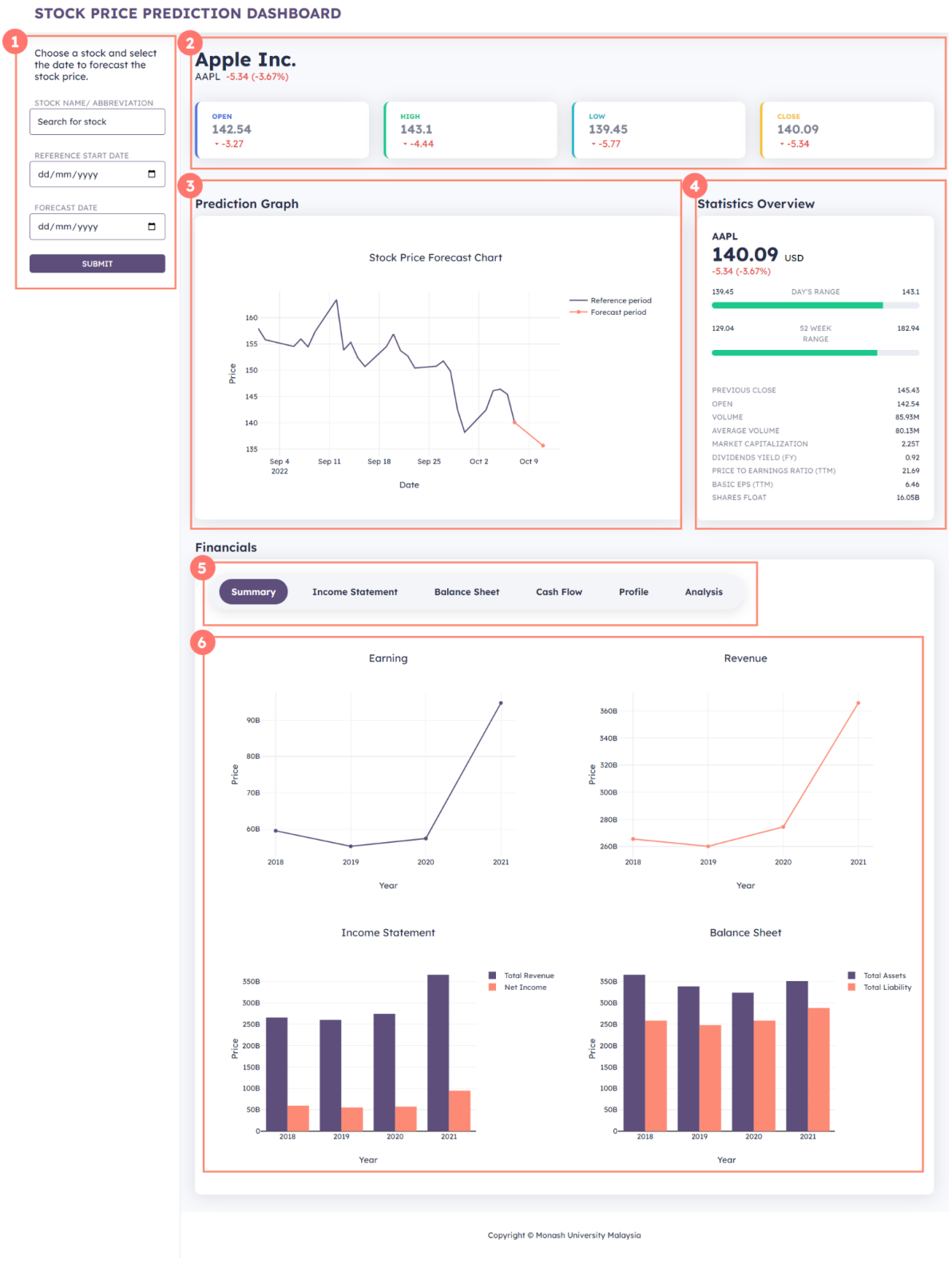

Figure 1: Layout of the website

1.2 How to use the website?

In this section, step by step instructions on how to access the software, the features and to exit the software.

1.2.1 Accessing the website

1. Run the website on your local machine following the instructions given in the technical guide.
2. Once the program is successfully executed and is running in process as shown in Figure 2, open the link http://127.0.0.1:5000/ on any web browser.

```
 * Serving Flask app 'app' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: on
2022-10-14 07:00:38 werkzeug INFO:  * Restarting with stat
2022-10-14 07:00:45 werkzeug WARNING:  * Debugger is active!
