

sdmay19-06: Quantitative Research Modeling Library

Week 7 Report

October 27 - November 2

Client: Joseph Byrum

Advisor: Srikanta Tirthapura

Team MembersJosiah Anderson — *Meeting Facilitator*Doh Yun Kim — *Scribe*Gabriel Klein — *Report Manager*Drake Mossman — *Communication Manager*Nathan Schaffer — *Overseer*Jacob Richards — *Quality Assurance Manager*

Summary of Progress this Report

This week we began work on the factor portfolio aggregation portion of our pipeline as well as some other necessary surrounding processes. We looked into ways to package our final product as both Python and R libraries so that someone knowing either language can use it. We also looked into setting up a continuous integration process on our repository so that any and all commits can be tested constantly and the quality of our codebase will remain high. Finally, we began to prototype the first step of the pipeline, received feedback, and continued to iterate on the idea with improved understanding.

Past Week Accomplishments

Josiah Anderson

- Connected to the aws server.
- Looked into packaging our functions in Python
- Researched into Dashboards such as Power BI
 - Principal uses a lot of these so we need to know how to communicate with them

Doh Yun Kim

- Looked into running Python code in R
- From said research, created basic proof of concept of running Factor_Portfolio.py in R
- Set up several modules and packages on the server to let R code run properly

Gabriel Klein

- Designed interface for factor portfolio aggregation section of pipeline
- Received feedback and revised interface to work as a library instead of a standalone script
- Began writing framework for factor portfolio aggregation
- Discussed pipeline understanding further with client

Drake Mossman

- Experimentation with database
 - Ran test queries
- Portfolio Aggregation Scripts
 - Worked on Efficiency Improvements

- Looking into usage of percentile_rank
- debugging queries

Jacob Richards

- Researched Continuous Integration
 - CI using Jenkins
 - gitlab CI
 - Using Runners and Jobs
 - Syntax for yaml file

Nathan Schaffer:

- Researched packaging in Python
 - Understand correct way to package functions for future use
 - Data aggregation research
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Pending Issues

Our understanding of future modules of our pipeline is still fuzzy and difficult to work on as this time. A priority for this next week is to further sharpen this understanding so that we can make concrete plans for people to work on those future sections.

Plans for Upcoming Reporting Period

Josiah Anderson

- Look into documentation for our code.
 - Python specific documentation
 - Establish the standard we will use
- Get up to speed on the code written by Gabe and Drake
 - Work on documenting that code
- Work on packaging our functions in R

Doh Yun Kim

- Create actual library function to be able to run needed Python code in R
- Start the modeling step of the DRP process
- Look into mocks and stubs for models in Python
- Look into simple prediction models to use in said step

Gabriel Klein

- Continue to construct factor portfolio aggregation baseline prototype
- Continue to flesh out understanding of pipeline with client for further progress
- Get feedback on current prototype with client

Drake Mossman

- Finish Aggregation Script Improvements
- Benchmark speed with large number of factors
- Flesh out next steps in process

Jacob Richards

- Implement gitlab CI
 - Establish jobs and runners

- Review code written by teammates

Nathan Schaffer:

- Create a Python Package of our made functions
 - Review team code
 - Document packaged functions in Python
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Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Josiah Anderson	Research, Server, Dashboards	6	54.5
Doh Yun Kim	R Packaging Research	8	48.5
Gabriel Klein	Factor portfolio aggregation, pipeline understanding	8	56.5
Drake Mossman	Portfolio aggregation efficiency improvements	7.5	49.5
Nathan Schaffer	Python Packaging Research	6	42
Jacob Richards	Researched different methods for Continuous Integration	8	44