CS446 Project Proposal - ClubWAT
https://github.com/Kggupta/cs446-project

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Introduction

What is your project?

Our project is a personalized Android app for Waterloo students to discover clubs and events based on interests. Upon account creation, users fill out an information form, including details like age, program, interests, hobbies, ethnicity, religion, and availability. The app utilizes an algorithm to match users with relevant upcoming events or clubs based on personal information with features such as an 'Explore' page showcasing different upcoming Waterloo events on campus and a 'For You' page tailored to individual interests. Additional features include location-based services, notifications, friend invitations, and a club spotlight. The app also facilitates connections among attendees of the same event and provides a platform for event reviews and new connections.

Why is it interesting?

On the WUSA website, there are over 200 clubs, excluding those associated with Mathsoc, Engsoc, etc. With so many clubs, it becomes a challenge for students to know which ones to go to, particularly given their demanding schedules with classes, extra-curriculars, and co-op search. Although many clubs have social media or mailing lists to announce events, the sheer volume of information can overwhelm students, causing them to forget or miss out on club activities. The proposed app seeks to address this issue by simplifying the process, aiding students in identifying relevant clubs and events based on their interests and availability. This centralization of Univeristy club and event information into the pocket of every student on campus makes this a highly interesting project for CS446.

Describe and justify your project selection.

Our project is a personalized Android app designed specifically for Waterloo students. The app addresses the challenge of navigating through a multitude of clubs and events posted across the internet, providing a streamlined and efficient solution. The following points describe and justify our project selection:

1. **Ease of Use and Accessibility:** The app aims to offer a user-friendly and quick method for students to discover and explore various clubs and events based on their interests. Centralizing information in a mobile application ensures easy access for students, allowing them to stay informed about campus activities at their fingertips.

2. **Community Engagement and Networking:** Events are valuable opportunities for students to connect with others who share similar hobbies and passions. The app facilitates community engagement by helping students meet people from different programs and fostering connections within the campus community.

3. **Addressing the Limitations of Current Waterloo Approaches:** While club fairs are a common way to showcase different club offerings, they may not be accessible to everyone, and the sheer volume of information can be overwhelming. The app provides a more organized and accessible platform, allowing users to explore clubs and events at their own convenience.

4. **Comprehensive Overview of Campus Activities:** The absence of a single platform showcasing all Waterloo clubs and events makes it challenging for students to stay informed. Our app fills this gap, offering a comprehensive overview that helps students identify and prioritize events and clubs aligned with their passions and interests.

Why does this project make sense in a mobile form factor?