2022-10-14 07:00:45 werkzeug INFO:  * Debugger PIN: 980-228-706
2022-10-14 07:00:46 werkzeug INFO:  * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

Figure 2: Terminal Console when web application is running

3. The web browser should display the dashboard shown in Figure 3.

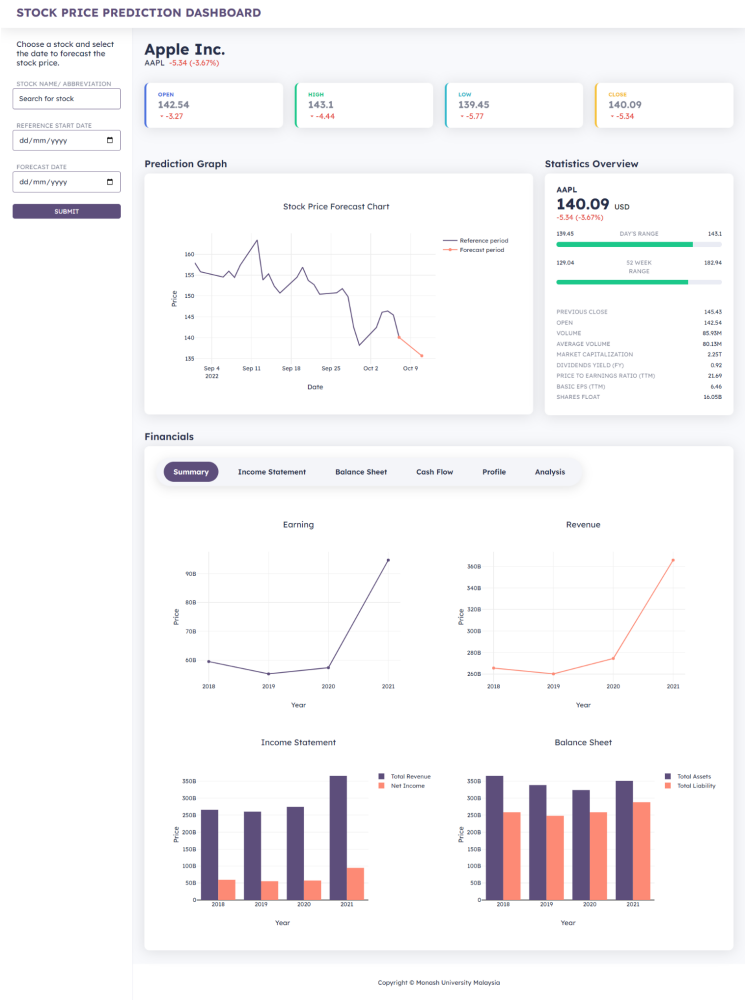

Figure 3: Stock Price Prediction Dashboard

1.2.2 Using Stock Price Prediction Feature

1. Navigate to **Section 1: Sidebar** that has three input fields. All fields are required to be filled in for the prediction request to be executed. Each of the input field and its description is as following:
    a. **Stock Name/Abbreviation**
        i. The name or abbreviation of a stock on the market
        ii. Must enter a **valid stock symbol or stock name**
    b. **Reference Start date**
        i. The historical stock price will be shown from the chart from the selected reference start date to act as a reference to compared with the predicted stock price
        ii. Must be of a **past date**
    c. **Prediction date**
        i. The date where stock price is forecasted
        ii. Must be of a **future date**
2. Click **Submit** once all fields have been filled in as shown below:

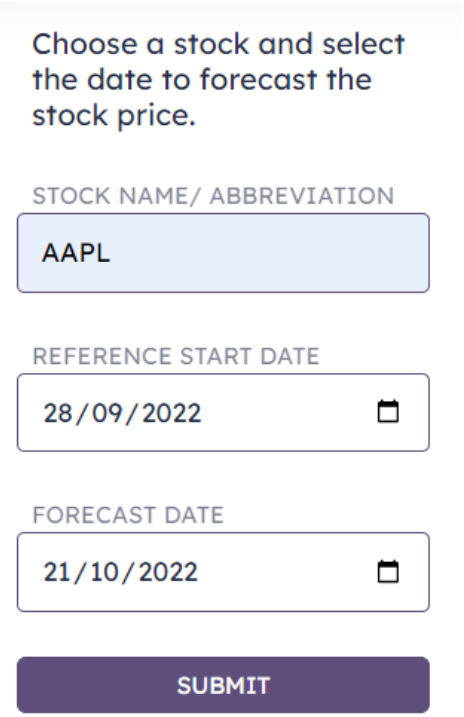

Figure 4: Valid input

3. If an **error message** is displayed below the input field as shown in Figure 5, please follow the instructions in Step 4 and 5 and enter a valid input again.

