CIS*3750 - Final Report

Team FitFinder

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Executive Summary

Team Purpose

FitFinder was a group established with the goal of creating an application that connects community members to the well-being opportunities available near them. One of the greatest challenges in today's society is maintaining physical well-being, and our application was designed to address this issue.

Problem Summary

Physical health is one of the most important aspects of overall health; being regularly active can improve your physical and mental health while reducing your risk of cardiovascular disease and strokes, type 2 diabetes, and several common cancers such as breast, lung and colon cancer (CDC, 2023). Despite these benefits, more than 80% of youth and 27% of adults do not meet the World Health Organization's recommended physical activity levels (WHO, 2022). Improving the physical wellness of the community was our greatest goal with this project.

Our Solution

Our solution for this problem was to create a website that would become a central hub for physical activities in the Guelph community. Through this site, users can view different postings, create an event and RSVP to anything they may want to attend. From large-scale events hosted by partner companies in the community to small yoga sessions in the park, there is an event for everyone, no matter what they are looking for. FitFinder is beneficial as it helps those who are new to the community and those who are looking to find something new to do to access information about local physical fitness activities in one place, promoting ease of access to physical activity within the community.

Target Audience

Our website was created and designed for all ages, as we believe that everyone should have equal access to fitness. As stated earlier, both youth and adults are struggling to meet recommended levels of physical activity; thus, the development of this site will help people of all ages achieve their fitness goals. While certain creators may post their events with certain restrictions on age, we wanted to maximize inclusivity to allow everyone the opportunity to better themselves.

Conclusion

Overall, FitFinder was created for the main purpose of promoting physical wellness in the Guelph area. Through creating a central hub for finding fitness activities, those looking to improve themselves can easily find anything they are looking for. The improvement of physical

wellness in the community will lead to better overall health, which could then be expanded to encompass other communities as well.

Team Details

Names	Student Numbers	Roles	Work Contributions
Michael Fish	[redacted]	Team Lead, Coder	Paper and Figma prototype development, final presentation script and PowerPoint, human-computer actor in paper prototyping session, all assignment documents.
Madison Gara		Quality Assurance, Coder	Paper and Figma prototype development, final presentation script and PowerPoint, facilitator in paper prototyping session, all assignment documents, A2 timeline.
Neh Desai		Designer, Coder	Paper and Figma prototype development, final presentation script and PowerPoint, paper prototype notes and post-mortem, all assignment documents, logo design.
Alessandro Arezza		Front-End, Coder	Paper and Figma prototype development, final presentation script and PowerPoint, paper prototype notes and post-mortem, all assignment documents.
Harshdeep Bhatty		Database Engineer, Coder	Paper and Figma prototype development, final presentation script and PowerPoint, paper prototype notes and post-mortem, all assignment documents.

Requirements

Our goal for the product was to allow users the opportunity to view and register for fitness events in the city of Guelph. Thus, our main requirements focus on a user's ability to create new events, navigate through lists of events, and register for particular events. Users on our site further need to create an account to access these key features. We also wanted our site to include a map that would provide users with location details and a calendar which would store users' registered event information and remind them of upcoming events. The system developed with these requirements would ensure that registered users have easy access to information regarding local fitness opportunities and the opportunity to register for them. Effectively, it will allow

members to learn about and engage with the physical activities hosted in their community, and ultimately expose them to more ways of bettering their health.

Most Important Requirements

Firstly, the system needs a database connection for information storage. The system also needs to allow users to create accounts and log in to access features on the site. User-made events are a crucial part of our site. Therefore, the system needs to allow users to create new events in the area. As well, the system needs to let users search for a particular event. Finally, the system must provide users with options to register for these events. These requirements were necessary for the initial planning process of our product.

A database connection allows the site to store and retrieve information for user logins and details for different created events. User accounts allow user information to be accessible by moderators, who could then check their activity to ensure that the site is being used safely. Allowing members of the site to create new events populates the site with more activities that users would be able to view. Search functionality allows users to look for fitness activities that suit their interests, such as high- or low-intensity activities, or nearby soccer games. Finally, the ability to register for events helps event organizers keep track of attendance details, as well as ensure that interested users have a spot, or know if spots are full. Overall, the implementation of these requirements helped us fulfil our main goal of providing users with a safe environment to view and register for various fitness events in their local community.