The app aligns seamlessly with the mobile lifestyle, enabling students to effortlessly check and discover nearby events wherever they are. The convenience of having event information readily available on their mobile devices ensures that students can stay connected with the campus life at the University of Waterloo while accommodating their busy schedules. The mobile form factor enhances the project's effectiveness by providing a user-friendly and portable solution that aligns with the fast-paced nature of student life. Additionally, students typically have their phones ready at all times when they're walking around campus (as opposed to a laptop) which would make it easier for club and event information to spread to users and their friends quickly. Notifications are also a great way to remind students of upcoming events.
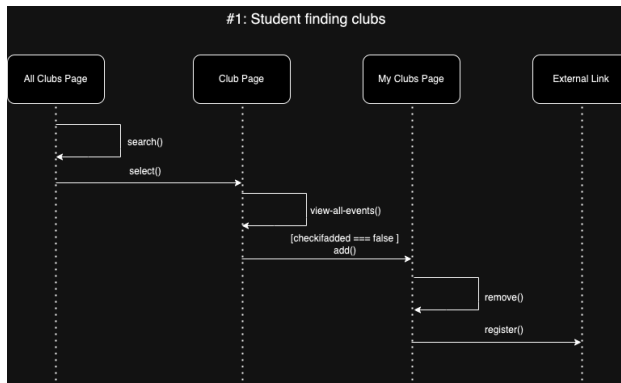
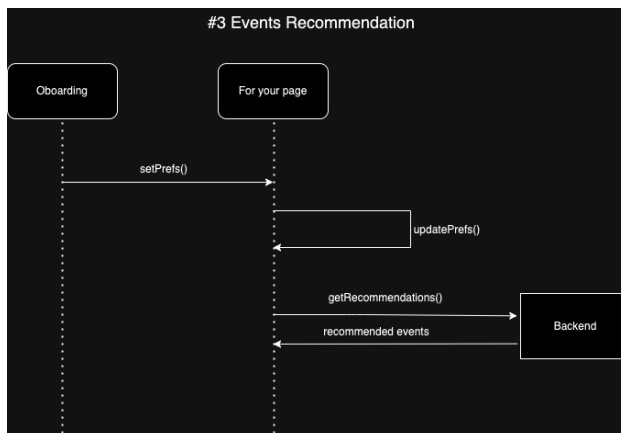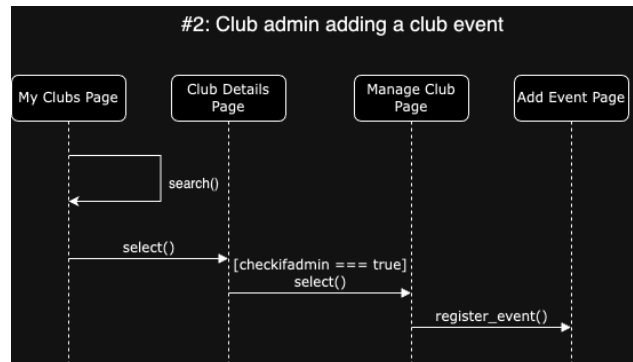# Proposal Details

Functional Properties

1. **User Authentication:** This application should enable users to register, log in, and manage their account securely.

2. **User Interface:** This application should offer an intuitive and visually appealing interface for easy navigation between different features.

3. **Club and Event Browsing:** This application should allow users to browse through clubs and view detailed descriptions and upcoming events in sorted order.

4. **Event Bookmarking and Scheduling:** The application should allow users to bookmark events and mark them as attending, at which point the application will allow them to automatically add it as a calendar event in their standard phone calendar.

5. **Club Registration and Management:** This application should enable users to register for clubs, manage their membership, and provide tools for club admins to see members along with if they have paid their membership fee.

6. **Notifications and Alerts:** This application should send notifications about upcoming events, meetings, and updates to each user.

7. **Feedback System:** This application should implement a system for feedback on clubs and events.

8. **Personalized Recommendations:** This application should suggest clubs or events based on each user's interests and activities.

9. **Event Creation and Management:** This application should allow club admins to create and manage their club's events.

10. **Interactive Club Discussions:** This application allows users to share a club or event with another user, which sends them a notification and appears in their inbox.

User Scenarios/Sequence Diagrams

This user scenario describes how the user (in this case the student) will be able to search for clubs on campus. The benefit for the user is that they have a simplified search to find clubs. They can add filters to narrow the search results as well. Once they find a club, they can add it to "My Clubs" list. This will help the user keep track of the clubs they are interested in. This aligns with the functional property #3: Club and Event browsing.

This user scenario describes how the user (in this case the student who is a club admin) will be able to add events to clubs that they are admin of. The benefit for the user is that they are able to easily add new events to clubs which will be available for any user to view under the events list for the specified club. This aligns with the functional property #9: Event Creation and Management.

This user scenario shows how the for you page works. When the user first logs in, we prompt the user with our on-boarding flow where the user answers a series of questions aimed at gathering more information about the user's interests and preferences. Every time the user visits the "For you" page we will retrieve all the events based on their set preferences. This aligns well with our functional property #8: Personalized Recommendation.

Non-Functional Properties

Security

- The system will hash passwords with 1,000 rounds and be salted with at least 32 bits of data. There will also be length requirements such that the length is ¿ 8 characters, contains uppercase characters, lowercase characters, and at least one symbol.

