RECREATION AND WELLBEING

University of Wisconsin - Madison

RECREATION
& WELLBEING
UNIVERSITY OF WISCONSIN-MADISON

Student Impact Team - Rec Rangers

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Executive Summary

Rec Well provides the largest recreational facilities and most robust programs on campus for recreation to students. However, engagement with these facilities has not been quantified in several years. By utilizing data collected by Rec Well's Fusion database and program leaders, the project can describe specific building usage and student participation in programs. This project aimed to provide a total engagement number across facilities and dive deeper into student visitation behaviors over the fiscal year June 1, 2023, to July 30, 2024. In addition, a departmental analysis was conducted on the nutrition education program to examine possible actionable insights drawn from the data gathered. After performing project data cleaning, engagement numbers across all facilities from the fiscal year equal 37,300 out of 51,232 students, a **72.8%** engagement rate. The results for the nutrition program showed that implementation of the late-cancellation/no-show fee between Fall and Spring semesters reduced no-shows by **75%**. Further analysis suggested to boost participation within the program included marketing strategies tailored to undergraduate, part-time, and graduate student groups and improvement on unsuccessful events while continuing successful events for the following year. The project data provides meaningful insights to Rec Well and provides them an opportunity to make data-informed decisions. This project will also provide Rec Well the ability to create visualizations and interpret data obtained from programs due to the project deliverable's iterative ability. Through this project, Rec Well will be able to convert data from their database into visualizations to view trends, numbers, and generate data-driven decisions. Decisions that improve attendance and retention rates will bring more funding due to servicing more students thereby increasing the quality of programs and services provided.

Introduction

Rebuilding a legacy

In 2020, the Nick had properly replaced the South-East Recreational Facility and became functional into the COVID-19 pandemic. In 2023, the Bakke became operational and replaced the Natatorium. These two renovations on the University of Wisconsin - Madison campus represented many recreational activities that students would participate in with Rec Well overseeing these facilities. In conjunction with Nielsen, these facilities are now currently functional and serviceable to students and a question arose from Rec Well: How many students utilize one of these facilities? Their request to understand how these facilities are utilized is a beginning of charting engagement throughout the years as long as Bakke and Nick preside. This question seeks to answer how many engage with services and how many students Rec Well still has yet to convince to engage with their services.

Defining the task

Attaining the answer to the question set by Rec Well proves to be an easy task, as it can be simply answered with the number of students visiting their facilities. To add onto this, Rec Well further defined the task by adding details to the question such as asking visitation frequency for students, program participation, time of day, and other descriptors for the students. Upon gaining the data to answer these details, visualizations were requested to display the degree of difference. Through this, Rec Well will be able to gain valuable insight to how students use their facilities and how often they engage in them. Upon completion of data cleaning and visualization, Rec Well also requests documentation of all steps to attain the ability to recreate the data cleaning and visualizing. With this, Rec Well can visualize and view data monthly or quarterly and update engagement strategies accordingly.

Deliverables

A.)List of Deliverables:

1. **Compiled Dataset**
    - **Objective:** Clean and transform all the datasets to create a compiled 'merged' dataset that answers questions like "**How many students used at least one of the Rec Well facilities or services in FY24?"** This compiled dataset also helps define user personas based on their facilities and services usage data.
2. **User Engagement Analysis:**
    - **Objective:** Determine the percentage of students engaged with Rec Well during 2023-24 Fiscal Year. This involves a comprehensive analysis aimed at finding the engagement information for each program, gender, education level, user type etc.
3. **Brand Personas Identification:**
    - **Objective:** To identify and define brand personas based on the usage of the recwell facilities. Helps categorize users and perform targeted analysis on user groups such as infrequent users, frequent users etc.
4. **Time Trend Analysis:**
    - **Objective:** Analyze and visualize usage trends over time to understand peak usage times daily, weekly and monthly. Understand peak, non peak hours, best times to host events or programs etc.
5. **Dashboard Development:**
    - **Objective**: Create interactive reusable dashboards using existing visualizations by grouping them topic wise to help monitor RecWell's impact on student engagement and much more.

6. **Nutrition Departmental Analysis:**
    - **Objective**: To conduct an in depth departmental analysis of the nutrition programs offered by Rec Well with an aim to uncover insights that could guide future strategic decisions.
7. **Web Page Overhaul:**
    - **Objective:** To analyze the existing Rec Well website and conduct user surveys to help improve the user experience by strategic placement of things across the webpage.
8. **Documentation:**
    - **Objective** : Ensure that all the relevant datasets and IPYNBs are stored for ease of use in future analysis and to create a comprehensive documentation to explain the processes that led to the final datasets and visualizations.