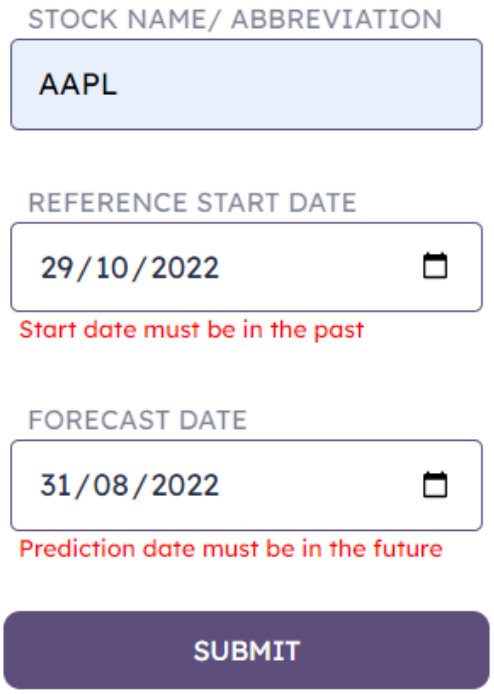

Figure 5: Invalid input with error message

4. Wait for the web page to refresh and for results to be generated
5. The stock name and the latest stock price (open, high, low, close) is shown in **Section 2: Header** as seen in Figure 6.

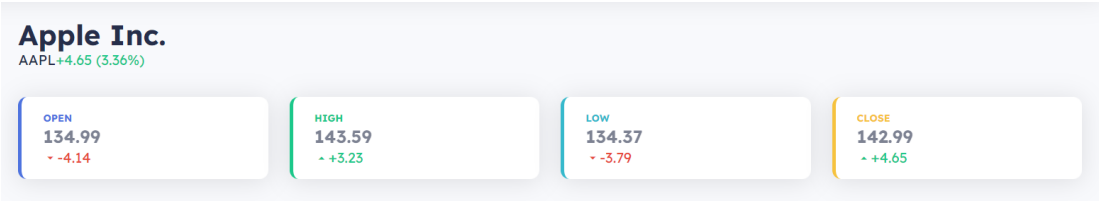

Figure 6: Header section displaying latest stock price

6. The **predicted stock price** is shown on **Section 3: Prediction Graph** as shown in Figure 6. The purple line marks the past stock price data from the reference start date selected onwards, the orange line marks the forecasted stock price data.
7. **Hover** over the lines and the tooltip will show the data and the stock price as shown Figure 7.

Figure 7: Prediction Graph

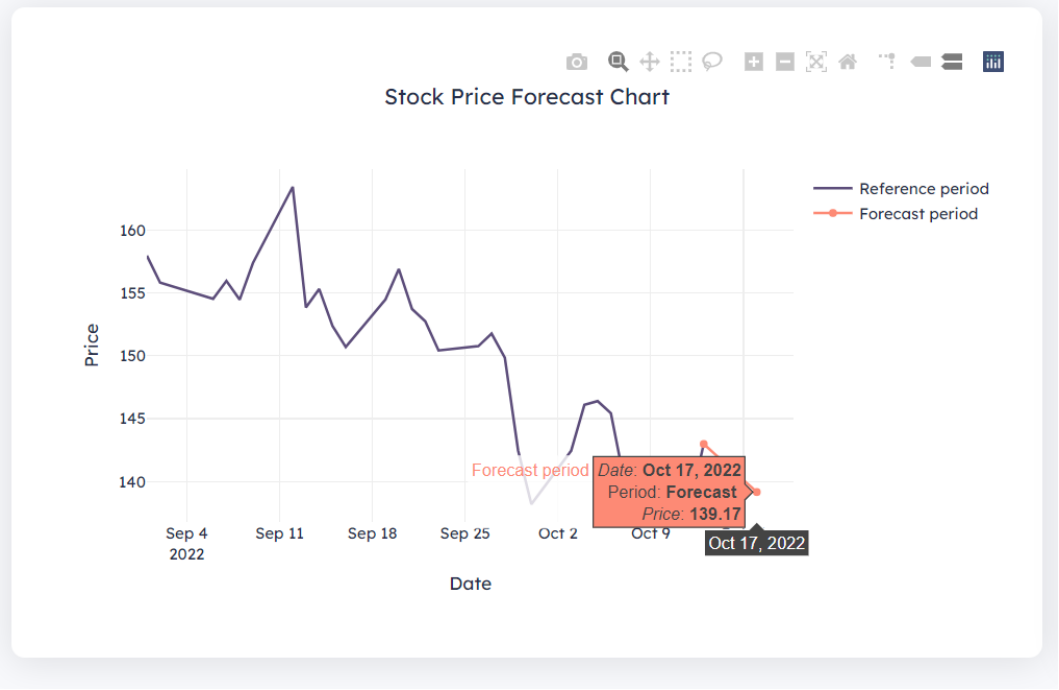

Figure 8: Chart tooltip

8. Upon **hovering** the cursor over the chart, a **toolbar** will appear on the top right corner on the chart as shown in the orange box in Figure 9.