Design

User Stories and Use Cases

Use Cases

The most representative use cases for our project were creating an event, creating an account, and displaying an event on a map. These use cases cover the key functionality of the website and align with our primary requirements. Creating an account, a core feature for any user-based website, allows guests to obtain member status. With member status, they can review, save, bookmark, report, tag, and create events. Furthermore, creating an event, a privilege given to members and moderators, allows them to provide details about the activity they would like to advertise to the community. This use case covers our high-priority requirements relating to creating and displaying fitness events for people to attend. It allows users to enter details for their event such as date, time, URL, capacity, and description, which are then saved to our database after our system checks their inputs for validity and appropriateness. Our map event display use case allows users to have a geographical context for events that are taking place in Guelph. On the map, icons visually indicate to the user where events take place relative to their location.

Once the user clicks that pin, the system will fetch the corresponding event's data and redirect the user to another page with its details.

User Stories

Our user stories were split into four general categories that focus on the functionality of our project. These categories were accessibility, our map details, search and filter, and registration and permissions. For our accessibility category, the most representative user story was that a user should be able to change their language so that they can view the site in their primary language. When creating this project, we wanted to take into consideration that the city of Guelph is diverse, and some users may have trouble reading the site if it is only in English. For the map category, the most representative user story was that a user must be able to see where events are on the map. This is a core feature that allows users to view events as pins on a map of Guelph to easily access locations near them, which is one of the main goals of our website as stated previously. A user should also be able to filter search results to find a specific event they are looking for so that they can easily access events in categories or intensities of interest to them without being discouraged and overwhelmed by too many options. As our goal is to make fitness accessible to everyone, including those who may only be interested in a certain type of activity, this allows people to find exactly what they're looking for. For our registration category, a guest should be able to sign up for an account to receive member permissions, such as event creation and registration. This allows them full use of the website, further increasing its accessibility to a larger audience as per our project mission.

Did the prototype reflect these user stories and use cases?

Our final prototype reflects almost all of our primary user stories and use cases. For example, our event creation use case in our Figma demonstration accurately depicted how a user would go about creating an event to display it to potential attendees. We also included options for the user to access the create event button from different paths. This is something that we noticed was needed during our paper prototype, wherein all the volunteers accessed the event creation page via different means. Most of the user stories for each of the categories we came up with were also reflected in our prototype and implementation. However, we were not able to add a feature where users could change the site's language. This was due to time constraints and our focus on more key functionality. We were able to implement a map feature, the ability to create an account, the ability to create an event, and the event search system as described previously in our representative use cases, all of which were included in our demonstration. These were the key features that we had built the majority of our user stories off of and were able to implement in our prototype, all designed to make FitFinder into an accesible hub for community physical activities and events.

Technical Design

Design Choices We Considered

The design aspect was very important for our group and is the phase where we invested most of our collective time. We did so because we wanted to ensure that it looked professional while incorporating the essential functionalities we initially envisioned in our requirements document. At the start of the course, our group had to choose between two distinct design directions: developing either a mobile application or a web application. Taking into consideration the advantages and disadvantages associated with both options, we opted to craft a web application due to its ease of accessibility and compatibility across multiple devices and operating systems, which a mobile app couldn't match.

A web application offers instant access through various browsers like Microsoft Edge, Google Chrome, and others, as well as across a multitude of device types, be they Android or Apple. Our group thought that this was very beneficial to have, as it would help expand our user base by eliminating any accessibility barriers. Additionally, the decision to build a web application alleviated our concerns about compatibility, as web applications adhere to certain standards and protocols which are prevalent across different systems. This does not hold for mobile devices, as they vary greatly in dimensions and shape due to the adjustments each device model has.

One last factor that steered us towards the web application route was our team's collective expertise. All of us had prior exposure to web application development concepts, which we acquired through courses such as CIS*2750. This approach would allow us to leverage our previous experiences and strengths so that our project could be developed efficiently and effectively.

