



Semester Report

ENP293 Graduate Capstone

Prepared by Lexie Kirsch
Prepared for Professor David Aurelio, Ph.D.

December 12, 2018

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December 12, 2018

Prof. David Aurelio
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Medford, MA 02155

Dear Professor Aurelio,

This semester I set out to create a resource for students at Tufts University to become more involved in their community. The forum and content of the resource depended on what I found by conducting user research and would be iterated following each usability assessment I conducted.

I have completed this user research, created a prototype, and conducted multiple rounds of usability testing. Although my prototype remains a prototype, as opposed to a full-fledged application, I am confident that an implemented version would be a promising resource for encouraging student community involvement. This confidence is based on my application meeting its initial requirements and also the positive responses from my latest formative usability assessment.

I look forward to hearing your feedback and working with you to further develop this application. Please do not hesitate to reach out to me with any questions.

Sincerely,

Lexie Kirsch

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Human Factors Engineer

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Introduction

The goal of the Tufts Socialite application is to inspire a sense of community on Tufts campus by bringing together students with different backgrounds but common interests.

All too often, I hear people complain about wanting to attend certain events but not wanting to go alone and not having friends who also want to attend. Having a limited scope of friends is inhibiting these students from exploring their interests. As a result, these students may feel isolated and not part of the Tufts community.

To combat this lack of community, I am proposing a social platform through which Tufts students can join groups and events based on personal preferences and meet other students who share the same interests, regardless of those students' class year, area of study, etc. Such a platform would not only enable students to explore their interests but also encourage them to make new friends. In theory, the result is a happier, more connected, and more cohesive community.

Results

User Research

I spent the first three weeks of this project conducting user research to ensure my smartphone application met the needs and desires of my user group, which includes all Tufts students.

First, I looked at a website with a similar concept: Meetup. On Meetup, users select the types of events they are interested in attending, and the website returns a list of upcoming and nearby events that match those interests. I used Meetup to create a list of potential content for my social application (see [Appendix A](#)).

Next, I looked at Yik Yak, an application that allowed users to anonymously and publicly share information to others within a 5-mile radius. Like Twitter, Yik Yak featured a feed, the content of posts was capped at a character limit, and users could respond to posts through “likes” or comments. Yik Yak gained popularity on college campuses because students could post about campus-specific and relevant content, such as the presence of a puppy on the academic quad. Although Yik Yak was eventually shut down, a friend of mine recently reminisced about feeling connected to other students when they shared their relatable thoughts, so I considered bringing it back as a feature of my application for campus-wide content.

Then, I looked at Slack, a messaging software that distinguishes itself from other messaging applications by allowing groups to be nested within other groups and allowing users to respond to messages through a variety of emoticons. I was inspired by Slack to create subgroups for my categories and to allow users to comment on posts with a range of emoticons.

After researching similar concepts and documenting their characteristics (see [Appendix B](#)), I interviewed members of my user group about what made them feel like part of the Tufts community already and what an application could provide to them to increase their sense of community (see [Appendix C](#)).

Finally, I created and distributed a survey to further assess users’ preferences about content and features for the application (see [Appendix D](#)). The feedback I received helped me identify user needs, as well as what users did not like about other social resources, and therefore requirements for the application. These requirements include: an events page, suggestions for popular events, the ability to send and

receive messages, the ability to respond to posts with both messages and emojis, the ability to filter content based on interests, and the ability to join groups based on interests; as well as the ability to customize content and no advertisements.

Personas

Based on my findings from the survey, I created two personas with different needs and tasks to help me focus my designs and make decisions to meet their goals (see [Appendix E](#)). Both personas were students, within the age range of average college and graduate students, and very familiar with technology and social media applications. I estimated the frequency of their use of the Tufts Socialite application would range from multiple times per day to a few times per month.

First, I created the persona of Grace because half of survey respondents were graduate students and a majority of respondents expressed interest in attending events, especially off-campus events. Based on those needs, the Tufts Socialite application must inform users what events are going on both on and off-campus and how to attend them.

Then I created the persona of Johnny because a smaller majority of survey respondents also expressed interest in messaging others and joining academic and athletic groups. Based on those needs, the application must allow users to join both academic and non-academic groups and communicate with other students in each.

Designs and Usability Tests

I spent the rest of the semester iterating prototypes of screens for my application and evaluating the designs through usability tests (see [Appendices F, G, H, I, and J](#)). I used AdobeXD to create the prototypes, which I designed to fit an iPhone X because I wanted to run some usability tests on a phone and I had access to an iPhone X. To ensure that my design would also scale to a range of phone sizes and operating systems—as not all my users use an iPhone X—I designed my pages with scrollable content as opposed to static content. Then I conducted usability tests, which were formative, because my design was in-progress, and conducted by both representative users and Human Factors experts.

