

Study Days

@ the Heffner Alumni House

Optimization & Capacity Review

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Introduction

Rensselaer's Red & White Student Organization is a group of students who serve as ambassadors of Rensselaer, representing the Institute to its constituency - the alumni, the campus, and the community. Every year at the end of each semester Red & White hosts Study Days at the Heffner Alumni House.



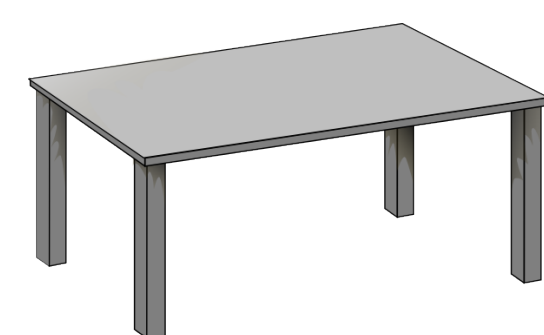
Problem



- Red & White members articulated that more people are attending Study Days because of the increase in class size.



- Many student have provided feedback through Red and White's Study Days Feedback Survey that sometimes the coffee runs out during Study Days, especially during the peak hours.



- Many students have provided feedback through Red and White's Study Days Feedback Survey that it is very hard to reserve a study room.
- Red and White representatives articulated how the groups do not use the entire room.

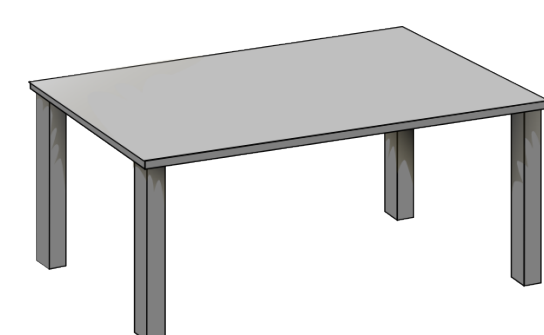
Techniques, Tools & Topics



- Capacity Management using forecasting tools to account for the increase in class size.
- Constraint Management specifically adjusting Shift Demand using Early Bird Specials.
- Optimization of space taking into consideration location preferences.



- Recommending implementing optimization tactics in order to forecast future coffee consumption.