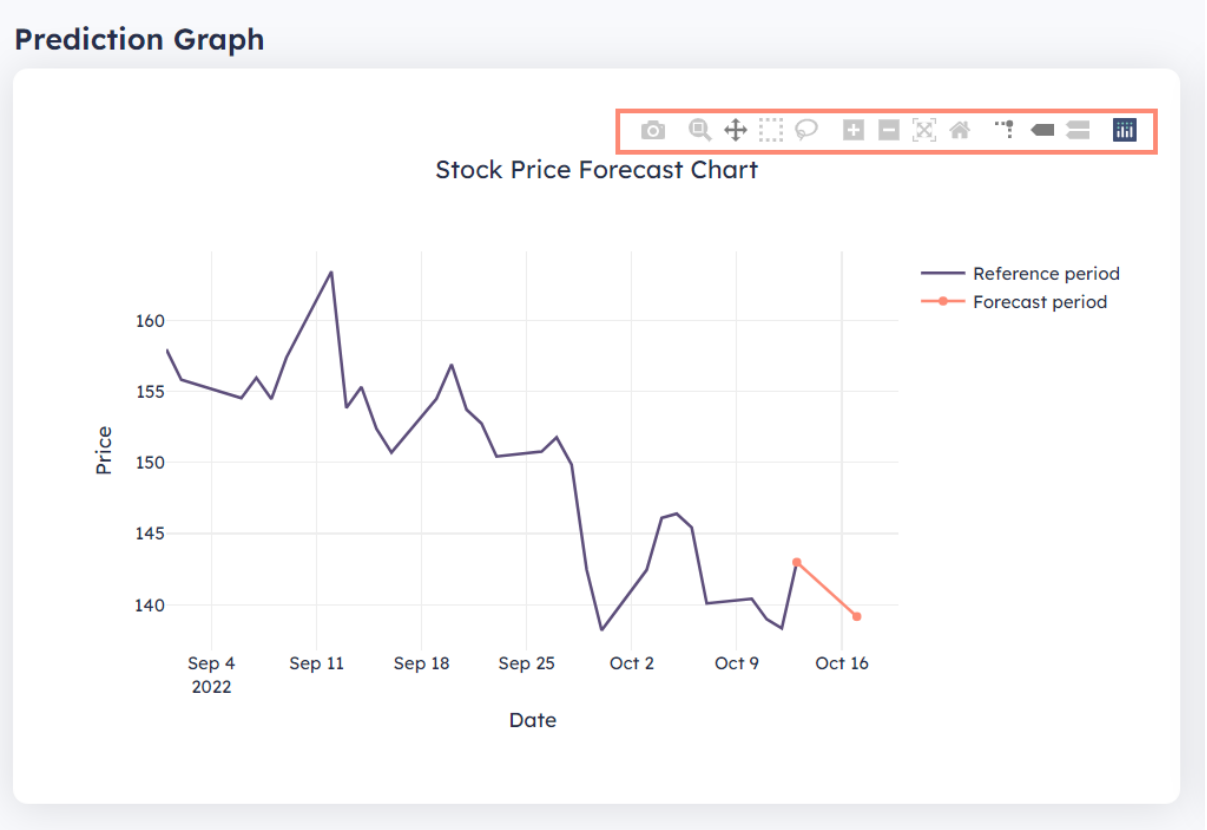

Figure 9: Chart Toolbar

9. The functionality of each tool is shown beneath the icon when the cursor **hovers** the icon as shown in Figure 10. **Click** on the icon to use the tool. The toolbar includes tools such as **downloading** the chart as a png image, **zoom in, zoom out, pan** and etc.

Figure 10: Toolbar functionalities

1.2.3 Accessing additional information about the stock and company

After the prediction results on the stock have been successfully returned and displayed. More information about the stock and the company can be found on the website following the steps below.