While the first usability tests were focused on general features and layout of the content, the later usability tests included task analyses, cognitive walkthroughs, and follow-up questions. The task analyses provided quantitative data, such as success

rate and number of errors, and the cognitive walkthroughs and follow-up questions provided qualitative data, such as ease of use and visual appeal.

Through conducting these usability tests, I was able to identify both the strengths and opportunities for improvement of my application, so each iteration would bring me closer to my goal of inspiring community on Tufts campus.

Style Guide

In the final weeks of the semester, I also created a style guide to both encourage consistency within the application and to help a developer build the application to be consistent with the prototype (see [Appendix K](#)).

Evaluation

As the semester drew to an end, I created a fourth prototype (see [Appendix L](#)) and evaluated it for completeness and usability. To evaluate completeness, I assessed my prototype with the requirements established through my user research, and to evaluate usability, I conducted a final usability assessment (see [Appendix M](#)). Based on the first metric, my fourth prototype was successful, but based on the opportunities for improvement mentioned in the second metric, I decided to iterate my fourth prototype and created an even better fifth and final prototype (see [Appendix N](#)).

Discussion

Throughout the semester I applied many human factors tools that I have gained thus far: how to conduct user research and create a list of user needs, how to craft a persona, how to design a user interface, how to create a style guide, how to assess the usability of an interface, and how to iterate an interface based on feedback from usability assessments.

For this project, I also learned how to use AdobeXD not only to design the user interface of my application but also to implement interactions for a functioning prototype.

Although I have taken a course on user interface design, I have not used my interface design skills since that course, so this project helped me refresh those skills as well as further develop them. To help me refine these skills, a peer recommended I explore the website Dribbble. Looking at the designs of others both inspired me and influenced me to increase the fidelity of my prototype.

At a high level, I feel that I applied human factors practices to my project well. I began with user research and then entered a cycle of designing, testing, and iterating. I brought my design from a series of sketches to a few wireframes to a low- and later medium-fidelity interactive prototype, and my iterations were based on the feedback I received from both users and Human Factors experts.

At a lower level, I acknowledge that I neglected certain human factors steps, such as creating a flow diagram, and I completed some steps later than is suggested, such as creating personas after multiple rounds of usability testing instead of during or immediately after conducting user research. I did not apply these practices because I did not consider them helpful for my project; however, I understand that these practices are worthwhile in other situations, such as when working with other designers and developers, and therefore I should have included them for the experience of doing so. I also regret not gathering more users for my usability assessments, because the more feedback I receive, the better I can iterate my application.

Comparison to Peers' Projects

Below I briefly describe the similarities and differences between my project and the projects of my peers.

Jordan Stone

Both Jordan and I chose to develop interfaces and to do so as a personal challenge. We conducted user research, designed our interfaces from scratch, and created prototypes which we then tested with users for feedback. In contrast, Jordan designed an application for an Apple Watch, whereas I designed an application for an iPhone X, so while Jordan had the advantage of using templates to design his interfaces, he also had the additional challenge of fitting all his information onto a small screen.

Rachel Stein

Unlike Jordan and me, Rachel developed materials for job, and later, for her portfolio. While she and I both created style guides and personas, hers were more developed and detailed, as they played a larger role in her project than mine did in my project.

Ryan Koch

Both Ryan and I developed applications, starting with user research and ending with design iterations and usability tests of our prototypes. However, Ryan's application was created over the summer, so his usability tests centered around the flow of the application and the design of an additional feature, whereas my usability tests were designed to assess the entirety of my application. While we both created style guides and personas, Ryan created a flow diagram as well.

Summary

Over the course of the semester, I developed an application to enable students at Tufts University to explore their interests, meet new people, and become more involved in the Tufts community.

This project allowed me to both practice human factors principles and develop new skills, such as using AdobeXD for designing and prototyping. I also learned that I should not be afraid to look to others not only for participation in my usability tests but also for advice in overcoming my roadblocks. For example, if it were not for the advice of my classmate Rachel, my final prototype would likely have low fidelity and low visual appeal.

Although I have achieved my goals for this project in creating a usable social resource for Tufts students, I also acknowledge that this project is not complete. In fact, I could conduct numerous further rounds of usability testing and iterating, and this project still would not be complete. This is merely the fate of a prototype; the work is never done because there are always improvements that can be made. Alas, the semester is wrapping up and therefore so must this project. If I were to continue working on this project, I would conduct further usability assessments, and I would add additional functionality, such as the ability for the user to customize the content displayed on the home page, customize the type and frequency of notifications the user would like to receive, and add an "import events to calendar" button on the Events page.

My hope for the future of this project is that a Tufts Human Factors student teams up with a Tufts Computer Science student to both further develop and implement this application for the benefit of all Tufts students. Perhaps future generations will then further iterate the application as the needs and desires of the student body at Tufts changes. Perhaps other universities will catch wind of the application and design their own. And perhaps my humble semester project will cause a sensation. Who knows, maybe Tufts Socialite will be the next Facebook!