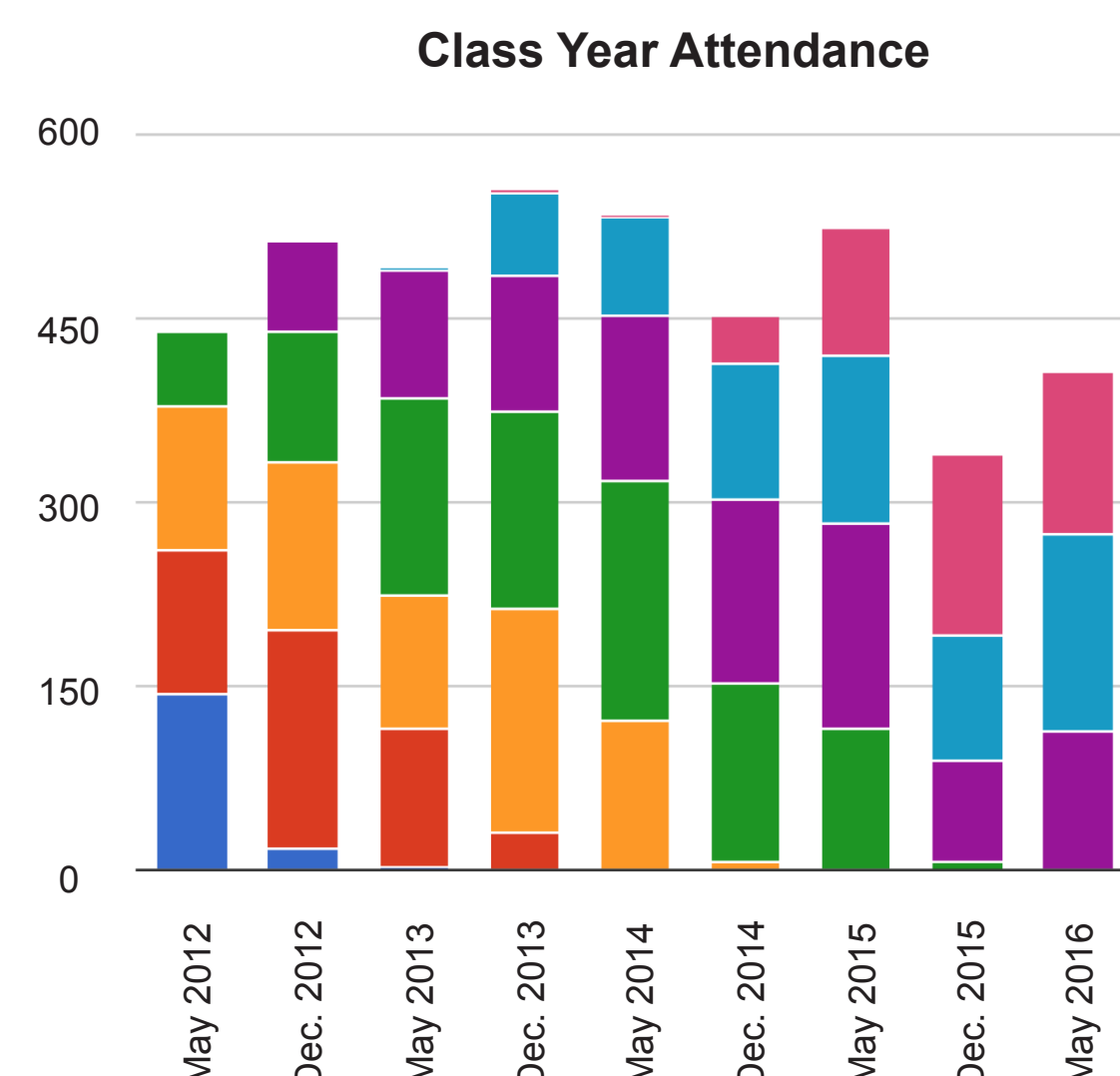


- Optimization of meeting rooms considering variations in group size and demand.

Data



- Data was collected included the date and time the student checked in as well as what class they were in.
- The alumni house is split between quiet and semi quiet study spaces based off of student preference 1/3 prefer the quiet space while 2/3 prefer the semi quiet areas.

