EE / CprE / SE 491 – sdmay19-07

Real Estate Portfolio Optimization

Week 5 Report

Monday, October 08 – Sunday, October 14
Client: Principal
Faculty Advisor: Chinmay Hegde

Team Members

Blake Roberts - Project Manager / Backend
Colton Goode - Meeting Scribe / Backend
Kevin Johnson - Test Engineer / Frontend
Leelabari Fulbel - Meeting Facilitator / Frontend
Nickolas Moeller - Report Manager / Backend

Weekly Summary

We discussed our implementation of the Markowitz model with Principal; we received notes on how to refine the algorithm. We have looked into various libraries that may assist us with financial data analysis, as this can be tricky if we implemented all of it ourselves from scratch. For the user interface, we have completed design mockups and presented the ideas to our client, in which we received positive feedback. In addition to that, we also created a flowchart to describe our process in a why that the financial professionals at Principal could understand and provide feedback. Lastly, we all worked on the Design Document that was due during this week.

Past Week Accomplishments

- Meeting with client - Everyone
- Research into portfolio optimization and modern portfolio theory (MPT) - Everyone
- Made data migration and api python scripts for test data - Blake
- Research useful libraries in Python useful for data analytics - Blake
- Started screen flowchart based on client requirements - Kevin
- Created Mockups for the frontend - Lee and Kevin
- Design Document - Everyone
- Team Website - Nick

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Blake Roberts	Basic Markowitz implementation in Python, Design Document	6	24
Colton Goode	Markowitz optimization in Python, testing current algorithms	6	23
Kevin Johnson	Started screen flowchart and UI mockups Did some research into python and Dash Worked on design document	6	22
Leelabari Fulbel	Work on the the UI mockups. Worked on the design document	6	20
Nickolas Moeller	Team Website, Design Document	6	23

Pending Issues

- Limited understanding of functional requirements as they relate to MPT user given constraints
- Cvxpy library seems to have issues with installation on Windows as well as increased sample size on Mac
- User interface was good so far, but we received valuable feedback to refine it more from our client
- Still some bugs regarding Markowitz

Plans for Coming Week

- Continue research into MPT (Specifically Markowitz) - Everyone
- Finalize UI requirements and constraints - Kevin and Lee
- Gather non-functional requirements from principal. Currently this has been very open ended, so we wish to meet and focus on requirements they desire to have. - Blake
- Continue correcting Markowitz implementation - Blake, Cole, Nick
- Revise our UI mockups based on feedback from the client

RASIC

Our client desires weekly RASIC tables to be submitted every Monday detailing the tasks to be completed and to keep which team members are involved in each task. It also records which member at Principal Financial is (if they are) directly involved with a particular task or not.

R: Responsible
- The team member primarily responsible for the task's completion.

A: Approve
- The team member responsible for approving the task's completion.

S: Supporting
- The team member(s) who support the task's completion.

I: Informed
- The Principal team member(s) who are informed of decisions, progress, and completion associated with the task.

C: Consulted
- The Principal team member(s) who serve as Subject Matter Experts or key stakeholders for the task or project as a whole.

This Weeks RASIC:

10/8/2018	Team Members					Principal Team		
Task	Blake	Cole	Kevin	Lee	Nick	Ben	Jonathan Ling	Jonathan Frank
Initial optimization of weights	R	R					S	
Correcting current algorithms	R	R		S	R		S	
Finaliz Presentation date before meeting					R			
Compile Weekly Update		R						
Front End UI			R	R				
Team Website (for class)					R			

Next Weeks RASIC:

10/15/2018	Team Members					Principal Team		
Task	Blake	Cole	Kevin	Lee	Nick	Ben	Jonathan Ling	Jonathan Frank
Gather non-functional requirements	R		S				S	
Mockup Creation			R	R				
Correct current Markowitz implementation		R	S		R			
Creation of a Frontend POC			R	R				