Appendix A: Potential Content

Groups

- Workshops ("How to...")
- Public events
 - RA events
 - Social club events
 - Fundraising events (e.g., bake sales)
 - Performances
- House parties
 - Baking party
 - Dance party
 - Potluck
 - Game night
 - Viewing party (e.g., sports games, TV show episodes)
 - Arts & crafts
- Academic
 - Study groups
 - Peer reviews for resumes, papers, etc.
 - Hackathons
 - Book clubs / discussions
- Fitness
 - Gym group, yoga group
 - Pick-up sports games / scrimmages
- Recommendations
 - Books
 - Music
 - Recipes
 - Etc (life hacks, study tips, makeup tips)
- Off-campus excursions (\$\$\$)
 - Outdoors (e.g., hiking, ice skating, apple picking, trip to Boston)
 - Indoors (e.g., see a movie, bowling, museums, restaurants, beer/wine/cider-tasting, pub night)
- Etc
 - Discussion of differences (e.g., religious/cultural differences)
 - Group for grad students, new students, ethnicities, etc.
 - Photography group

Appendix B: Characteristics of Other Social Resources

Meetup

- List of categories
- Filter by interests, popularity, location, date

Yik Yak

- No profile
- Points system (+ points for popular posts)
- Posts have a character limit and can be sent anonymously or with username
- Feed is categorized by “New” vs “Hot” filter and “Nearby” vs “My Herd” filter
- Users can interact with posts through upvotes/downvotes and with messages

Twitter, compared to Yik Yak

- Posts are not anonymous
- Hashtags
- Newest posts are always first
- Users can follow and send personal messages to other users

Slack

- Channels / groups and subgroups
- Emoticon response options

Appendix C: User Research Interview Notes

(Compiled from interviews with both undergraduate and graduate students.)

Q. What (website) makes you feel like part of the Tufts community? What do you like about it?

- Yik yak
 - Campus-wide / community-relevant
 - Everyone can post and participate
 - Ranking system based on upvotes → popular votes are at the top
 - Anonymity lowers feelings of insecurity about posting to group (but introduces problem of cyber bullying!)
- Meme page
 - Tufts-specific
- Being an RA
 - Interacting with both administration and students
 - Reslife portal posts about events happening around campus
- Having friends from different academic and social circles
- Facebook
 - Knowing what events friends are going to
 - Being in groups
- Instagram
 - Knowing what people are doing
- Classes and clubs
 - Similar interests
- Living in a dorm
 - Recognizing the people around me
- Meetup
 - Meeting people with similar interests, goals, and demographics

Q. What type of content would you want to see on an app developed to foster community at Tufts?

- Tufts-specific events so you don't have to worry about creepy strangers showing up
- Goal-centered meetups

Q. What type of events would you be interested in attending?

- Spikeball
- Wine-and-cheese potluck
- Tree-climbing
- Anything with free food
- Board games
- Parties
- Lectures
- Workshops
- Book club & discussion
- Sports viewing parties
- Bird-watching

Q. Any other comments?

- Include tags / filters to organize groups
- It shouldn't be academically focused. I prefer to build a community through shared interests and experiences rather than academic pursuits.

Appendix D: Survey Results

Number of responses: 20

Demographics

- Student statuses: freshman, sophomore, junior, senior, and grad student

What social platforms do you use to connect with other Tufts students?

- Facebook (95%)
- GroupMe (65%)
- Instagram, Slack, Snapchat (50%)

What features do you like about the social platforms you use? (short answer)

- Events (4x)
 - Ability to upload events directly to Google calendar
- Popular (3x)
 - Nearly everyone is using it, easy to find people
- Messaging (3x)
 - Ability to send group messages; real-time communication
- Other: Slack's channels; Facebook's stickers

What features do you dislike about the social platforms? (short answer)

- Distractions / spam (5x)
- Not customizable (2x)
- Unwanted notifications (2x)
- Other: concerns about image; concerns about permanence of communication; forgetting what was sent when content is impermanent; photos; no reminders about events; news feed; not sure where data is going; cyber bullying; can't post to specific groups (e.g., Tufts friends vs. high school friends)

What features would you use in a new social app?

- Events page (80%)
- Messaging (75%)
- Respond to posts with messages, with upvotes/likes (70%, 65%)
- Filters based on interests (60%)
- Groups for similar interests (55%)

What content would you want to see on a new social app?