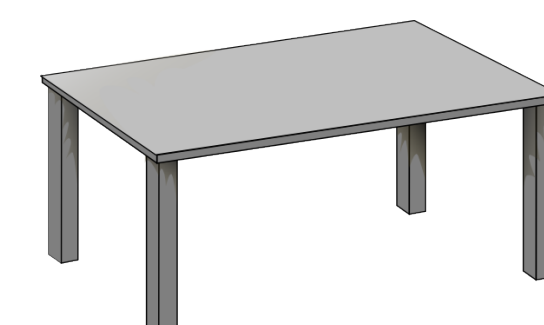
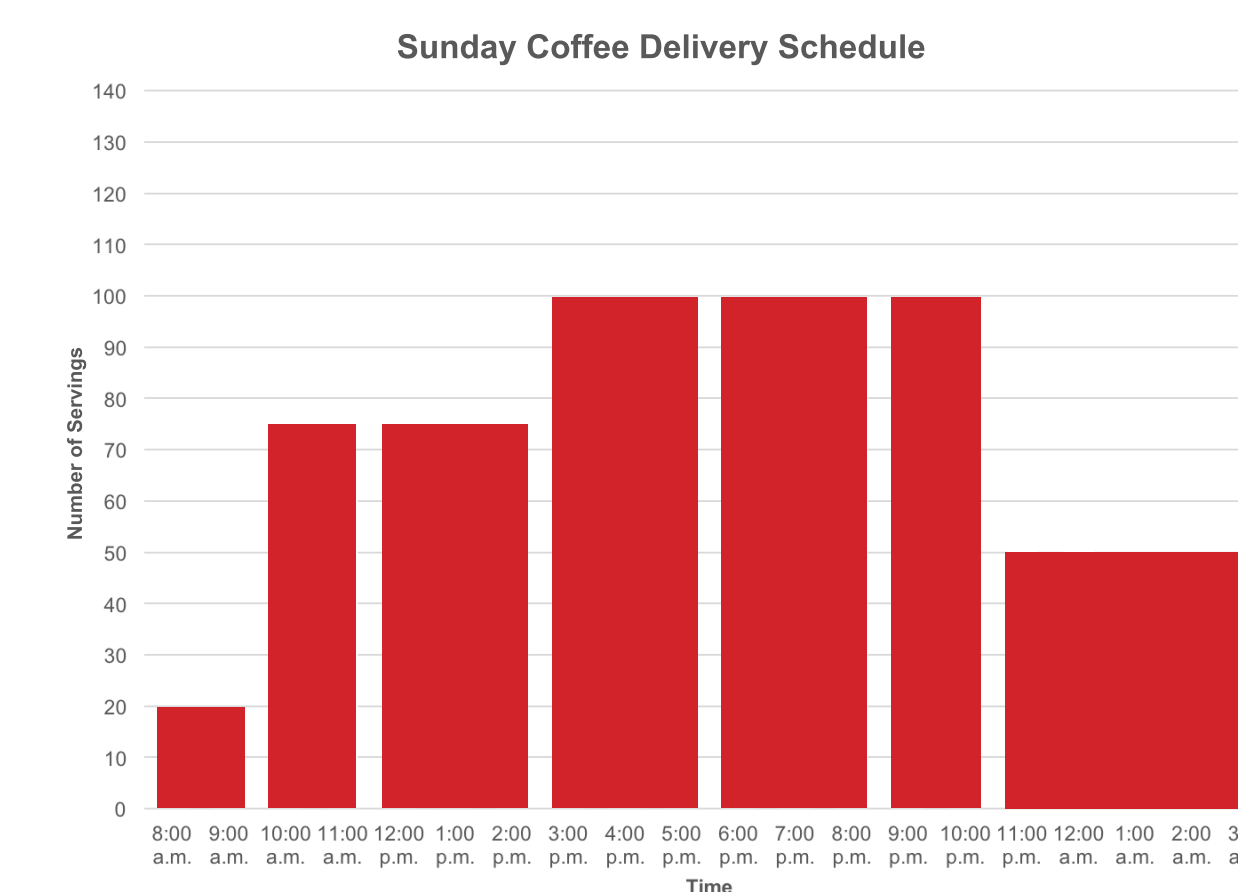
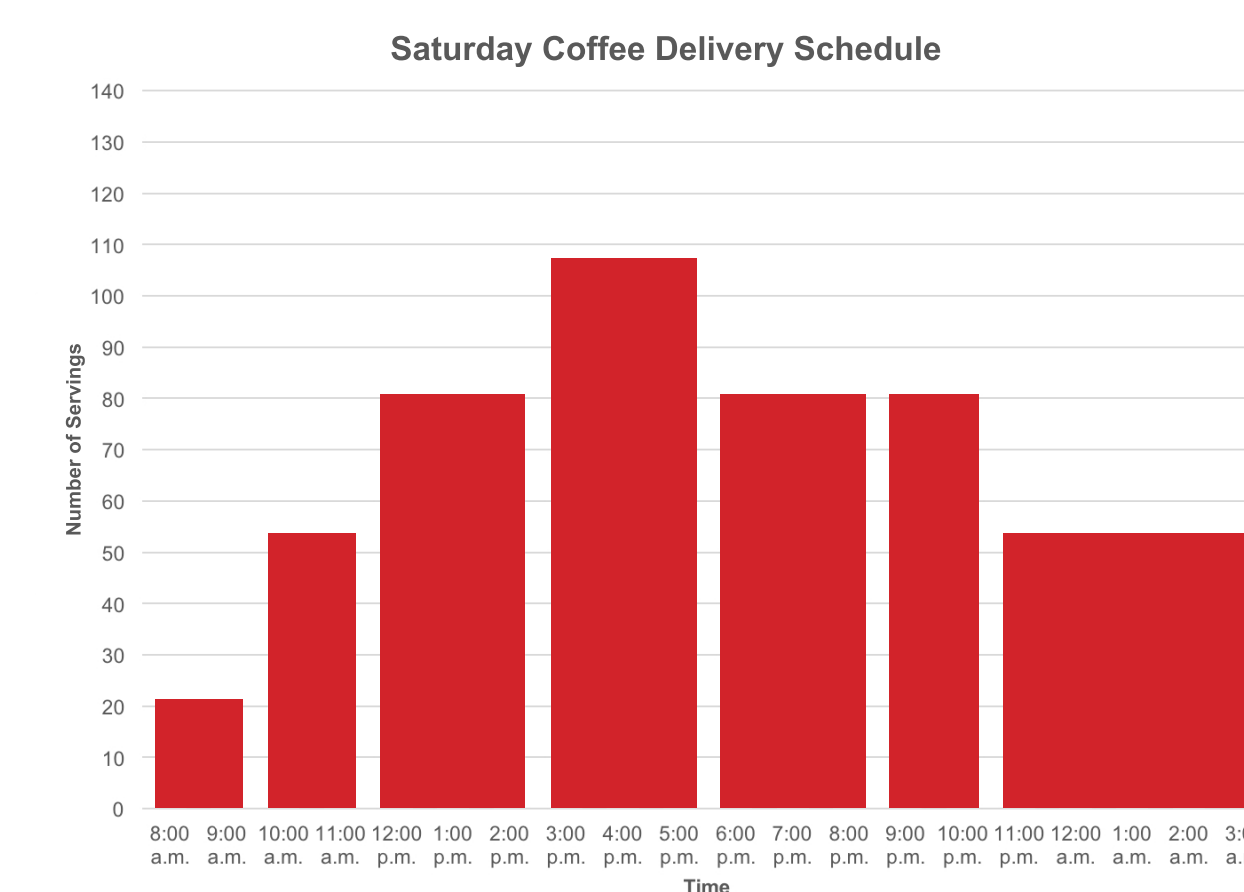