B.)Data

1. Sources:

a. **Fusion:** Fusion is a Rec management software used by Rec Well for most of their data and management related processes. The following is the list of files pulled using SQL query from the fusion database.

i. Facility access

ii. Gender

iii. Membership data

iv. Program registrations

b. **Non fusion:** Data in these files is obtained from the department heads or program holders.

   i. Nutrition Programs
   ii. Court reservations
   iii. Swim lessons
   iv. Group and personal fitness programs
   v. Swim lessons
   vi. Skate pass
   vii. Sport clubs
   viii. Intramural sports registrations

2. Pre Processing:

a. This section speaks about the filtering of the required fields of the following files to achieve an apt version for the master file. The **'Cleaned'** files contain all the important information and can be used for deeper analysis and the master file is a transformed version of the cleaned file that shows the count of unique entries grouped by student ID to show information such as 'how many sports clubs a student is part of?', 'how many times a student accessed Bakke' etc. and is for merging to create a master file.

Cleaning steps across all files

- Eliminate non student membership types
- (Only keep - Enrolled Student, Enrolled Student - Part Time, Enrolled Student - Grad)
- Eliminate any entries without a valid 10 digit WiscID(PrimaryID)

- Eliminate duplication of WiscIDs (for master/merge file)
- Eliminate empty values

C.) Data Merging

Once the data is cleaned and the ‘merge’ version for each file is created, each of these files are sequentially merged with the membership file. Ths process creates a master dataset that contains the counts of each type of program, registrations, facility access etc for every student.

The final master file is created by merging various files using ExternalID/Wiscard ID as a common field. This ensures that each student is uniquely identified.

For a more deeper look at merging check ‘instructions.ipynb’. It contains a step by step explanation of how to clean and merge each file with example code.

D.) Master file columns:

Column Name	Description
Primary ID	Campus ID/Wiscard number
MembershipType	Membership type Eg: grad, undergrad
Email	Email Address
OriginalStartDate	Membership start date
OriginalExpiryDate	Membership end date
Gender_CV	Gender
Fall23_Pr_reg_count	Number of programs registered in fall by a student
Spring24_Pr_reg_count	Number of programs registered in spring by a student
Summer23_Pr_reg_count	Number of programs registered in summer by a student
Nutrition_reg_Fall23	Number of times student registered for

	a nutrition program in Fall
Nutrition_reg_Spring24	Number of times student registered for a nutrition program in Spring
Fall 23 IM	Number of Intramural sports a student is registered to in Fall
Spring 24 IM	Number of Intramural sports a student is registered to in Spring
Times Accessed Ice Rink	Number of times a student accessed the Ice Rink in FY24
sport club count	Number of sport clubs a student is part of
Group Fitness Participation	Number of Group Fitness sessions a student participated in
Personal Fitness Participation	Number of Personal Fitness sessions a student participated in
Bakke - Welcome Desk	Number of times a student accessed Bakke in FY24
Nicholas Recreation Center	Number of times a student accessed Nicks in FY24
Nielsen Tennis Stadium	Number of times a student accessed the Nielsen stadium in FY24
Total Building Check-ins	Count of total facility accesses (nicks, bakke, ice rink, nutrition program and nielsen)
Total Service Usage*	Count of number of services used by a student
User Type	User type based on student's total facility usage eg: moderate user, frequent user etc.

*Total service usage is a count of all columns that has a value greater than 0. For example if a student accessed Bakke 10 times it is counted as 1.

Outcomes

1. **Compiled Dataset:**
    a. **Outcome:** After cleaning and transforming all the datasets, they are combined with the 'Membership' file, where each entry corresponds to a unique student. New columns such as ’Total Building Check-ins’ , ‘Total Service Usage’ and ‘User type’ have been created to count each student’s total facility accesses, count the number of services used by a student and create user types/brand personas based on student engagement with Rec Well services.
2. **User Engagement Analysis:**
    a. **Outcome:**The analysis revealed that 72.8% of students utilized at least one Rec Well facility during the fiscal year 2023-2024. This high engagement rate underscores the significant role that Rec Well plays in student life. The analysis also provided detailed insights into engagement by program, gender, education level, and user type, allowing for a more nuanced understanding of how different student groups interact with Rec Well’s offerings.
3. **Brand Personas Identification:**
    a. **Outcome:** Created brand personas by speaking of the brand voice, personality, colors and other ways the brand is and must be perceived.
4. **Time Trend Analysis:**
    a. **Outcome:** The time trend analysis identified peak usage times during the week, highlighting the most and least busy hours for facility use. These insights can inform scheduling decisions for events, staffing, and resource allocation to better match student needs and optimize facility usage.

