

For this assignment you will write a 5-paragraph Individual Capstone Assessment.

- One paragraph introduction about what your project is all about from your academic perspective.

My project is about predicting stocks' performance in the future based on their data from past years. From an academic perspective it uses machine learning to train the system from a big data set. Since real time and recent financial data are hard and expensive to get, my group intends to use data from previous years, potentially outdated data, in order to make predictions on trends into the far future. The predictions are not to be taken with caution since we are not developing the application commercially. Even though there are other commercially and better developed products with similar purpose, my project is for educational purposes and light use. I hope my projects give our group members a chance to work on a machine learning system from start to finish. In the end, if we could get the application to work, we would love to see it used by our friends and family.

- Two paragraphs on how your collective college experiences will guide developing this project. One paragraph should focus on how the college curriculum and the second paragraph on your co-op experiences. Discuss the role of specific CS courses (include course numbers and titles), and your specific co-op employers (include company names and job titles). In these paragraphs you should discuss technical and non-technical skills, how you acquired them, and how you expect to apply them.

I have taken a Machine Learning class ("Intelligent Systems" – EECE6036) with Professor Ali Minai, who had agreed to be my group's faculty mentor. By taking the class, I learned basic concepts in Machine Learning, such as neural networks, perceptrons, k-mean clustering algorithms, etc. I believe this foundational knowledge would enable me to understand the necessary algorithms and technical materials to create a stock performance prediction system.

During my coop at Atomic Robot last summer, the company started a Machine Learning study group. The group consisted of a few employees who were interested in Machine Learning and willing to take out time from work hours to study together in the office. While I was still there, we went over Google's Machine Learning crash course (<https://developers.google.com/machine-learning/crash-course/>), doing one ML concept each week. This really reinforced the knowledge I've learned from Professor Minai's class since I took the class in Spring 2017. I hope to apply this knowledge into our project.

- Final two paragraphs on your motivation and preliminary project approach
 - Discuss why you are motivated/excited to participate in the project
 - Discuss your preliminary approach to designing a solution
 - Discuss what your expected results and accomplishments will be

–Discuss how you will evaluate your contributions: how will you know when you are done and whether or not you have done a good job?

I'm motivated to participate in this project because I've always wanted to do a machine learning application. Moreover, the project idea is very exciting and promises a great deal of learning. By working on the project, I would not only learn about ML but also financial technology, financial knowledge, stock trading, etc. The extra knowledge outside of technology could turn out to be helpful in the future, especially if I want to invest in stocks as an extra stream of income.

Our group approaches the problem by first studying the financial data we can get. We will need to swiftly touch on basic knowledge about Finance, Investment, Macroeconomics, etc in order to understand the data and read between the numbers. After that first step, we will know what indicators we need to focus on, and thus train our model on. With a collection of important indicators, we can start labeling data and separating them into training set and test sets. We will then build a Machine Learning system using the training and validation sets of data. If the model could predict the current trend in stocks using data from previous years, it is a good sign that we are doing a good job.

- Requirement: Minimum 6 sentences per paragraph

Submission should be as an included file in your team project repository. It is recommended that you create an Assignment#3 subdirectory in your repo to hold all homework essays for this assignment.