System Design Overview

Our final system was designed using a popular software tool that is specially made for creating high-fidelity wireframes or prototypes named Figma. We decided to use this tool rather than coding our page using frameworks such as React or Springboot because of the time crunch we were under and because of Figma’s shorter learning curve. At the time we started to create our system's high-fidelity prototype, our team had lots of other course deadlines and assignments which we had to focus on in addition to this course. Due to this, we could not commit to learning a new language and developing a satisfactory system with subpar understanding. Figma was simpler and more intuitive compared to the other options we considered, and that is why we decided to use it in the end. There were plenty of materials online that guided us on how to do certain aspects of the design, and it aligned with what we envisioned for our system perfectly.

Once the tool was chosen, we went about implementing our design choices. Our design choices can be summed up into three key words: consistency, redundancy and intuitiveness, all described below.

Consistency

The design of our system was very consistent across various aspects, such as the colour scheme, font style, and the different elements (buttons and header bars). Our group thought that a colour scheme was very important to make our website attractive, distinctive, and appealing to our users. We decided to go with a red and black colour scheme for our system to complement our logo. In addition to the colour palette, we ensured uniformity in our font style and size across all screens. This would allow our users to read the information that was provided on our webpage regarding event details or any error messages that popped up without causing eye strain due to changing fonts and placements. Our buttons were also made to be consistent, with each of them having a red background, rounded corners, drop shadow, and a consistent font style. Not only did this help to highlight them on the screen, but it also served as a visual cue that they can be clicked to perform navigation on our webpage.

Redundancy

Another aspect that was thought about when we were designing our system was the aspect of redundancy. This was achieved by incorporating multiple buttons and navigation options that lead to the same destination. A prominent example is our implementation of the hamburger menu, which offers various pathways to different screens such as maps, events, and login options, along with strategically placed buttons and textual cues throughout the interface that serve the same functional purpose. We believed that this redundancy would significantly improve the usability of our webpage and ultimately elevate user satisfaction by providing multiple avenues for users to reach their desired destination. Furthermore, acknowledging the diverse range of user preferences and technological proficiency, we aimed to cater to all user types. While some users may find certain navigation methods intuitive, others may prefer alternative approaches. By offering multiple pathways to perform tasks on our webpage, we aimed to ensure accessibility for users of varying technological backgrounds and preferences.

Intuitiveness

One final yet crucial aspect we prioritized in our system's design is the idea of intuitiveness. Recognizing its significance in enhancing user experience, we strived to ensure that navigating our webpage would be effortless and frustration-free for all users. To achieve this, we incorporated familiar and universally understood icons, such as a home icon for returning to the homepage or a pin icon for accessing a map location. These standard visual cues served as intuitive prompts which helped to guide our users seamlessly through our webpage so that they could accomplish all of their tasks with ease.

Design Structure

The major classes that we had created for our site were the users and events classes (outlined in Appendix Item A). These were of the greatest importance as every other class relied on or interacted with their functionality or attributes in some way. Event details like date and description had to be included among their attributes. The events class also had to include multiple functionalities, such as the ability to create, delete and update events, display events as pins on the maps, and navigate to their own standalone web page. As our website is focused on detailing events in the community, having these structured properly was imperative to its success.

The user class was equally as important, as being able to have adequate permissions to execute certain actions is vital to website moderation. By splitting the user class into three subclasses, it became much easier to ensure users only post appropriate content or can be tracked and reprimanded if they behave inappropriately. Users who are not logged in are referred to as guests and given minimal permissions, only being able to view, search and report events. This prevents people whose contact information we do not have from scamming or causing trouble on our website. Members are users who are logged in with their email, username, and password, and as such are given elevated permissions, since we can always reach them if they do something out of line. Members can review, create, modify, and RSVP to events, in addition to the default guest permissions. To make sure to maintain the integrity of these permissions and the overall site, we ensured that the user interface displayed only actions the given user type was allowed to perform. For example, the create event button only becomes visible when users are logged into the site as a member or moderator. We put a lot of effort into ensuring that creating an event worked seamlessly as without events, our site would be without content (process outlined in Appendix Item B). Lastly, moderators have all permissions available, allowing them to delete others' events and remove permissions from those who abuse the site in addition to member permissions. Logging in is the differential between being a basic user with low permissions to obtaining the elevated permissions that come with having an account (process outlined in appendix Item C).