1. The detailed stock information can be found **Section 4: Statistics Overview** shown in Figure 11.

Figure 11: Statistics Overview of Stock

2. The summary of the company's financial performance is shown in **Section 6: Financials** in Figure 12.

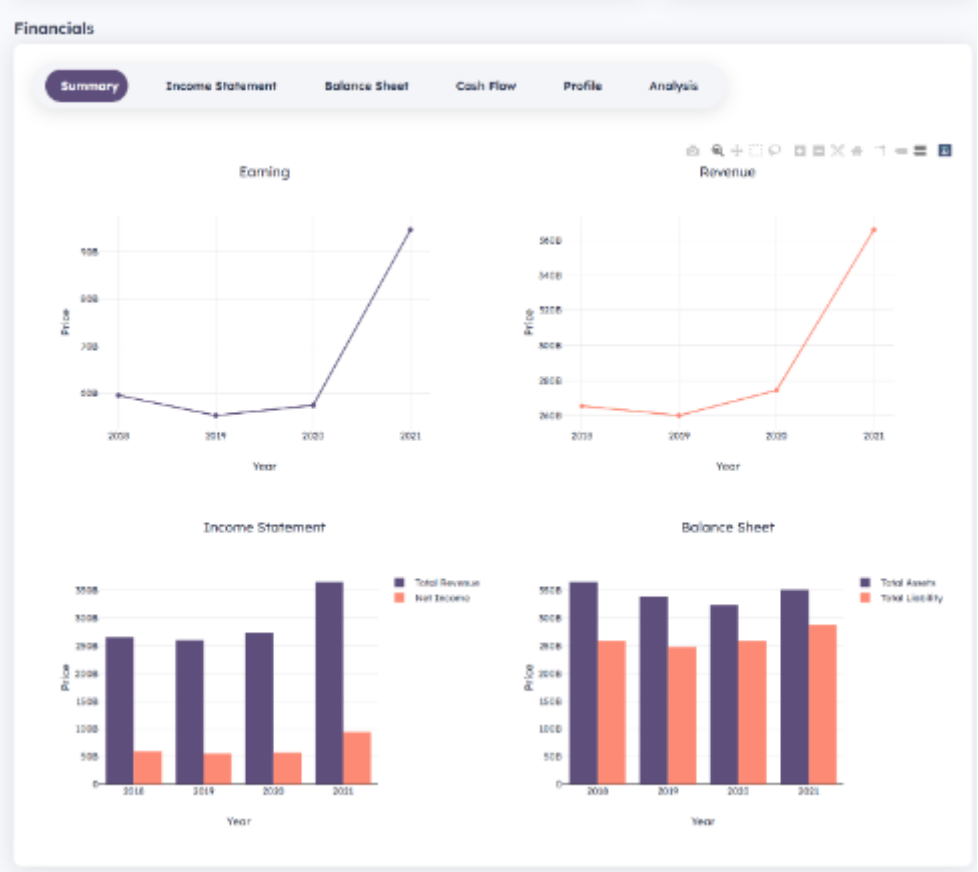

Figure 12: Summary of company's financial information

3. Use the tabs in **Section 5: Financial Tabs** to **switch** between pages and for more information about the company's financial information. Eg. Income Statement, Balance Sheet, Cash Flow Profile and Analysis.

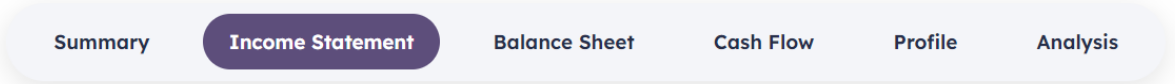

Figure 13: Tabs

1.2 Exiting the software

1. To exit the software, click on the **X** button on the tab of the website on the web browser as shown in Figure 14.

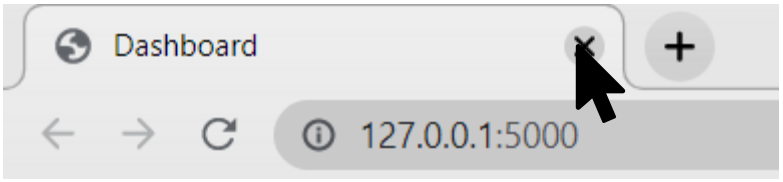

Figure 14: Closing the web application on the browser

2. Go back to the terminal console. Click **CTRL+C** on the terminal to stop the execution of the program.

```
2022-10-14 17:21:11 werkzeug INFO:  * Restarting with stat
2022-10-14 17:21:25 werkzeug WARNING:  * Debugger is active!
