

Project Plan: DAI Trader

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Project Background:

DAITrader is an investment scenario simulation of the stock market. Using machine learning, DAITrader generates predictions of various companies' value. DAITrader will also aim to offer users a finance related educational perspective; it is our hope that users will be able to use DAITrader to learn more about the stock market.

Statement of Work:

Application + GUI Development

- Can potentially include a development view offering tools to assess model performance
- Allows users to alter historical context (reach), simulation duration, and target ticker/sector
- Will generate simulation according to historical context (reach), simulation duration, and target ticker/sector

Database:

- Database stores user login credentials
- Part of authentication

Tools for Judging Accuracy of Simulations

- Graphical representation of actual vs. simulated scenarios
- Ability to assess how far off we were
- Allows us to compare models once more than one is complete

Model Implementation

- By Q2 end, we aim to create and refine prediction model with reasonably high accuracy
- Spend any development in Q3 refining and visualizing model prediction considering user inputs

Resource List:

1. Tensorflow/Keras
2. Pandas
3. Numpy
4. Matplotlib
5. Docker
6. Github
7. Python
8. AWS
9. AlphaVantage for Historical Stock Trade Values and Daily Stock Value

Assumptions:

- The stock market can not be predicted with perfect accuracy.
- Machine learning is an admissible initial approach to trying to predict stock behavior.
- Users will not use the tool as rigid guidance for making investments.

Project Schedule:

The development will be completed in phases wherein each phase is handled by different 'sub-teams.' However, due to the nature of the tasks assigned, until the final software integration is required, each 'sub-team' is responsible for their task and subsequent related tasks. The details of each task and member(s) assigned to each task is outlined in the table below.

Task	Assignment	Due Date
Exploratory Data Analysis	Kayla	Week 2
API Automation	Adam & Sandalu	Week 6
UI Wireframes	Adam	Week 3
Database	Bright, Kayla & Janice	Week 3
Software Design Document	ALL	Week 5
GUI Application	Adam & Sandalu	Week 3-7
Machine Learning Algorithm	Bright, Kayla & Janice	Week 3-7 (Extended for Refining)
AWS Functionality	Sandalu & Adam	Week 3-7
System Deployment	William, Janice & Bright	Week 8
Integration	ALL	Week 8 - 9
Testing	ALL	Spring 2022 Term

Risks:

- Unexpected Interferences

- Large exogenous shocks such as pandemics and policy changes cannot be predicted which would lead to a large difference between the prediction and reality.
- Possibility of Inaccuracy
 - Free Historical Stock Trade Data could be inaccurate because we will not be able to get it directly from NYSE or NASDAQ. We cannot assume that free third party resources are accurate.