**Assignment Reflection**

For

Information and Communication Technology, Master of Science

Software Design and Programming

ICT 4902 – Capstone Seminar

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# Reflection and Area of Improvements

The complete set of assignments were extremely helpful in understating the concepts of Python programming. The incremental requirements for each assignment allowed us to create a fully functional application. After the final assignment changes, we can use this application to monitor the daily stock progress. Because of this model, we got a real-world development experience. We also performed some data analytics and data visualization, which allowed us to understand how to use Python to perform statistical calculations. We have used the “Pandas” library to perform statistical operations. This library has a broad set of services which we should learn and understand. We did not get much opportunity to work on the web-services and UI libraries of Python because we were doing so much other work. But as an area of improvement, I want to modify my code to build a web UI on the top of this application.

# Additional Useful Functionality

We can enhance this application by adding a front-end user interface. Using this interface, users can select the list of shares they want to monitor. The user interface will also allow us to represent the graphs and charts in a more presentable manner. Also, we can include unit test cases to test the overall functionality of the application. If possible, we can also decouple the database interaction part from the business logic so that we can easily change the database without impacting the application code.

# Challenges

We had a sufficient amount of resources available to learn about the new technology and Python libraries. The primary challenge that I had encountered was a lack of financial domain knowledge. To give complete justice to the application, we should have an excellent finance domain knowledge so that we can design the solution correctly from the financial perspective. However, these assignments were useful in understanding the initial requirements of a financial application.

# Overall Experience

The study material and references were sufficient enough to understand the concept of Python programming. The lecture presentations were also very helpful in learning the concept. Having interactive presentations for the online class is a very innovative and useful idea. These interactive presentations helped me a lot in understanding the concept. The assignment objectives were challenging but not hard to implement. We had to do a good amount of research to implement the solution, which helped us learn the technology and concept correctly and efficiently. Overall, all the assignments and class presentations were easy to understand and very helpful in learning the concepts of Python programming.

# GitHub Details

All the required code files and documentation are present in the below GitHub location.

<https://github.com/anuj3009/ict4370PythonProgramming.git>

The repository is a public repository so we can use the basic git commands to pull the code from the repository. Also, please look into the “requirement.txt” file to see the list of all the external libraries. Also, the list is given the below section.

# List of Libraries required

pip install matplotlib

pip install pandas

pip install yahoofinancials

pip install pysqlite3

# Enhancement Screenshots

I have added a couple of additional features as part of my final portfolio submission. The first feature is to pull the stock data from the Yahoo financial services. I am using the “YahooFinancials” library to implement that feature. Below is the screenshot of the function that will pull the data from the Yahoo services and create the JSON similar to what we had previously. This function will pull the stock information for the given eight tickers present in the tickers list. This function will also convert the YahooFinancials object into a JSON object and return it to the calling function.

A screenshot of a cell phone

Description automatically generated

Figure 1: Download data from Yahoo

We have also allowed the users to either pull the stock records from the yahoo services or use the default JSON file provided previously. Below is the code for that functionality. The screen\_read variable will capture the command line user input and invoke the “download\_real\_time\_data” function and “write\_stocks\_progress\_data” function accordingly.

A screenshot of a cell phone

Description automatically generated

Figure 2: Code to get input from the User

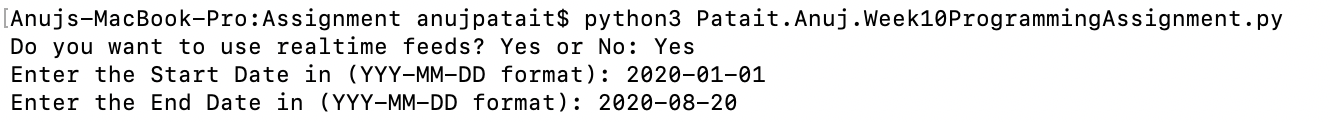


Figure 3: Terminal input screen

The second feature is to perform some data analytics using Pandas. I have used Pandas to derive the basic description of each stock using the pandas' data frames. Below is the code snippet for that functionality. At the end of the calculations, I am printing the outcome on the screen and in an HTML file named "Patait.Anuj.StockDescription.html."

A screenshot of text

Description automatically generated

Figure 4: Stock describe function

All these enhancements are backward compatible. So, the existing functionality will work as it is. The real-time feed will create a similar JSON object that we were using previously so that we can reuse the existing code and features. We are still using the base stock file to get the initial details, but we can add that functionality to the real-time pull as well.