2022-10-14 17:21:25 werkzeug INFO:  * Debugger PIN: 980-228-706
2022-10-14 17:21:29 werkzeug INFO:  * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
PS D:\MONASH\FIT3164\stock_market_forecasting\Stock_Prediction_Web_App>
```

Figure 15: State of terminal console after program is terminated

1.3 Limitations of software

As the software is run on a local machine, the loading time of the initial start up of the web application and the waiting time for prediction results to be returned may take around 5 to 20 seconds depending on the machine's CPU power and memory available.

The softwares requires at least 1GB of free memory space to execute the program.

2. Technical User Guide

2.1 Installation Prerequisites

Operating systems and hardware are not restricted in our programme. Users can use any machine and operating system they wish. However, the programme itself takes up a lot of space, so it requires a large amount of storage space to run on the local machine.

2.2 Installation of Python Version 3.9

A complete video guide for installing Python 3.9 can look at the link below:
https://www.youtube.com/watch?v=uDbDIhR76H4

1. Go to Python official website: https://www.python.org/downloads/
2. Select the Python 3.9 Version and click down as shown in Figure 16.

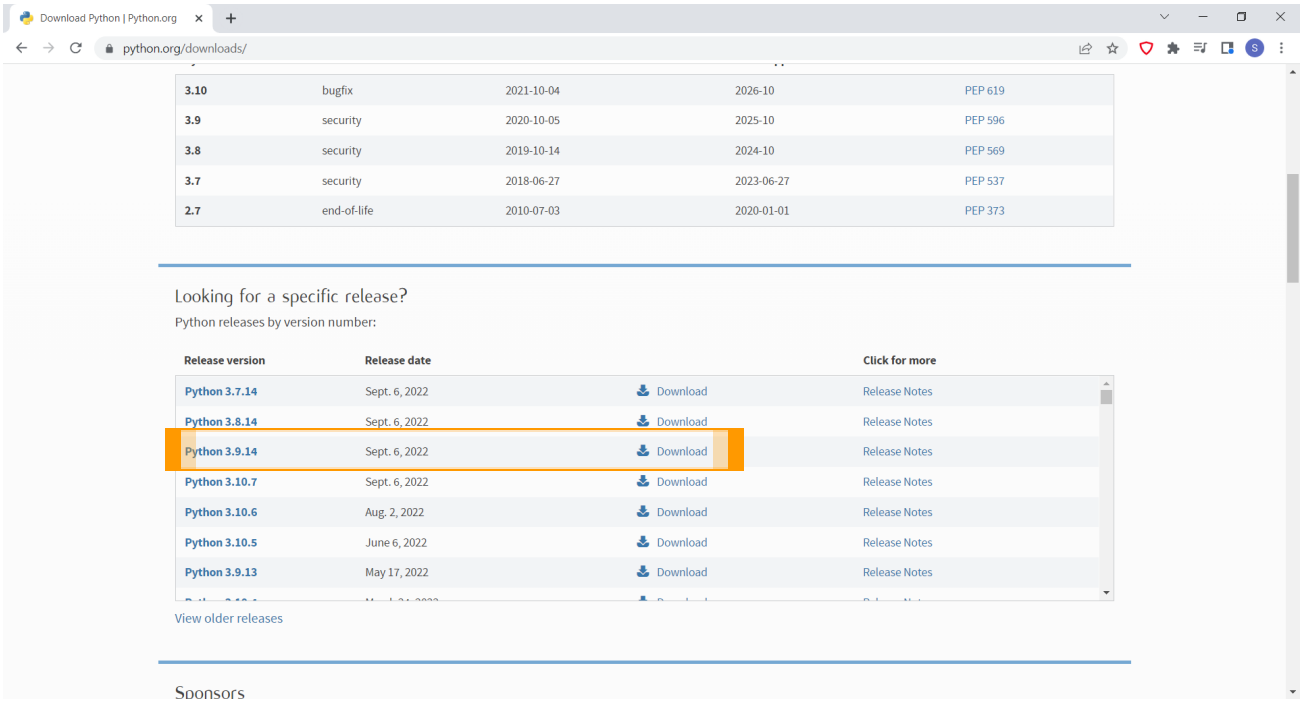

Figure 16: Install the Python 3.9 Executable installer