- **Justification:** The application will have user authentication and we don't want passwords to be stored as plaintext in the database since this might allow attackers to gain access to user passwords. Some user's may be reusing passwords from other apps which we can't control so a security breach in our application would also compromise this user in other applications as well. Therefore, ensuring the password is strong and isn't stored as plaintext will protect against this.

Privacy

- The system should allow users to download all their stored application data to their phone and permanently delete it from the application without any manual intervention required from a project developer.

- **Justification:** The data in the user's account may be sensitive such as full name, date of birth, and other personal information such as interests, ethnicity, etc which are used for matching them to events and clubs. Therefore, we want to give the user full transparency and maintain a high degree of privacy, allowing users to view and manage the data that the application has about them.

Usability

- A registered user should be able to reach the 'For You/Explore' page within 3 clicks regardless of whatever screen they're currently on in the application.

- **Justification:** The 'For You/Explore' page where users view the available clubs that the university has to offer based on their interests is the core feature of the application and must be very easy to get to irrespective of what they're currently doing in the application. Limiting the number of clicks to get to this view to 3 will ensure it's always very easy to navigate to.

Safety

- Only users with access to a valid **@uwaterloo.ca** domain email should be able to have access to the application.

- **Justification:** This application is meant for university students, who we know are a population of young adults that may be at-risk of being victims to theft, crime, assault, etc. Additionally, our application will have an exhaustive list of every event happening in the university, which could pose a problem in the hands of a malicious actor. Therefore, to ensure the safety of our users we will only allow people with an **@uwaterloo.ca** domain to access the application.

Human Values

Human Values are extremely important in a world where software dictates many of the decisions and interactions we make on a daily basis. As students, we believe that we need to design for other students and this can be done by incorporating what we value the most. In our project, we want to encourage:

1. **Self Direction:** The focus of self-direction is to encourage users to be curious and free to explore. We want to encourage users to take a step out of their comfort zone and join student clubs/ organizations which can help them meet other like-minded people.

2. **Benevolence:** Fostering a community spirit and supporting good relationships among students and organizations. The software should encourage positive interactions and community building.