- Academic groups (90%)
- Off-campus trips (90%)
- Upcoming events (85%)
- Athletic groups (65%)
- Recommendations (65%)
- House events (60%)
- Workshops (50%)

Appendix E: Personas

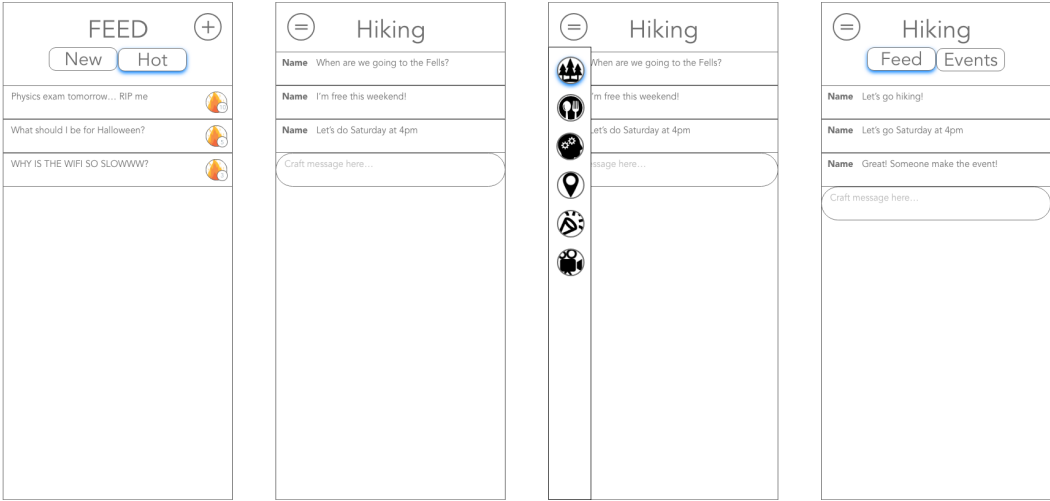
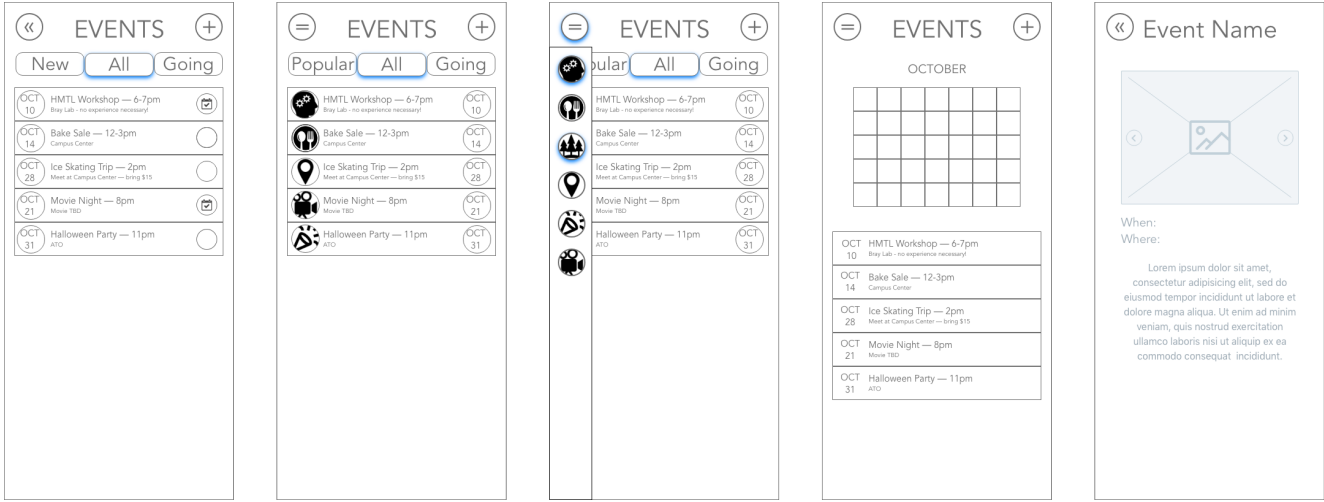
Grace is a 24-year-old graduate student at Tufts University. She's new to Tufts, and to Massachusetts, and she doesn't know many people yet. She likes her new housemates, but unfortunately, they don't share many interests with her; they're all Mech-Es who spend their free time building robots and such, whereas Grace is in the MSIM program (MS in Innovation and Management) and wants to spend her free time getting to know the Boston area, meeting new people, and learning as much as she can!



Johnny is a 20-year-old junior at Tufts University. He's co-captain of the swim team, a member of the a-cappella group The Beelzebubs, and a Tufts tour guide. He loves being involved in on-campus activities and encourages others to get more involved too, but he's a little disorganized and sometimes loses track of what he should be doing and when. He appreciates that his swim team has a group chat in which they message each other about practices and meets. He wishes they'd remind him about his academic responsibilities too, but he knows the swim team group chat is not the best forum for that.