5. **Dashboard Development:**
    a. **Outcome:** Dashboards were created and separated by 3: time-related, student bins, and nutrition education program. Dashboards portray visualizations relevant to a single data source. This allows for comparisons between related fields and filters.
6. **Nutrition Departmental Analysis:**
    a. **Outcome:** The analysis of the nutrition program revealed that implementing the late-cancellation/no-show fee reduced no-shows by 75%. Additionally, the study suggested targeted marketing strategies to increase participation among undergraduate, part-time, and graduate students, as well as recommendations for improving the relatively unsuccessful events.
7. **Web Page Overhaul:**
    a. **Outcome:**The analysis of the existing Rec Well website and subsequent user surveys led to recommendations for a more intuitive layout, improved navigation, and better placement of key information. These changes are expected to enhance the user experience and make it easier for students to find equipment, live building usage, and register for programs.
8. **Documentation**
    a. **Outcome:** Comprehensive documentation was created to detail the processes of data cleaning, transformation, merging, and visualization, along with .ipynb files and visualizations using Tableau. This documentation ensures that Rec Well staff can replicate and build on the analysis in the future, enabling continuous improvement in data-driven decision-making.

Discussion

The question given to us by Rec Well was easy enough to answer: out of 51,232 students, 37,300 have used a Rec Well facility at least once. The project led us to describe these 37,300 students in the manner of which facility they used, when, and how often as seen in *Fig. 3, Fig. 4, Fig. 9* and *Fig. 5*. In addition to this, all students were described in *Fig. 1* and *Fig. 2* to display the total number of students and their composition of membership type. Due to the massive number of the undergraduate population, much of Rec Well's attention will be spent gaining their attention. With frequency based visualizations provided, Rec Well is also able to establish better staffing schedules around peak hours and prepare equipment accordingly to these hours. Peak seasons such as September and February shown in *Fig. 4* would also be the best time for advertisement of programs and services offered by Rec Well. In lull periods such as November and December, attendance and program participation is expected to decrease due to holidays, finals, and midterms for students.

Bins of students were generated based on frequency of visitation: Non-users, Infrequent user (up to once a month), Moderate user (up to 3 times a month), Frequent user (1 to 3 times a week), Super engager (3+ times a week) (*Fig. 6*). Generating and separation of students by bins allows for creation of generalized student personas in which they can be assigned descriptive attributes. For example, super engagers (students that in general come very often) participate in more programs than other user bins (*Fig. 7*). This allows the categorization of a smaller body of students and describes their overall behavior rather than individually. After creating these bins, strategies can be created to target specific user bins. The two largest bins are non-users and infrequent users. Creating events to target and cater to these user bins around peak months would be beneficial to incorporating them into Rec Well's services. Other strategies available for Rec

Well to boost participation and nudge users into higher bins may include providing rewards for students that attend a specific number of events, rewards for bringing a friend, or campus-wide events to spread awareness of Rec Well services.

Departmental analysis for the nutrition education programs brought many different avenues of improvement to light. *Figure 10* displays the change from the Fall to Spring semester in which the late-cancellation/no-show fee was implemented. The number of no-shows dropped dramatically while cancellations stayed the same. In addition, attendance to events slightly increased. This must mean that students stopped signing up for events that they would not attend. Some may have gone to the event, if possible, to not face the fee. Since cancellations stayed the same, those that knew that they were unable to attend canceled early and faced no fees. This enforced commitment for the students when they signed up for these classes and thus decreased the no-show number of students. Other insights from *Fig 11* and *Fig 12* are different marketing strategies. *Fig 12* shows that Rec Well should target these student demographics differently; graduate students should be included and emailed to ensure the word is spread to them, part-time students should have events marketed for time savers and convenience to their emails, and undergraduates should be marketed for with group cooking events to bring more students in and commitment to the event. The ways Rec Well can use *Fig 11* is to ensure events are held on weekdays instead of weekends. Sundays have a near 50% no-show rate. Events on the weekend should either be low-stakes or not be held to prevent losses in the program.

Next Steps

1. Refine Engagement Strategies:

- Based on the user engagement analysis, identify specific areas where Rec Well can improve student participation. Consider adjusting program schedules, introducing new activities, or enhancing existing services to better meet student needs.
- Develop action plans for under-engaged student groups, using insights from the time trend analysis to optimize outreach and program offerings.