Furniture Used in Alumni House - Seats 174 People

Location	Quantity Available	Table Size	Number of Seats Per Table
Upstairs	5	60" Round Table	8 people
Upstairs	6	8' Long Table	8 people
Downstairs	1	30" Half Round Table	4 people
Downstairs	5	6' Long Table	6 people
Downstairs	3	4' Long Table	4 people
Downstairs	5	60" Round Table	8 people



- The only data collected at this time is how often and how much coffee is ordered.



- No quantitative data was given, all data was qualitative and based off of verbal conversations with Red and White and Red and White's Study Days Feedback Survey.



Results

- Based on our forecasting calculations we concluded that Study Days will reach capacity on one level in the Alumni House in the year 2019 and exceeds capacity in the year 2021.

Class Year Information

Class of	Number Of Students	Freshman Year	Sophomore Year	Junior Year	Senior Year	Attending	Attending	Attending	Attending
Class of 2012	1613					118	7.32%	124	7.75%
Class of 2013	1676					133	7.95%	179	10.71%
Class of 2014	1613					122	7.57%	159	9.86%
Class of 2015	1672	61	3.65%			125	7.48%	131	7.83%
Class of 2016	1339	91	6.76%			120	8.96%	124	9.26%
Class of 2017	1424	75	5.27%			120	8.43%	124	8.71%
Class of 2018	1334	65	4.88%			120	8.96%	124	9.26%
Class of 2019	1379	119	8.63%			120	8.71%	124	8.99%
Class of 2020	1511	87				127		140	
Class of 2021	1560	90				131		145	
Class of 2022	1619	93				136		150	
Class of 2023	1662	96				140		154	
Class of 2024	1716	99				145		159	
Class of 2025	1772	102				149		163	
Class of 2026	1829	105				154		168	
Class of 2027	1888	108				159		173	
Class of 2028	1949	112				164		178	
Class of 2029	2012	116				169		183	
Class of 2030	2077	119				173		187	
Projected Data		81	5.75%			124	8.42%	142	9.29%
Calculated Data								134	8.43%