Appendix F: First Prototype



Appendix G: First Usability Assessment Notes

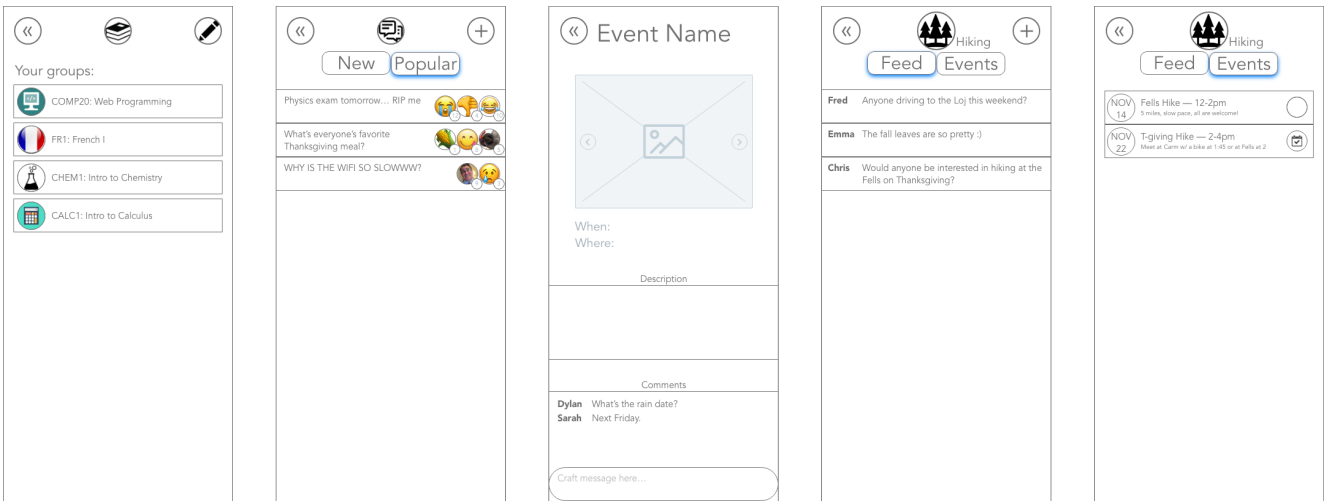
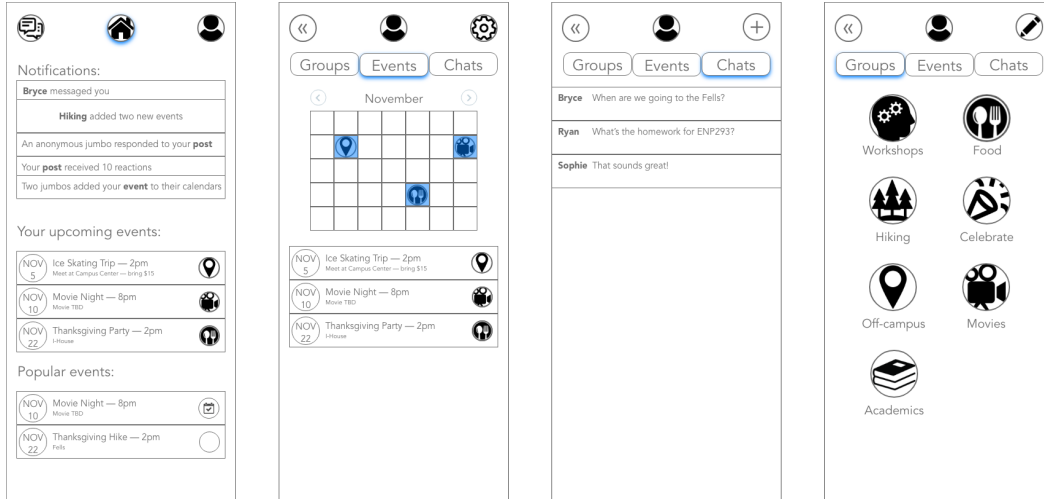
Strengths

- Blue color is nice because Tufts' colors are brown and blue
- Events
 - Can order events by date
 - Able to see which events you're attending compared to ones you're not
 - Able to see what's "Popular"
 - Filters
- Feed
 - Reactions to posts
- Group
 - Group messages
 - Direct messages

Opportunities for Improvement

- Add a text description in addition to icons for clarity
- Events
 - "New" events button is unnecessary if events are organized by date
 - Add an "import to calendar" feature
 - Viewing the calendar in month-format is unnecessary
- Feed
 - Should be organized into subtopics

Appendix H: Second Prototype



Appendix I: Second Usability Assessment Notes

Tasks

1. Find your COMP20 group.
2. Send a message to Ryan.
3. What are you doing on November 10th?
4. What is the most popular post in the main feed?
5. Someone in your hiking group posted an event on November 14th. Add it to your calendar.