2.Enhance the Nutrition Program:

- Use the insights gained from the Nutrition Departmental Analysis to refine the program offerings. Consider implementing the recommended improvements, such as targeted marketing to specific student groups or adjustments to the program schedule.
- Monitor the impact of changes on participation rates and student satisfaction, and adjust strategies as needed.

3. Cross-Departmental Application of Nutritional Case Study Insights:

- Utilize outcomes from the nutrition program case study similar methodologies across other Rec Well departments. For instance, departments such as Group Fitness, Intramural Sports, or Wellness Workshops can benefit from a similar deep dive into participation trends, user feedback, and program effectiveness.

4.Website Optimization:

- Begin the process of redesigning the Rec Well website based on feedback from the user surveys and usability study while focusing on improving navigation, content placement, and overall user experience.

- Conduct A/B testing to evaluate the effectiveness of the changes and ensure that the website enhancements lead to increased student engagement and satisfaction.

5. Tap in to the edge cases:

- Do extensive user research on the population that comes once and never again. Understand the user perspective and frustrations to tap into the non user and infrequent user bins, which happen to be the largest percentage of the overall student population, *(Fig 6)*.

6. Documentation and Knowledge Transfer:

- Finalize all project documentation, including data cleaning processes, analysis methodologies, and dashboard usage guides while ensuring that this documentation is accessible to all relevant stakeholders.

Conclusion

Rec Well has made many great decisions from the inception to now. With the new services that the Nick, Bakke, and Nielsen provide, data is needed to make informed decisions and usher Rec Well into another new legacy. This data analysis provided possible avenues that Rec Well can use in the future. Suggestions include altering staffing hours to accommodate peak hours, departmental changes to increase engagement such as targeted marketing, and modifying the website user interface to better retain and relay information to users. After completion of this project, the documentation for replicability allows for Rec Well to continue to reiterate decisions and plans. Through these data-driven decisions, Rec Well should see an increase in engagement, usage, and attendance of services. With higher engagement and participation, the quality and quantity of services that Rec Well should increase due to an increase in funding and feedback provided by students. Through completion of this project, Rec Well as a service will become more integral to every student's life, even those of non-users.

Figures

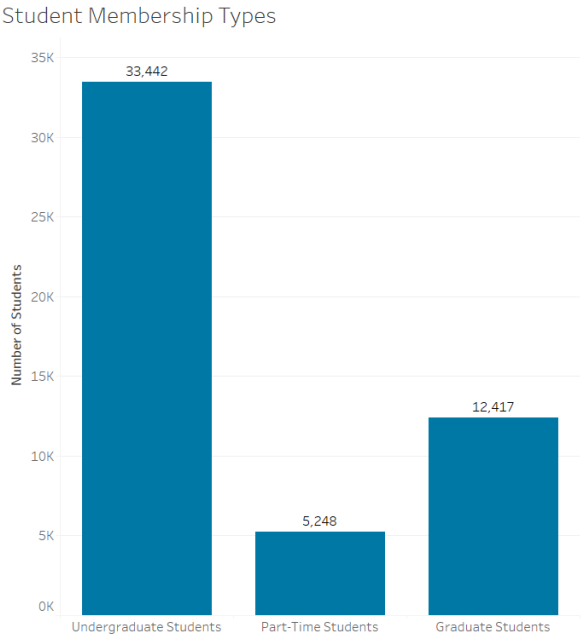

Figure 1: Undergraduate populations dominate the student make-up. Displays populations of different student membership types.

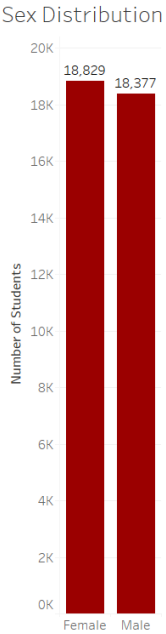

Figure 2: Male and Female students are nearly equivalent. Displays populations of Males and Females within the total student population