3. After download is completed, open and run the Python Executable installer downloaded.
4. Select the checkbox '**Add Python 3.9 to PATH**'. Then click **Customise Installation**.

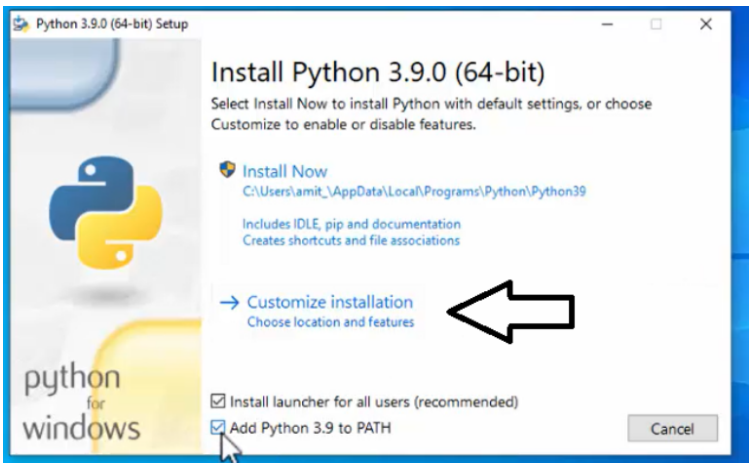

Figure 17: Initial page to setup Python 3.9

5. Keep the default features and click **Next.**

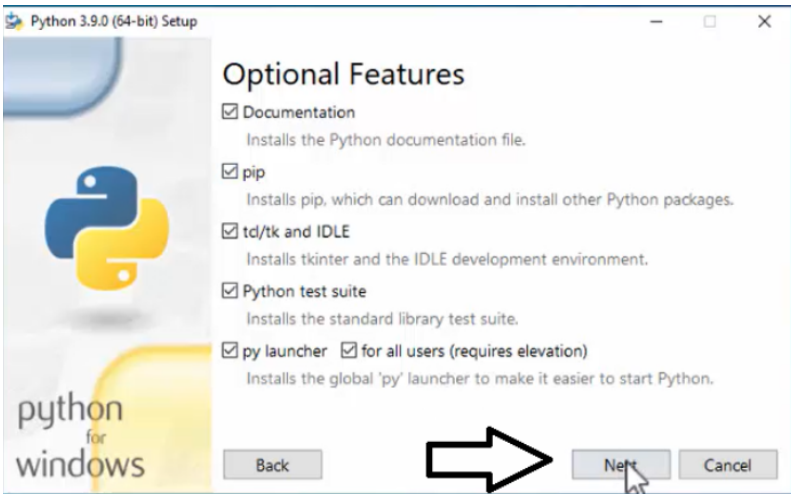

Figure 18: Customise the optional features

6. In the Advanced Options, select the checkbox ‘Install for all users’. If you want to change the install location, you can click on the Browse Button. Then click Install.

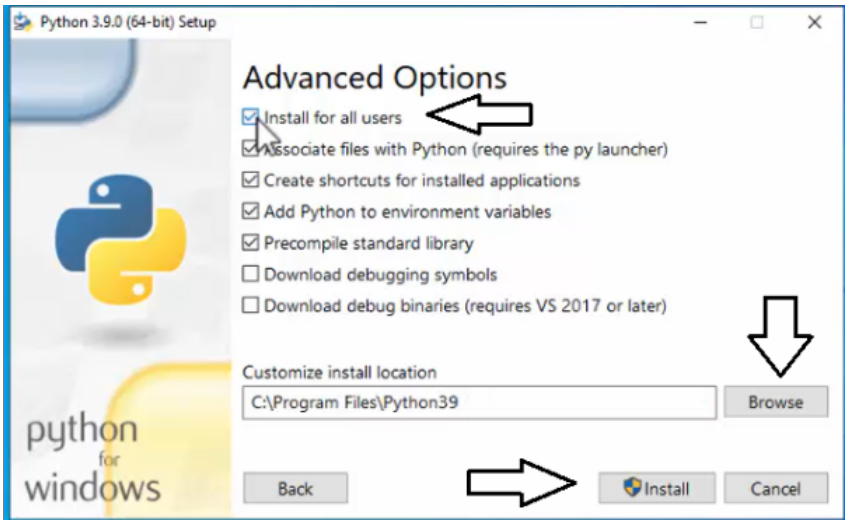

Figure 19: Customise install location and advance options