Results

- Task 1 success rate: 0/2
 - Users were unable to find groups without random trial and error
- Task 2 success rate: 1/2
 - User was confused about the difference between Feed and Chats
- Task 3 success rate: 2/2
- Task 4 success rate: 1/2
 - Feed icon was not clear
 - User thought home page was for feed because of mental model from Facebook in which the newsfeed is on the home page
- Task 5 success rate: 1/2
 - User went to Events tab and tried to add an event by clicking on the calendar

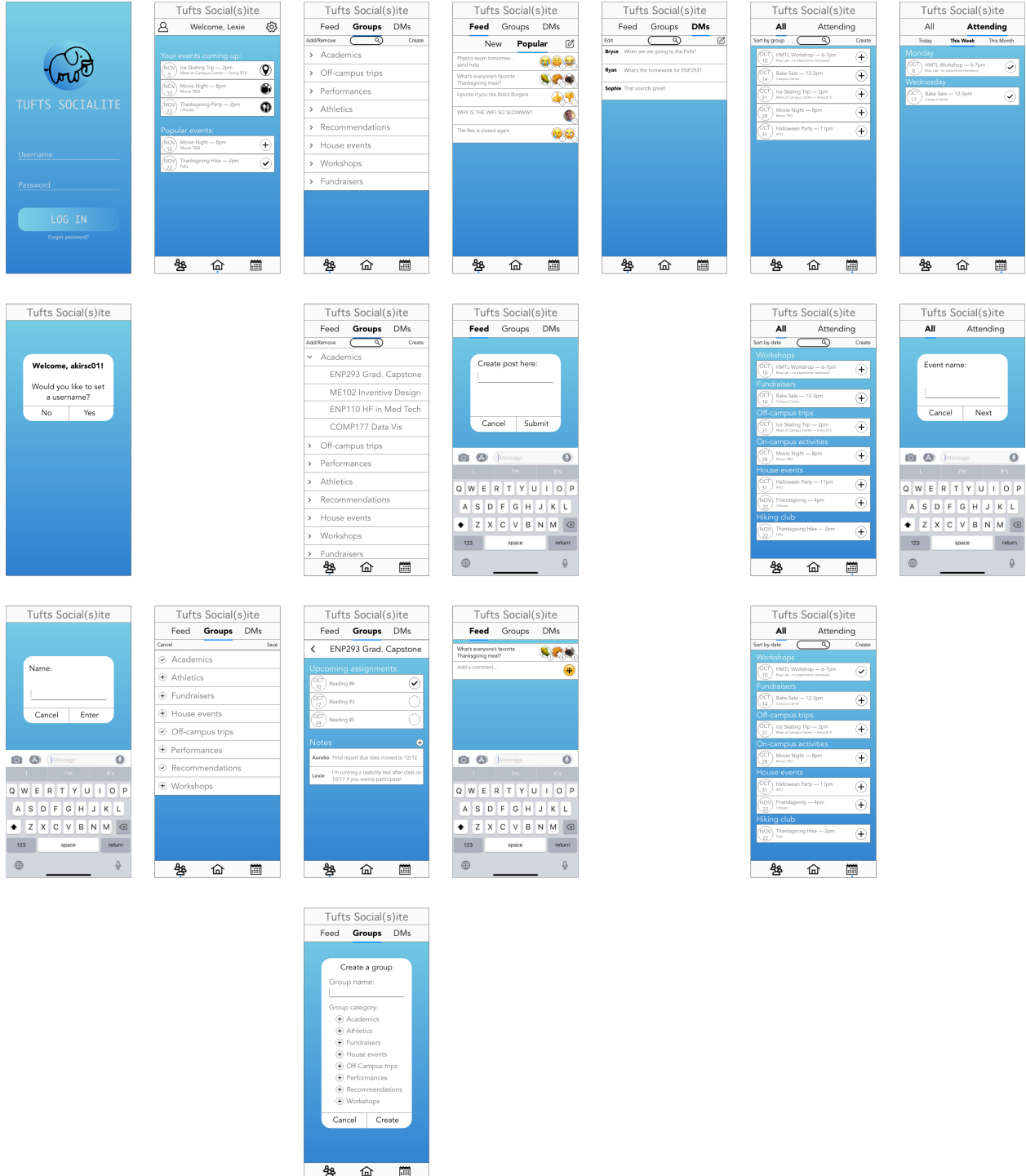
Strengths

- Layout of home page is good

Opportunities for Improvement

- Combine Home, Profile, and Feed pages to optimize task flow
- Use Settings to toggle calendar view by day/week/month
- Move buttons to bottom of screen to prevent clutter at top of screen
- Feed icon is misleading
- Groups page on Profile tab is not intuitive