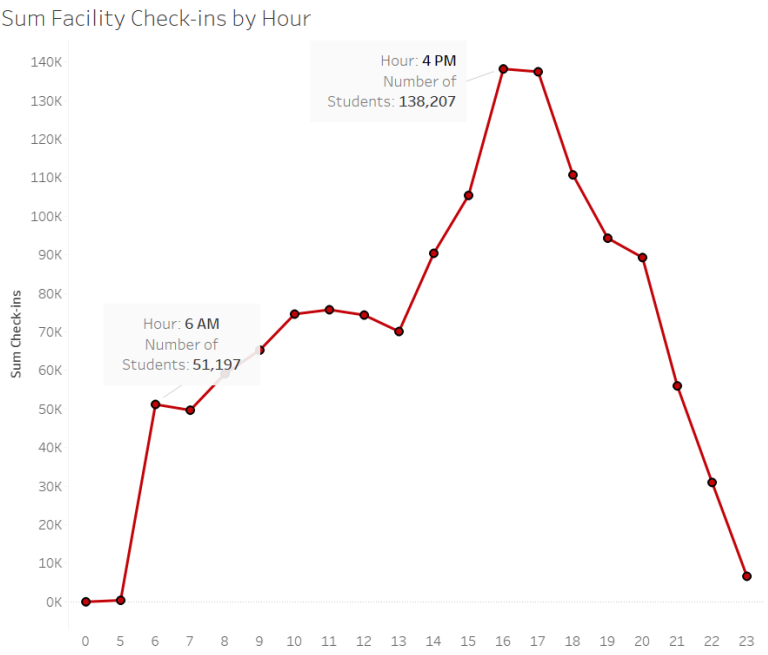

Figure 3: Peak hours for all facilities are 4pm & 5pm while early hours offer the least number of students. Describes check-in behavior for students across the fiscal year in all facilities.

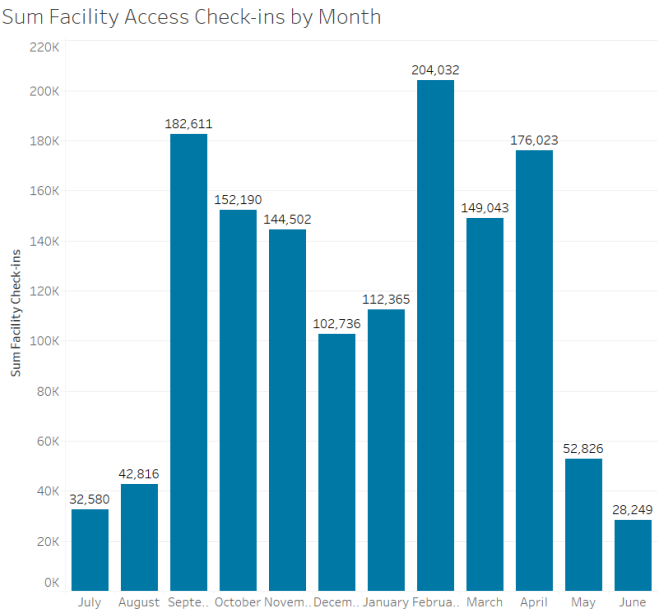

Figure 4: Summer months show a significant drop of facility accesses from students. September and February peak due to students returning. Describes the total check-ins from all facilities by month.

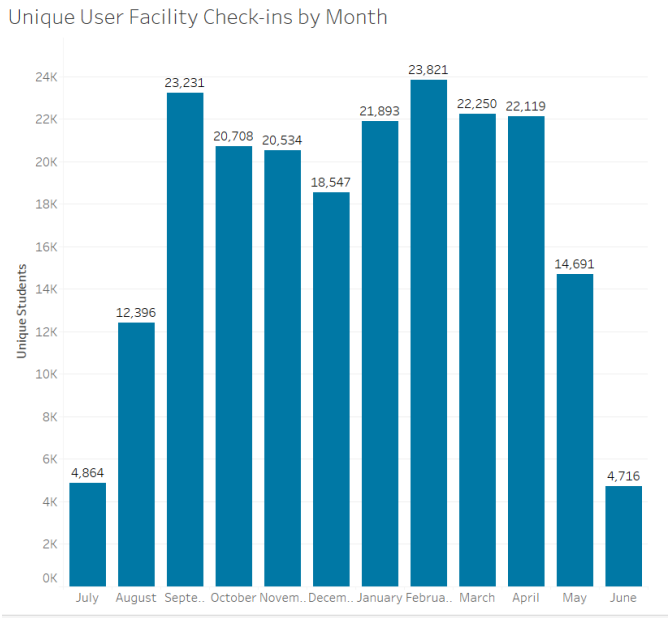

Figure 5: *Fig.4* shows total check-ins but this figure shows that the number of students checking into the facilities remain roughly unchanged through the school year. Describes the number of unique students a facility receives a month.