7. After a few seconds, the installation completes as shown in the figure below. Click close.

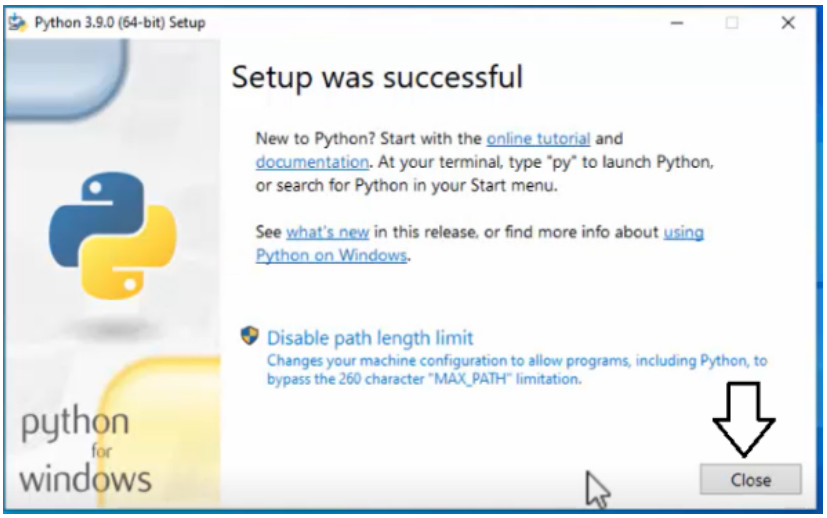

Figure 20: Final page to show the user the setup is complete.

2.3 Installation Stock Price Prediction Web Application

2.3.1 Setup Stock Price Prediction Web Application

1. Users are required to download the web application ZIP file provided on their local machine.
2. Unzip it and open the command prompt/ terminal.
3. Go to the directory Stock_Prediction_Web_App using `cd <your path to Stock_Prediction_Web_App>`.
4. Run the `pip install -r requirements.txt` to install the python packages and modules that require in our application.

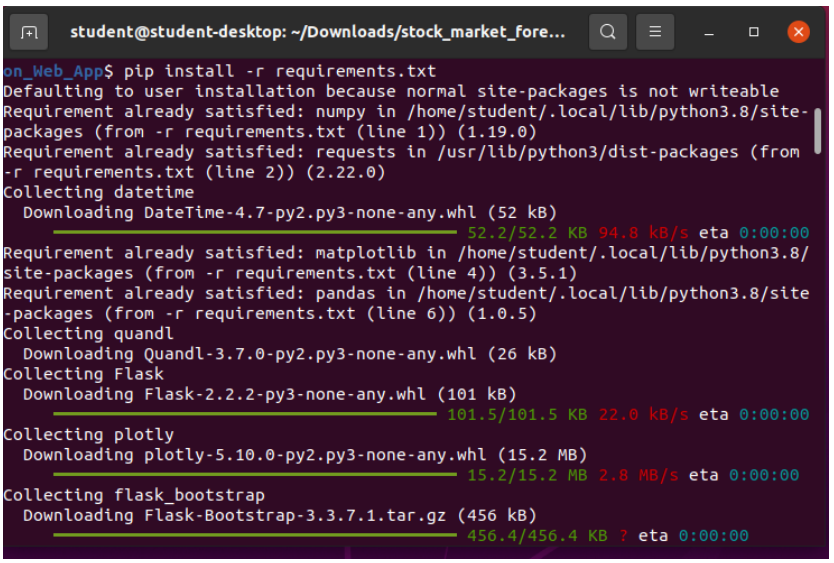

Figure 21: Installing requirement libraries for the program.

2.3.2 How to Start Stock Price Prediction Web Application

1. Open terminal/command prompt and go to the directory Stock_Prediction_Web_App by typing `cd <path to Stock_Prediction_Web_App>` in the terminal.
2. Run `flask run`. This starts the http server using python flask.
3. Then, open the port http://127.0.0.1:5000/ on the browser.

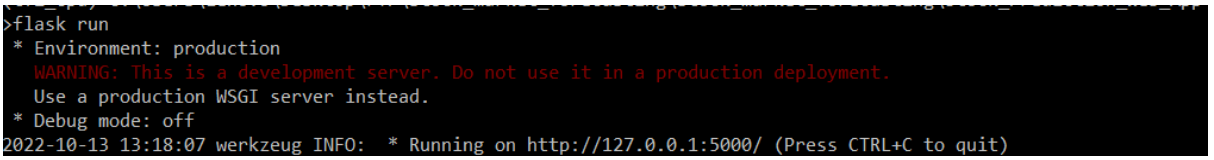

Figure 22: The port link to launch the website.

4. Once the program is executed successfully as shown in Figure 22, go to Section 1 End User Guide for further guidance about the interface.