Time Estimation and Schedule

In retrospect, it is difficult to compare scheduling for the development of the full website as we had planned in our requirements and scheduling for completing a high-fidelity prototype in Figma. Although the site's functionality is essentially the same, how its implementation is carried out in Figma and how it would be carried out in React is fundamentally different. As such, the time estimates that we made in Assignment 2 are different from what we ended up using to develop in Figma. Crucially, the time estimates and corresponding requirement completion expectations from Assignment 2 were based on us having the availability to work on development full-time; that is to say, 8 hours a day, five days a week, at an expected velocity of

80%. In reality, however, academic life is quite different than this - each of our team members has other classes with their own due dates, which also tend to be quite heavy in the last month of classes when product development for this course was scheduled. Other academic commitments, distractions, social commitments, and housekeeping all take time that was (following assignment instructions) not accounted for in the time estimates for Assignment 2.

Additionally, we did not incorporate time in our Assignment 2 timeline for learning the required software or frameworks we needed to execute our concept. React and Figma were both new to the team, and whichever of these we used would have needed learning time to be scheduled into the timeline. It is easy to forget to build in this time when you are focusing on user story-based requirements, and that's certainly something we learned to be more aware of when creating timelines going forward. Basing time estimates off of realistically available hours (such as those required per week for a 0.75 credit course) would also be a smarter approach to building timelines for course projects in the future. When we are not working at a 9 am to 5 pm development job, but rather taking a university course that requires a development project, accounting for this in project planning is not only wise but arguably the most logical approach. For all of the previous reasons, our schedule was not a particularly accurate estimate of how much work we ended up completing. Nonetheless, we did learn how to schedule a software project for a real-world job, and to remember to include the time needed to learn new software as a requirement in its own right.