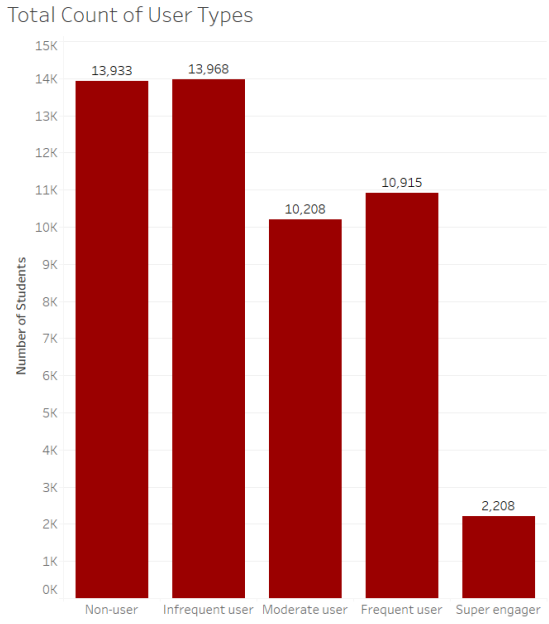

Figure 6: Non-users and infrequent users are the most prevalent user types. Describes the students by separating them into different categories. Bins are as follows: 0 = Non-users, 1-10 = Infrequent user, 11-35 = Moderate user, 36-125 = Frequent user, 126+= Super engager.

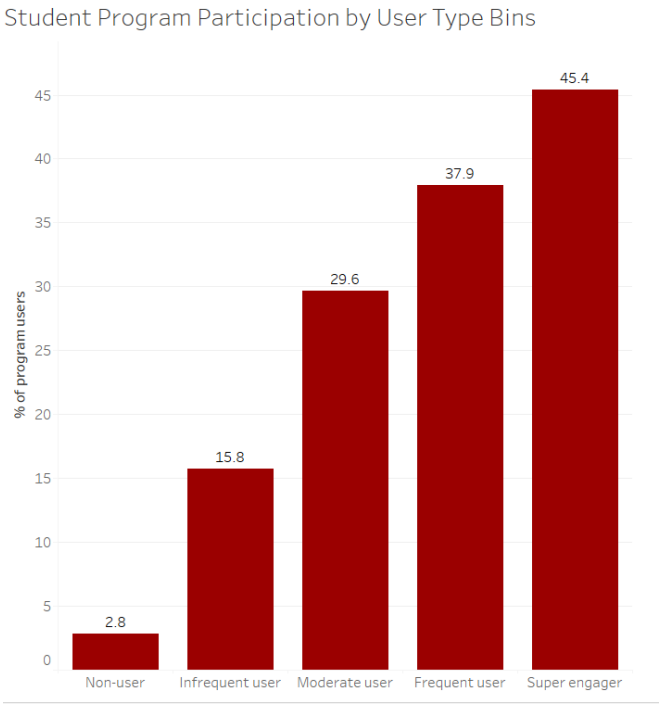

Figure 7: As a user visits more frequently, they are more likely to be engaged with a program. Describes the percentage of users within a bin that engages with a program. Bins are as follows: 0 = Non-users, 1-10 = Infrequent user, 11-35 = Moderate user, 36-125 = Frequent user, 126+= Super engager.

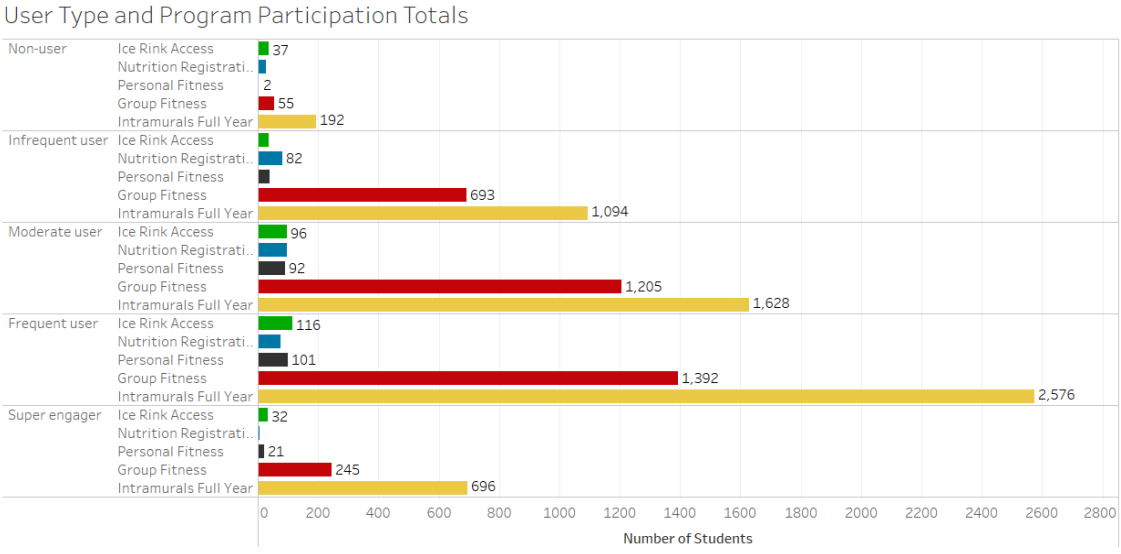

Figure 8: User types and engagement with intramurals see a generally positive correlation. Super engager bin population is smaller than other bins, but *Fig. 6* displays a higher percentage of users are engaged comparatively. Displays the user type bins and the total number of users that participate in the listed program. Bins are as follows: 0 = Non-users, 1-10 = Infrequent user, 11-35 = Moderate user, 36-125 = Frequent user, 126+= Super engager.

