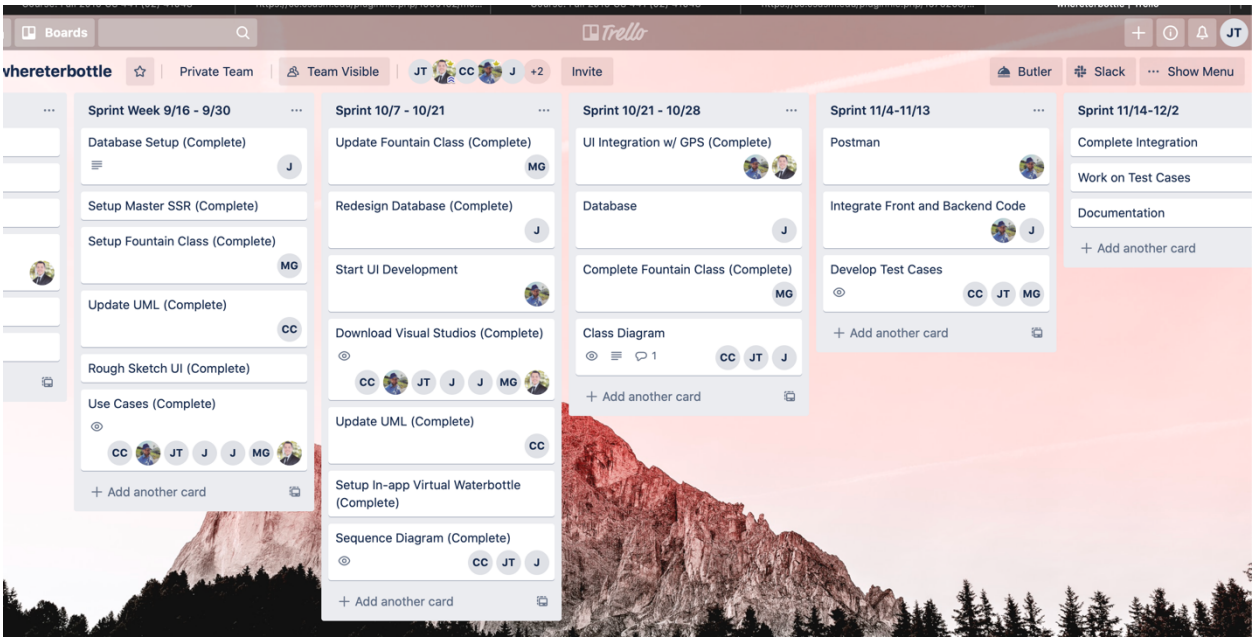
Jonel Tiongco

Software Engineering Project Writeup

Our Software Engineering group set off to develop a mobile application called *Wheretobottle*. This application had the original intent to locate your water bottle in case you lost it, or alert you in case you forgot it somewhere. Over time we developed several other use cases including water fountain fill stations, friends, and water levels.

The team determined early in the project that it was best to divide the group into teams to let everyone specialize in a certain aspect of the overall project. My primary job was to overlook the project as a whole as the Project Manager. This role was also shared with Michelle and Cody. I also had a major role in helping the design team which consisted of Cody and Jorge. The other teams consisted of the front and back end coding teams.

As the Project Manager, it was important to always assist where I could and to ensure that everything was worked on and completed in a timely manner. The approach to developing our application was through agile methodologies. This was handled through having regular SCRUM meetings. We had a total of 5 sprints that ranged from 2 to 4 weeks each. During our SCRUM meetings, common questions that I would go over was what everyone was currently working on, what obstacles if any they were facing, and what they had planned to work on next. One management tool that was implemented to help the sprints stay organized was the use of *trello* which is a web-based application to help organize list of tasks that needed to be completed during each sprint. This was especially helpful in the few cases where a team member was not able to be present during a meeting. They were able to check on trello at any time and get updates on current and upcoming tasks.