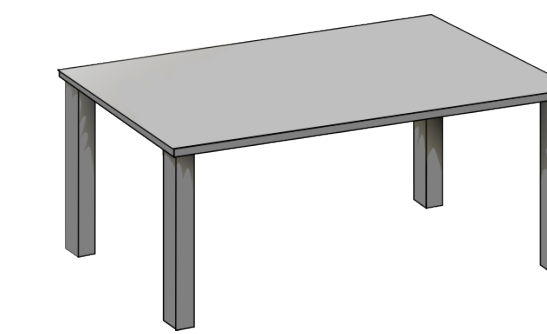
Future Study Days

Study Days	Number of Freshman	Number of Sophomores	Number of Juniors	Number of Seniors	Sheer Total	Peak People	Upstairs	Downstairs
2017	75	125	131	120	450	124	83	41
2018	60	120	124	112	416	114	76	38
2019	119	116	128	116	479	132	88	44
2020	87	127	140	127	482	132	88	44
2021	90	131	145	131	497	137	91	46
2022	93	136	150	136	513	141	94	47
2023	95	140	154	140	530	146	97	49
2024	99	145	159	145	547	150	100	50
2025	102	149	165	149	565	155	103	52
2026	105	154	170	154	583	160	107	53
2027	108	159	175	159	602	165	110	55
2028	112	164	181	164	621	171	114	57
2029	116	169	187	170	641	176	118	59
2030	119	175	193	175	662	182	121	61

Results Continued



- We found that it would be more useful for Red & White to keep track of when coffee runs out so they can better optimize coffee purchasing.



- From the results of Red & White's Study Days feedback survey we found that many students were not satisfied with the availability of meeting rooms. We found that it would be beneficial to either one a large group or two small groups.

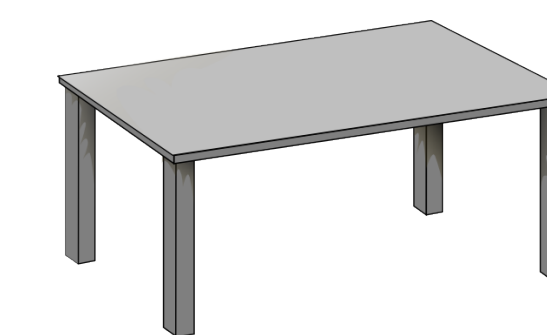


Recommendations

- Look for a new location to be used for study days in addition to the Heffner Alumni House.
- Offer an early bird special such as bagels in the morning to decrease the number of people attending at peak hours.



- In order to optimize the amount of coffee being consumed, collect data on how much coffee is left in the canisters before the newest shipment of coffee comes in.



- Change how Study Days Room Reservation is done so that rooms can be either private or semi-private rooms in order to maximize the number of students using the rooms

Study Days Room Reservation

Due to a high demand of rooms during Study Days, a **maximum of 3 hours per group per day***
*Reserving a room under a different person's name for the same group for multiple time slots is not allowed.

Time	Private Room (1 Group of 10-12 People)	Semi-Private Room (2 Groups of 4-6 People)
8:00 am		
9:00 am		
10:00 am		
11:00 am		
12:00 pm		
1:00 pm		
2:00 pm		
3:00 pm		
4:00 pm		
5:00 pm		
6:00 pm		
7:00 pm		
8:00 pm		
9:00 pm		
10:00 pm		
11:00 pm		
12:00 am		
1:00 am		
2:00 am		

A room can be either a private room or a semi-private room.
If a group is signed up as a private room, the two boxes under semi-private room are Not Applicable.
If a group is signed up as a semi-private room, the box under private room is Not Applicable.

Lessons Learned & Acknowledgments

Lessons Learned

- Even though something appears to look and run smoothly from the outside, after data analysis you can find areas for improvement
- Data by itself is not beneficial unless used to analyze problems
- Although a problem may be small, many techniques may be used to solve it
- Collaboration for this project allowed increase in scope and solutions

Acknowledgments

- Red and White for providing data in regards to Study Days and for meeting with us to articulate any problems with Study Days
- Professor McDermott for acting as our consultant and helping us find a unique perspective on the project