

EE / CprE / SE 491 – sdmay19-07

Real Estate Portfolio Optimization

Weekly Report 13

Monday, February 18 – Sunday, February 24

Client: Principal

Faculty Advisor: Chinmay Hegde

Team Members

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

Past Week Accomplishments

- Leelabari worked on implementing deletion via the use of “erasing” the previously made changes and by allowing the delete button to delete all made constraints.
- Power BI
 - User Authentication - Cole, Nick
 - Able to authenticate users server side. This allows us to interact with the Power BI REST API.
 - Now able to query different reports and dashboards from users and groups
- Optimization Engine - Blake
 - Database Models
 - Able to CRUD database tables used in optimization
 - Persistent Runs
 - Able to save an optimization run to the database
- Power BI dashboard template
 - Displaying Unoptimized v.s. Optimized v.s. NCREIF data
 - Added a column to differentiate between each kind

Individual Contributions

Team Member	Contribution	Week Hours	Total Hours
Blake Roberts	Added database models and saving optimization runs to the database	6	82
Colton Goode	Interfacing with the Power BI REST API, user authentication, started on embedding Power BI	10	86
Kevin Johnson	Power BI dashboard template	5	79
Leelabari Fulbel	Added Ability to delete constraints based on Benjamin's given input ideas	6	81
Nickolas Moeller	Power BI authentication and embedding	9	84

Pending Issues

- The issue of not being about to make javascript work with Dash is still an issue.
- Currently able to authenticate users on the server side. It's not very flexible and needs to be updated.
- Current issues exist with embedding the power bi report into the frontend UI

Plans for Coming Week

- Leelabari plans on integrating the changes of Constraints to the model system that we have.
- Make the Power BI code a little more modular to make it more usable alter on - Cole
- Embed the Power BI reports into the user interface - Cole
- Communicate with embedded Power BI report - Nick

RASIC

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.

Past Week RASIC:

2/18/2019										
Task	Team Members					Principal Team			Action	Notes
	Blake	Cole	Kevin	Lee	Nick	Ben	Jonathan Ling	Jonathan Frank		
Database data structure to Power BI datasource structure script	R									We have optimizations persisting in the database. We need to be able to join the required database tables into a single in memory "table"-like object in order to submit to Power BI via REST API
Power BI automatic user authentication		R			S					Currently generation of access tokens works with the Azure Active Directory, difficulties exist with auto authenticating the user without manual logins to the PowerBI desktop
Markowitz Constraint Optimization Running				R						
Power BI dashboard			R							Have created a basic dashboard for visualizing unoptimized data, still need to create dashboards for optimized and NCRIF comparisons
Begin REST API datasource creation/updating					R					

Next Week RASIC:

2/25/2019										
Task	Team Members					Principal Team			Action	Notes
	Blake	Cole	Kevin	Lee	Nick	Ben	Jonathan Ling	Jonathan Frank		
Link constraints UI with backed constraints model and add a "run optimization" button which will use the constraints to run the optimization	S			R						
Embedding Power BI		R	S		S					Basic authentication and interfacing with the Power BI Rest API working, need to focus on embedding and dynamically changing it in the UI
Power BI Datasets					R					After embedding is finalized, use REST API to send data to a dataset within our PBI report
Database to Power BI data migration	R		S							A basic script which can output an optimization data in Power BI format exists. Need to extend this functionality to collect data for ncreif, unoptimized, and optimized portfolios. Also need to address sending data for multiple runs of optimizations (multiple risk values associated with ncreif or optimized portfolios). All This data is needed to visualize the efficient frontier, but not for other comparisons necessarily.
Dashboard templates in power bi			R							Creating dashboard to display unoptimized v.s. optimized v.s. ncreif data