Most of this project has been a learning experience for me. This ranged from learning how to effectively document and manage an ongoing project, learning how to use GitHub and Visual Studios, and how to navigate my way around a coding language I have never used before. The coding languages that were used was XAML and C#. Both of these coding languages were new to me. Since we had a designated coding group, most of what I needed to learn was basic navigation around the code. Fortunately, my group members were very thorough on the flow of the design. Everything else was primarily learned through websites like geeksforgeeks.com, stackoverflow.com, and YouTube which is generally my go to place since I am very much a visual learner.

My contributions to the group proposal thus far have been developing use cases, assisting with the design of the UML including Sequence and Class Diagrams, and documentation of progress. Due to my role on the design team, assisting in development of the UML diagrams was important to help the coding team create an application that was successful

in doing everything we had planned to do. That included starting with the high priority use cases. Some of the use cases that I worked on was water bottle registration and bottle fill ups.

Use Cases

Actor: Users, System

Description: New bottle registration
Precondition: A user account has been set up

1. User: Opens application and selects the option to register new bottle
2. System: Prompts to connect bottle through bluetooth
3. User: Connects devices
4. System: Requests information about bottle
5. User: Inputs size of bottle in oz. and selects water intake goal
6. System: Stores information

Exception: User bottle does not have bluetooth connectivity. User is able to skip this step.
Post Condition: User has successfully registered a new water bottle to the application.

Description: Input refill
Precondition: A bottle has been registered to user account

1. User: Inputs refill amount in terms of the bottle.
2. System: Updates daily log

Postcondition: User has successfully updated water fill up.

As a member of the design team, we have developed different UML diagrams. This includes a general overview UML, class diagram, and sequence diagrams. The diagrams were worked on with the whole design team to better understand the applications classes, attributes, and relationships with other objects. With the sequence diagrams we were able to see how these objects interacted in sequence with each use case and was helpful to the coding team. Some of the sequence diagrams that I created were for bottle registration and adding a new water fountain. Listed below are a few websites that we used to help us develop the UML diagrams.

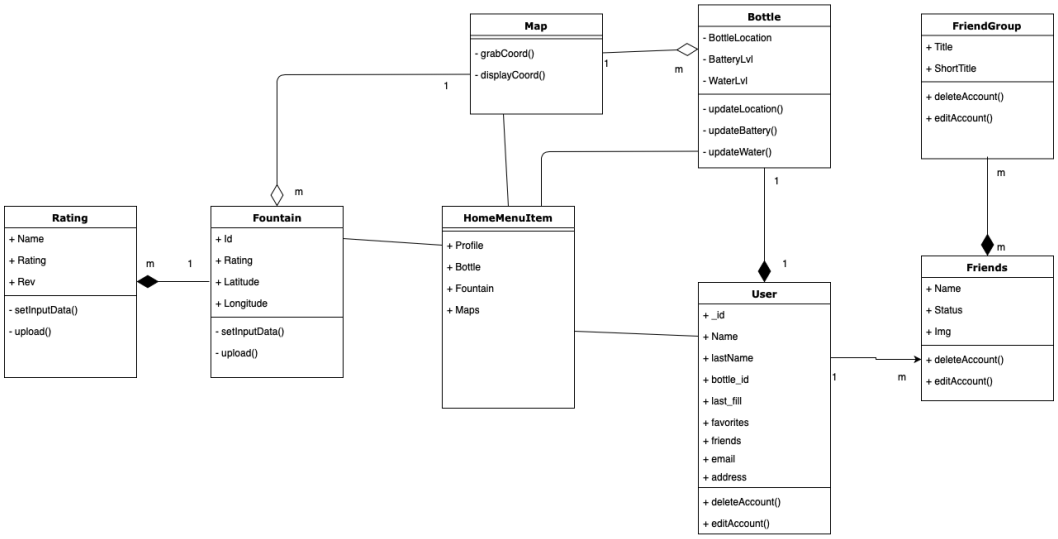
Used for the class diagram:

https://online.visual-paradigm.com/diagrams/solutions/free-class-diagram-tool/

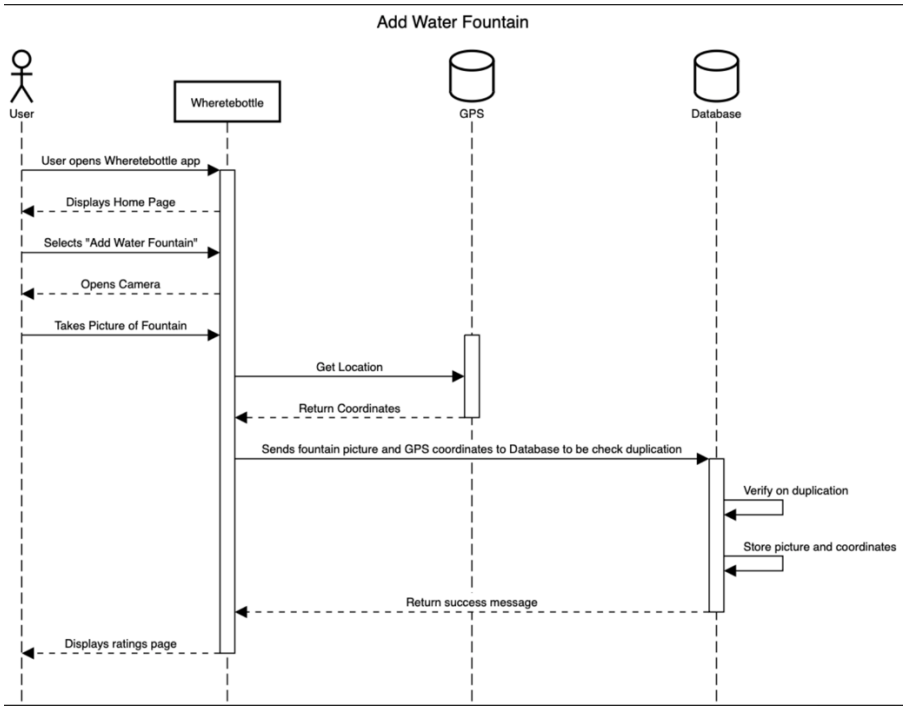
Used for the sequence diagrams:

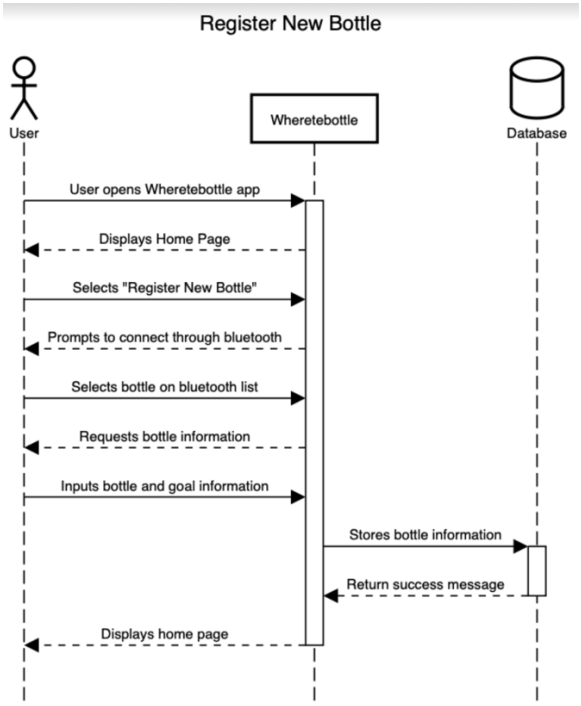
https://sequencediagram.org

Class Diagram



Sequence Diagrams





With the last sprint underway, the main thing to work on next for myself is to help assist with the coding team in any testing that still needs to be done. I am aware that they have done a lot testing as they finalize the application but testing every use case carefully will be important in completing the project. Another task that I will be focusing on is helping prepare documentation and the final presentation.