Appendix J: Third Prototype

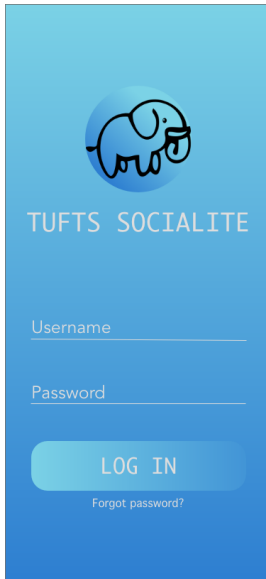


Appendix K: Style Guide

Guidelines

- Sans-serif font will be used for legibility
- Text size will reflect hierarchy of information; no text will be smaller than 15pt
- Box size will reflect type of information
- Simple language will be used throughout the interface
- Buttons will provide feedback on their status
- Navigation bar / menu for key items will be accessible at the bottom of every screen and will contain between 2 to 7 elements
- Icons will be similar in terms of complexity, use of color, and line weight
- Text will be written in a contrasting color to the background color
- A limited color palette will be used
- Swipe navigation will be supplemented by buttons
- Swipe interactions will be conventional, standardized, and consistent
 - E.g., swiping from right to left takes you to the screen on the right
- Progressive disclosure will assist users through multi-steps processes (e.g., creating an event)
- All content will be evenly spaced and aligned
- Branding will be included (through brand colors on every screen)

Welcome Screen

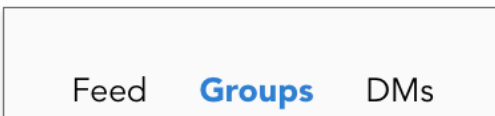


Fonts: Title: Monaco, 35pt
Username/Password: Avenir, 25pt
Log in: Monaco, 30pt
Forgot Password?: Geneva, 15pt

Gradient: Hex #7BD2E6 to #2E7FD1

Button: 70pt height x 303pt width; 23pt radius

Header



Font: Avenir, 25pt

Box parameters: 85pt height x 375pt width

Colors: Background: Hex #FAFAFA

Unselected text: Hex #000000

Selected text: Hex #2E7FD1

Footer



Font: Geneva, 15pt

Box parameters: 82pt height x 375pt width

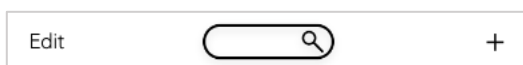
Button: 70pt x 70pt; 1pt thickness

Colors: Background: Hex #FAFAFA

Text: Hex #000000

Button color: Hex #2E7FD1

Controls



Font: Avenir, 15pt

Box parameters: 34pt height x 375pt width

Colors: Background: Hex #FAFAFA

Text: Hex #000000



Events



Font: Avenir, 20pt and 15pt
Button: 80pt height x 240pt width; 10pt radius; 0.5pt border; 3pt shadow
Circle: 46pt x 46pt; 1pt border
Color: Hex #707070



Font: Avenir, 20pt and 15pt
Button: 55pt height x 375pt width; 1pt border
Circle: Date: 46pt x 46pt; 1pt border
Select: 34pt x 34pt; 1pt border
Color: Hex #707070

Groups and subgroups

▼ Academics
ENP293 Graduate Capstone
ME102 Inventive Design
ENP110 HF in Medical Tech
COMP177 Data Visualization

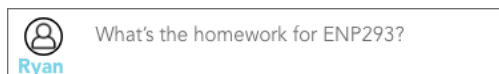
Font: Avenir, 20pt
Button: Group: 40pt height x 375pt width
Subgroup: 55pt height x 375pt width
Colors: Group: Hex #7BD2E6
Subgroup: Hex #707070

Sorted by...



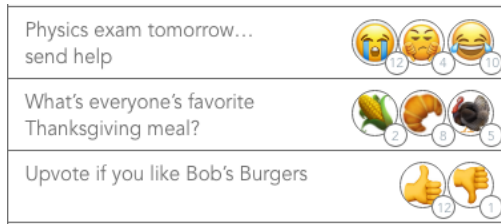
Font: Avenir, 23pt
Button: Popularity: 38pt height x 135pt width; 10pt radius
Date: 38pt height x 95pt width; 10pt radius
Colors: Text: Hex #7BD2E6
Border: Hex #707070

DMs



Font: Avenir, 15pt
Button: 55pt height x 175pt width; 1pt border
Circle: 29pt x 29pt; 1.5pt border
Colors: Name: Hex #7BD2E6
Message: Hex #707070
Circle: Hex #000000

Feed posts



Font: Avenir, 15pt

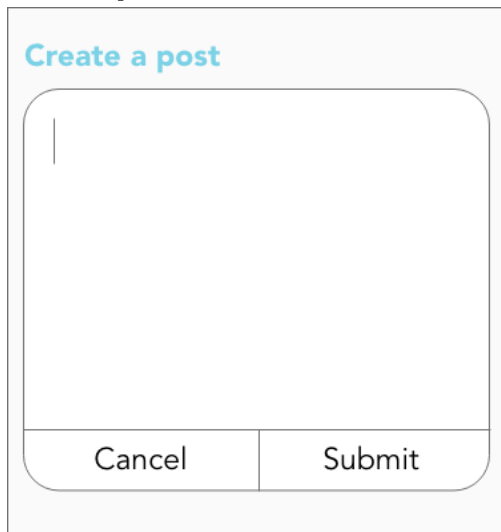
Button: 55pt height x 175pt width; 1pt border