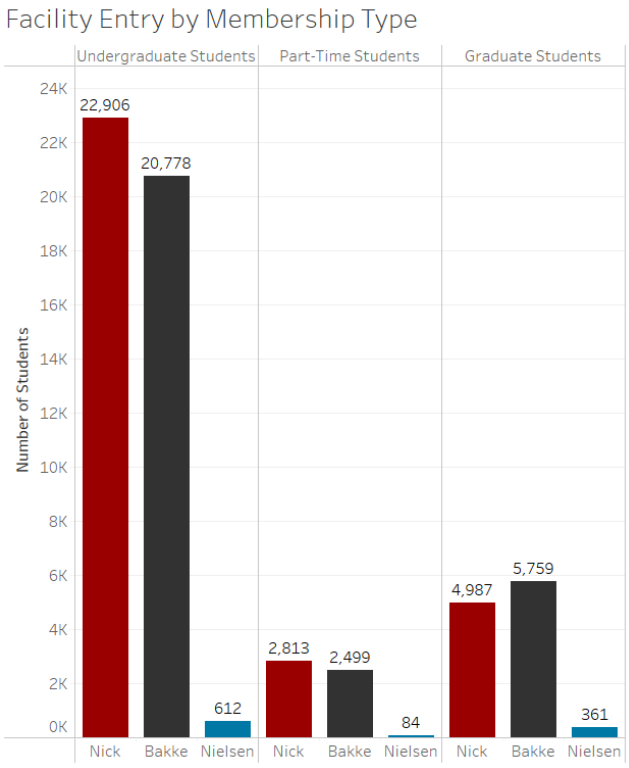

Figure 9: More undergraduate students visit the Nick than Bakke while more graduate students visit the Bakke over the Nick. Displays the total number of unique students that visited a facility.

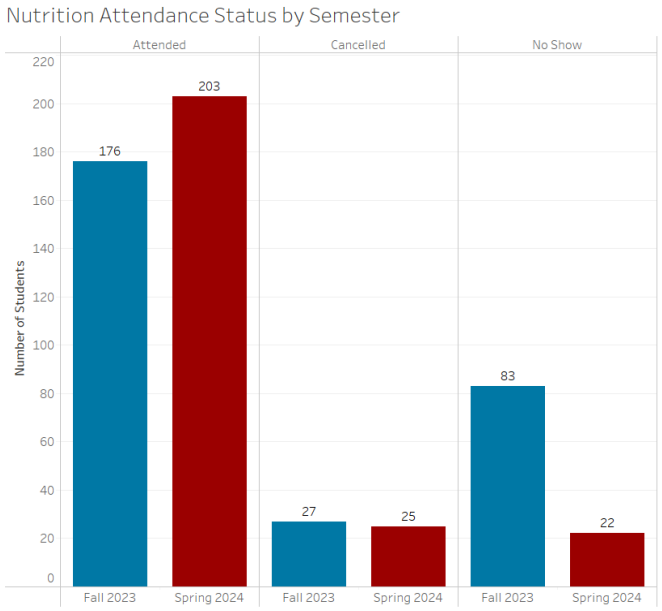

Figure 10: Following the no-show/late-cancellation fee introduced mid-way through the fiscal year, no-shows dropped significantly from Fall 2023 to Spring 2024. Displays the total numbers of attendees, no-shows, and canceled statuses for nutrition education programs.

