

EE/CprE/SE 492 Biweekly Report 2

September 10 - September 24

sddec18-13: Asset management - Financial Factor Discovery - "Value"

Client: Principal Global Investors

Advisor: Chinmay Hegde

Team Members

Carter Scheve — *Communications Lead*

Nathan Hanson — *Project Progress Tracker/Manager*

Caleb Utesch — *Meeting Scribe*

Jack Murphy — *Research Analyst*

Samuel Howard — *Lead Engineer*

Alex Mortimer — *Project Manager*

Biweekly Summary of Progress

This is the second bi-weekly report for our senior design project for this semester. We have gotten access to the databases provided by the client, which allows us to read the data about the stocks with which we are generating predictions. With that, we have started in on organizing, formatting, and inserting the data into our previous models and feature analysis methods, since the process is different than last semester. Once that was complete, we started in on aggregating the stock-level data into decile-level information, which is used commonly in stock predictions. The last weekly deliverable given to us by the client was to calculate the cross-sectional variance and volatility of the decile-level datasets' six-month future return on investments. We completed this as well, which should set us up for the next week, in which we will start providing more useful calculations.

Individual Contributions

Meeting Hours: 2 + 2 + 1 + 2 + 2 + 1 = 10

Team Member	Contribution	Weekly Hours	Total Hours
Carter Scheve	Talked with client more about deliverables and expectations. Talked with client about clarifications on the weekly tasks assigned, and asked technical questions pertaining to the tasks. Worked on aggregating data from stock level to weekly decile based data. From there, those decile mappings (week -> list of decile data) were used to map future six-month	13	21

	return on each decile for further calculations		
Nathan Hanson	Began interaction with client resources. Run experimental database queries and results processing. Engaged in team discussions regarding project outcomes and creation of a structured plan for the upcoming weeks.	12	20
Caleb Utesch	Started learning how to use the database and EC2 instance provided to us. Did basic experiments with queries on the data in order to get a better understanding of how to use it. Learned how to aggregate data into deciles and calculate cross-sectional variance and time-series volatility.	12	20
Jack Murphy	Team was able to access the data this past week. Did some preliminary testing with the subsets of data that the client has the group working with. Worked with the code that was implemented to begin trying to make calculations for volatility and variance. Discussed a practical plan for what is possible for our group to accomplish with 7 weeks left.	13	21
Samuel Howard	Formalized process Carter implemented to create structures for the dates and deciles. Found library functions to perform std and var. Familiarize self with AWS and database provided. Helped map out the group's weekly plans for the rest of the semester, now accounting for the client's changes.	12	20
Alex Mortimer	Spent the majority of time in the last two weeks in meetings, with the client, advisor, and just with the team. Focused much of the time in meetings on understanding the goal and desired deliverables, since they have been changed from last semester and also from the first couple weeks of this semester. Now that those are more concretely defined, worked on reading and formatting the new data and aggregating it	14	20.5

	to deciles, then calculating certain features of the aggregated datasets.		
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Pending Issues

- There is a serious gap between the weekly goals and semester goals given by the client. The work we were tasked with this past week was potentially unneeded, and didn't bring us closer to the expected deliverables. We will be discussing this issue with the client Wednesday with our advisor present.
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Plans for Upcoming Reporting Period

- Work on EDA and feature analysis for the new dataset. This includes potential normalization, NaN treatment, and data formatting (map strings to \mathbb{R} or \mathbb{Z}).
 - Put the newly calculated decile data into feature analysis and machine learning methods to ensure the data is in a valid format, as well as see how out-of-box results look.
 - Identify any changes to the project plan or system design and reflect those in the project documents from last semester.
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