Circle: Emoji: 35pt x 35pt; 1pt border

Count: 18pt x 18pt; 1pt border

Color: Hex #707070

Create post



Font: Avenir, 23pt

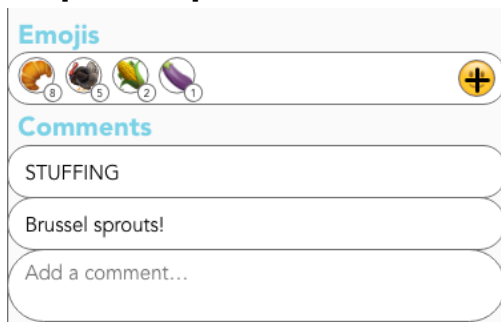
Box: 301pt height x 351pt width; 27pt radius; 1pt border

Colors: Instructional text: Hex #7BD2E6

Border: Hex #707070

Controls: Hex #000000

Respond to post



Font: Avenir, 20pt and 15pt

Box: Responses: 40pt height; 17pt radius; 1pt border

Add comment: 55pt height; 28pt radius; 1pt border

Circles: Emoji: 28pt x 28pt; 1pt border

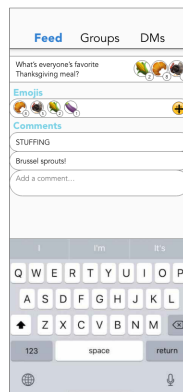
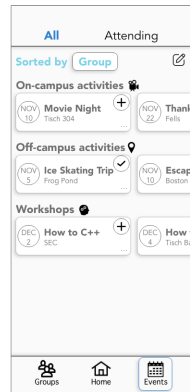
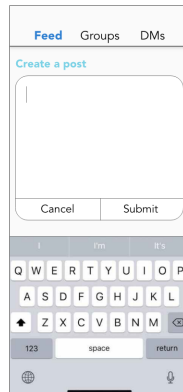
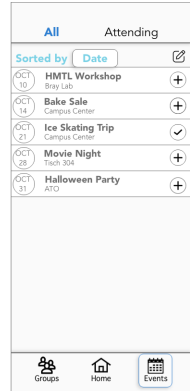
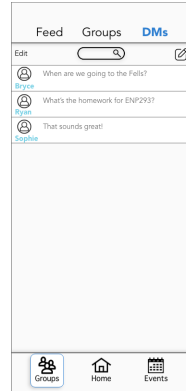
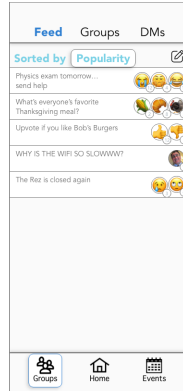
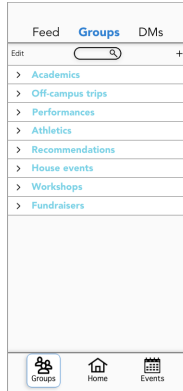
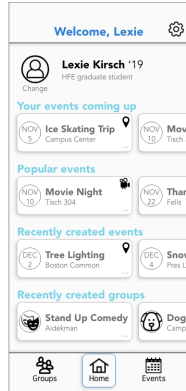
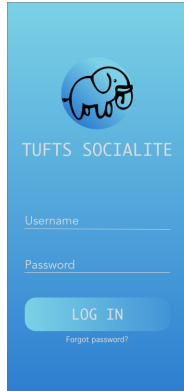
Count: 14pt x 14pt; 1pt border

Colors: Instructional text: Hex #7BD2E6

Border, Add comment: Hex #707070

Responses: Hex #000000

Appendix L: Fourth Prototype



Appendix M: Final Usability Assessment Notes

Strengths

- Font choice is good
- Text size is good
- Buttons are large enough to click easily
- Icons are simple and effective although there may be a learning curve for understanding their associations
- Headings on the home page are good
- Putting dates in circle is visually appealing
- Having a group for each class is good
- Feed is good
- "Create a post" (for the feed) page is very clear and intuitive
- Having "All" and "Attending" filters is good

Opportunities for Improvement

- Add more color
- Change "Your events coming up" to "Your upcoming events"
- Remove "Change" button below profile picture
 - Instead profile picture should be changed by clicking on the picture itself or through settings
- Consider changing "Academics" to "Classes" or "Courses" unless there are other academic subgroups, such as a book club
 - Alternatively, consider allowing the user to customize the names of the main groups or the organization of the subgroups
- Rename "Groups" to something more general and encompassing of "Feed" and "DMs"
- Make "Sorted by Date" layout consistent with "Sorted by Group" layout
- Replace "Sorted by..." with "Sort by..."
- Include group-specific icons on "Sorted by Date" events

Appendix N: Final Prototype