3. **Achievement:** Creating a sense of accomplishment for users, perhaps through features that allow students to track their involvement or progress in different clubs and activities. This will encourage students to keep getting more involved.
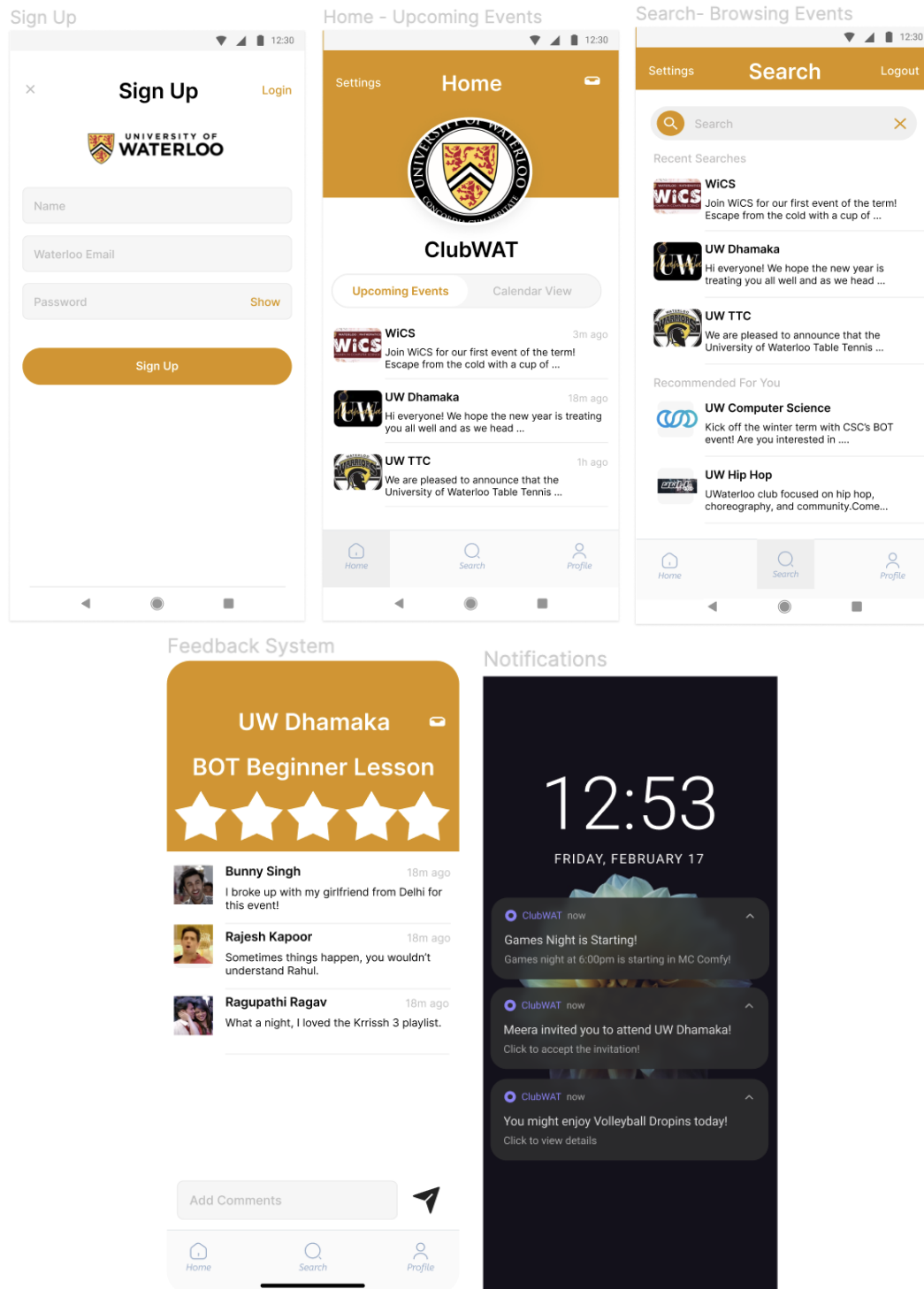
Stakeholders

1. **Students:** The students are the end users of this application. The students will use the application to find clubs and events according to their interests.

2. **Faculty:** For clubs and organizations which are run by faculty members/ have faculty involvement will require a way to keep the faculty members informed.

3. **University of Waterloo:** Since this app is focused on connecting the student community, the University's rules, regulations and guidelines will need to be incorporated to ensure we stay compliant.

4. **Student Clubs and Organizations:** This app is geared towards student clubs and organizations on campus. The main goal of these clubs and organizations is to reach a large student community.

5. **Ministry of universities and colleges:** The ministry is regularly involved in ensuring that secondary education, as well as secondary opportunities, remain high quality. Hence, the ministry is an important stakeholder as it takes interest in the events, and student activity taking place on campus.

6. **Google Play Store:** In the event we publish this app to the google play store, we will have to comply with and follow the guidelines to make this app available on the store.

User Population

1. **Average Waterloo Students:** The average Waterloo student who wants to attend club events but would need the app to help them discover what events the university offers.

2. **Waterloo Students Who Own/Organize Clubs:** This population includes Club Presidents and Executives. A group of people who are subtly different from the above population in that they are primarily focused on broadcasting the club events they have organized instead of discovering events. They use our application to broadcast these events to the average Waterloo student.

Initial Mockups

Below are some mock-ups of the application for the key features. All of these are subject to change but give an idea of what the vision for the application currently is. They all have a heading at the top of the image to explain where the page fits into the application.

Acknowledgements

https://app.diagrams.net/: User scenario diagrams
https://www.figma.com/: Initial mockup diagrams
https://wusa.ca/clubs/: Event and club statistics