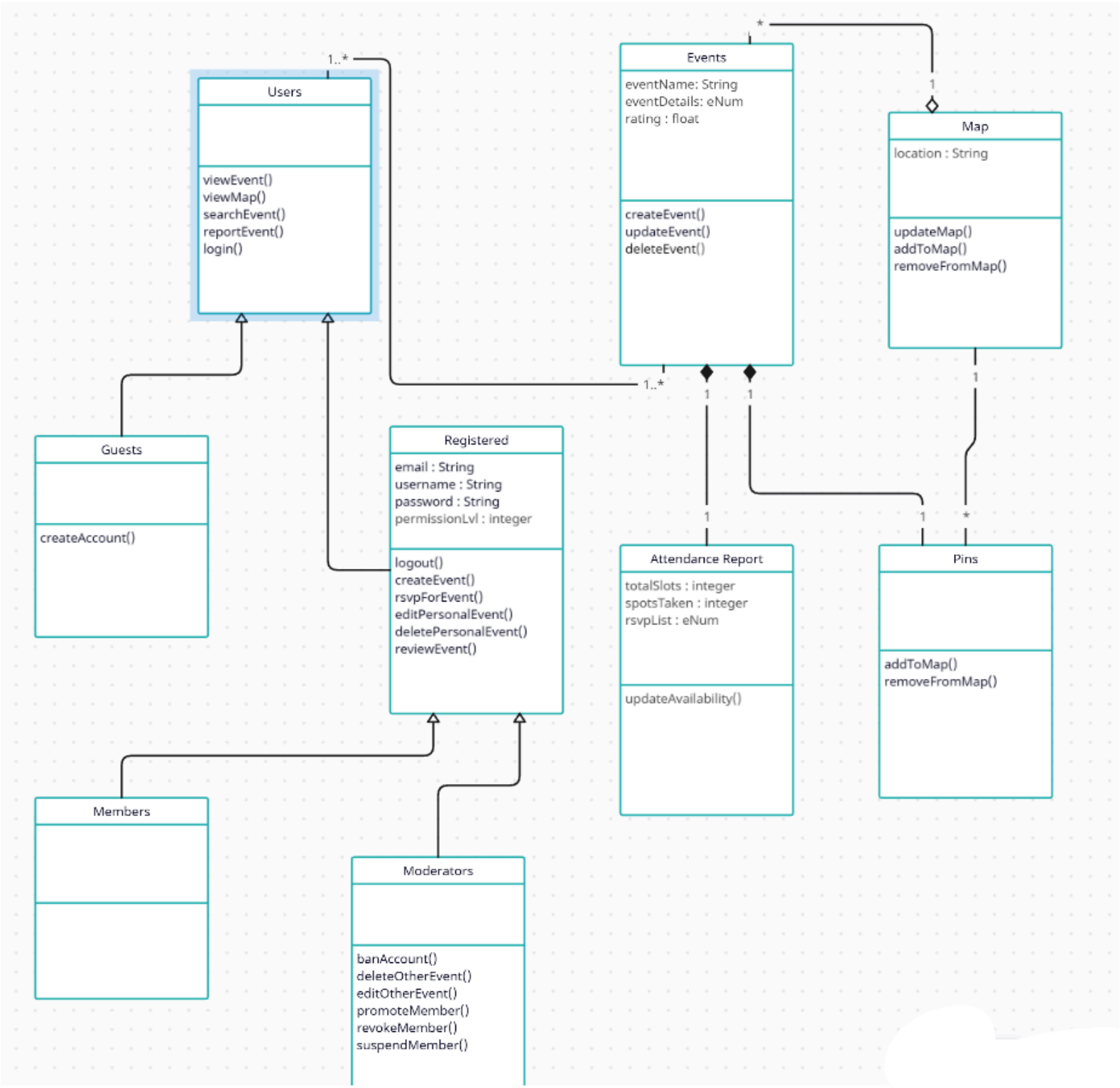
References

CDC. (2023, August 1). *Benefits of Physical Activity*. Centers for Disease Control and Prevention. https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm

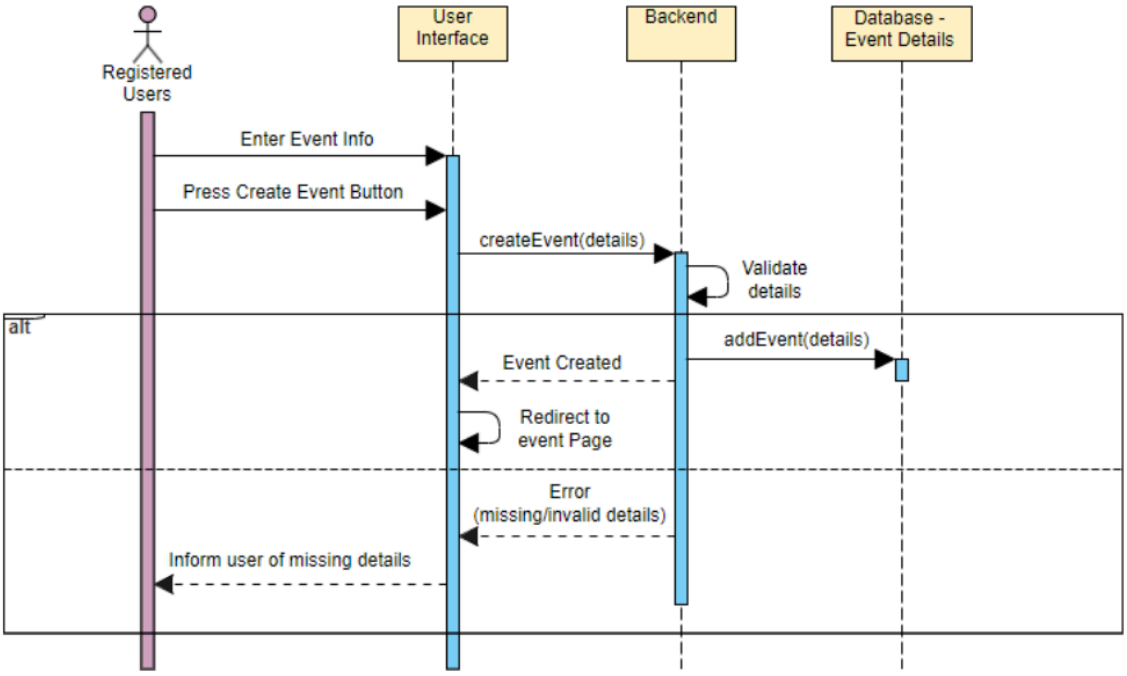
WHO. (2022). *The Global Status Report on Physical Activity 2022*. World Health Organization. https://www.who.int/teams/health-promotion/physical-activity/global-status-report-on-physical-activity-2022

Appendix

Item A: Site Class Diagram



Item B: Create Event Sequence Diagram



Item C: Login Sequence Diagram