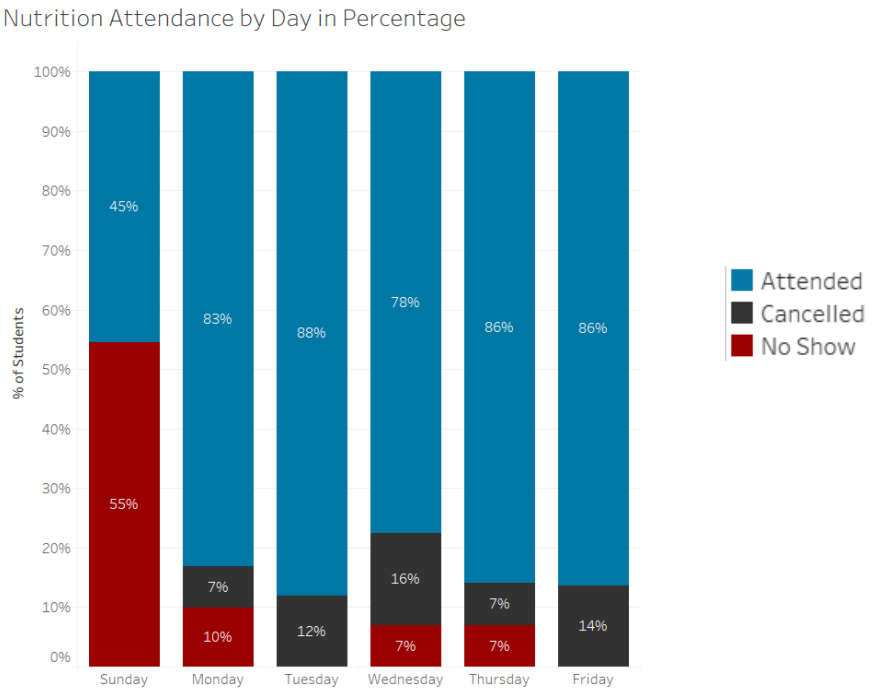

Figure 11: Weekdays offer the highest percentage of attendance compared to a weekend. Displays the percentage of attendees, no-shows, and cancellations by day.

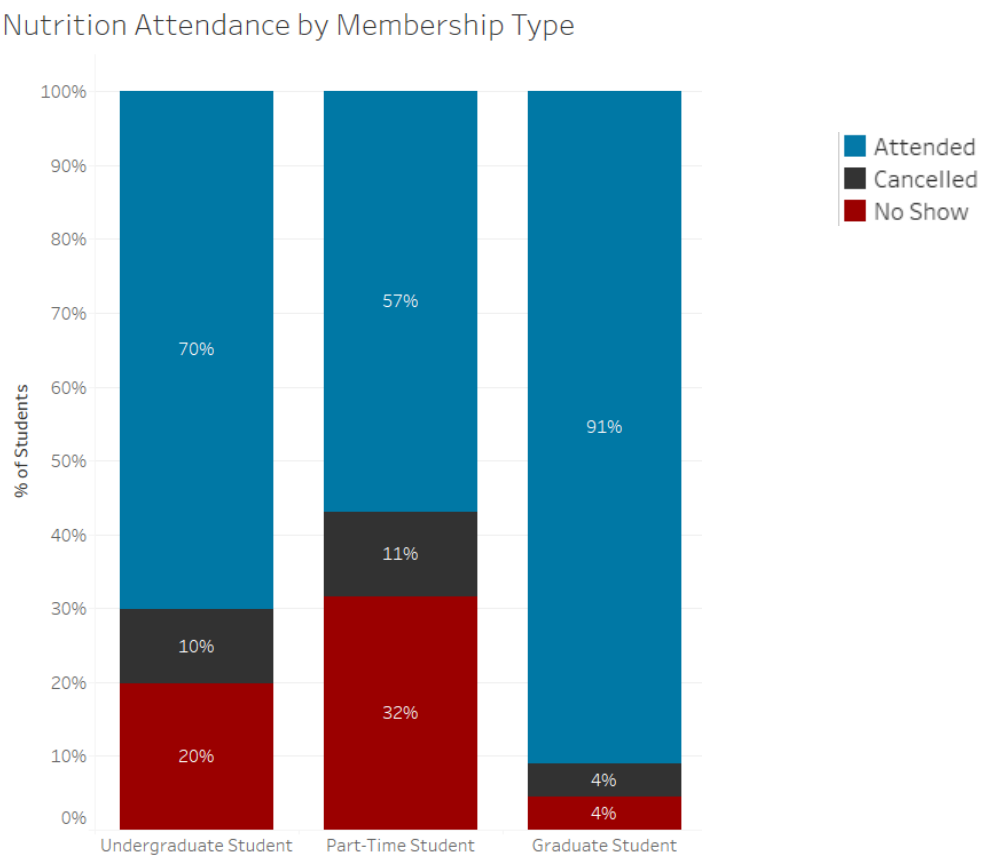

Figure 12: Graduate students are the most likely to attend while part-times are the least likely to attend a program. Displays percentage of students that attended, canceled, or no-showed a program across different student memberships. Percentage weighs both Fall and Spring semesters