



Department of Computer Science
COSC 4P02 - Interactive Mapping System

Progress Report 2

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1 Overview

This report covers the development of our interactive map project between sprints 3 (March 4th), 4 (March 18th) and 5 (April 1st), allowing insight into the aspects of the project under development and have completed construction. As we move into the final sprints, considerable changes have been executed on the map interface portion, but the uploading of the map information portion of the system has been completed and is now operational. The construction of the user interface for viewing the map will also reach fruition, as it uses some of the components from the preview portion of the map interface, allowing development for this portion to progress quickly. Development in the front-end has been progressing slowly as team members still encounter issues as to how the implementation of these components work, but progress is being made. The database system is still under construction but is expected to reach completion soon. We are currently working on passing data from our website interface into the database framework and using the museum name as a reference key to locating a museum's respective map data. Overall, this report is an overview of the modifications and completion of the map interface portion of the program.

1.1 Previous Sprints

Our team remained separated into sub-teams, with Connor Vriewyk and Salman Saeed working on the design and creation of the user-interface portion of the application. Team members Kevin Olenic and William McCormick are continuing the designing, development and testing of the mapping interactions of the application. Riley Benson has been reassigned from the Front-end team to work on the construction of the database portion of the program, with William McCormick and Kevin Olenic soon joining this team to assist him, depending on how development proceeds in the coming days.

1.2 Contributions

- All team members contributed to the completion of Product/Sprint backlog items.
- Team Members Kevin Olenic and William McCormick worked together to document sprint meetings.
- Team Members Kevin Olenic, William McCormick, Riley Benson, Salman Saeed and Connor Vrieswyk have uploaded their code to the GitHub page.
- Team Member Kevin Olenic designed and implemented the map preview, editor portion of the map interface and made several modifications to the code to remove bugs.
- Team Member Kevin Olenic compiled and wrote progress report two
- Team member William McCormick developed the ability to apply specific images to tiles, depicting points of interest on the map (i.e bathrooms, stairwells, emergency exits, etc.).

- Team member Riley Benson performed research and into the database that will be used for our mapping application.

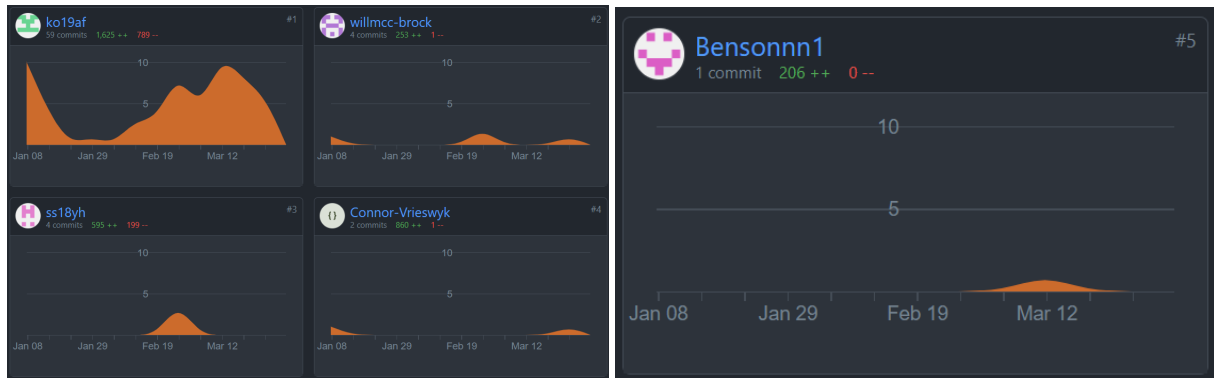


Figure 1.1: Group contributions to GitHub

2 Design

2.1 Mobile Map interface

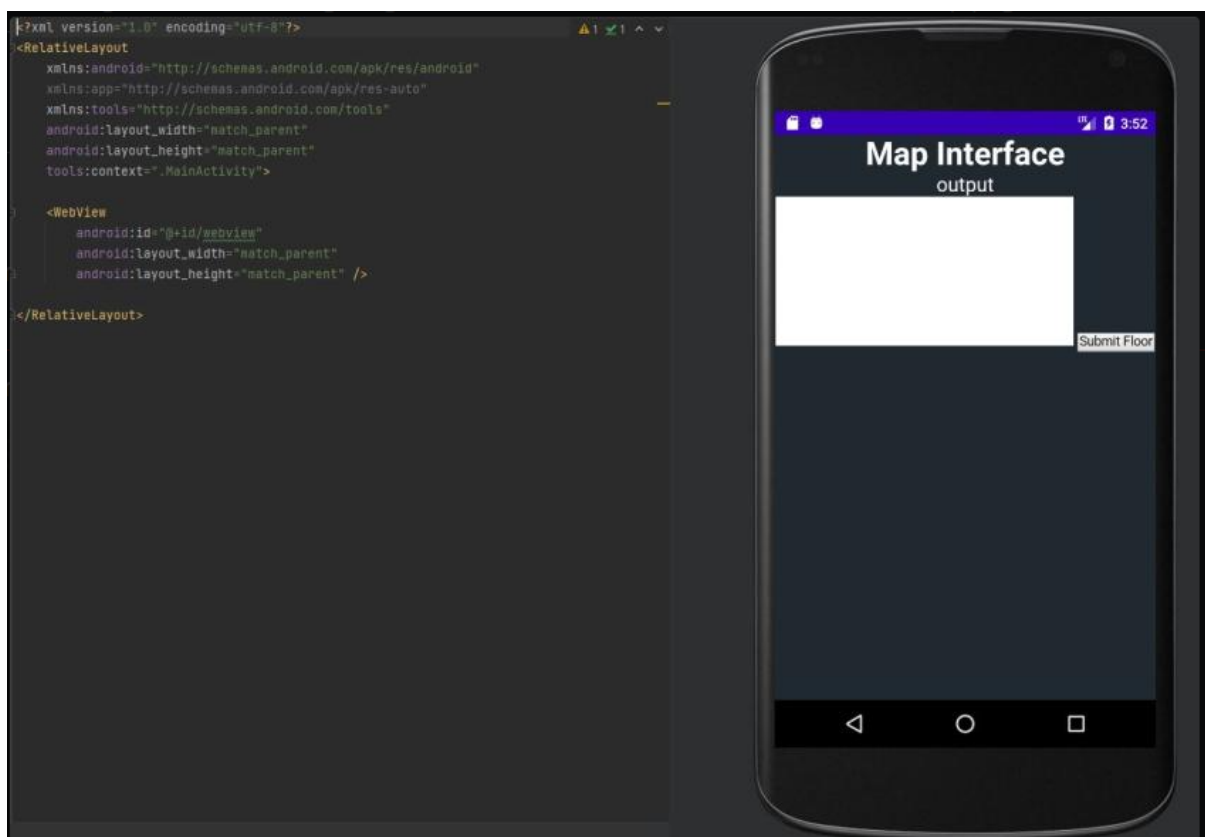


Figure 2.1: Shows initial start page for uploading map interface

The mobile component of our project is currently focusing on the GUI portion for displaying the map interface. Future development of this portion will focus on determining how

to transfer between the different map pages and integrate it with more GUI components that will communicate with the Firebase data for the input.

3 Implementation

3.1 Map Interface (Updates)

The overall system for uploading map information has been designed and implemented. The steps outlined in the previous report remain the same, except for minor design changes concerning methods of transferring data between pages. However, new stages have been introduced into the process, as well as restrictions to prevent users from performing illegal actions that can break the system.

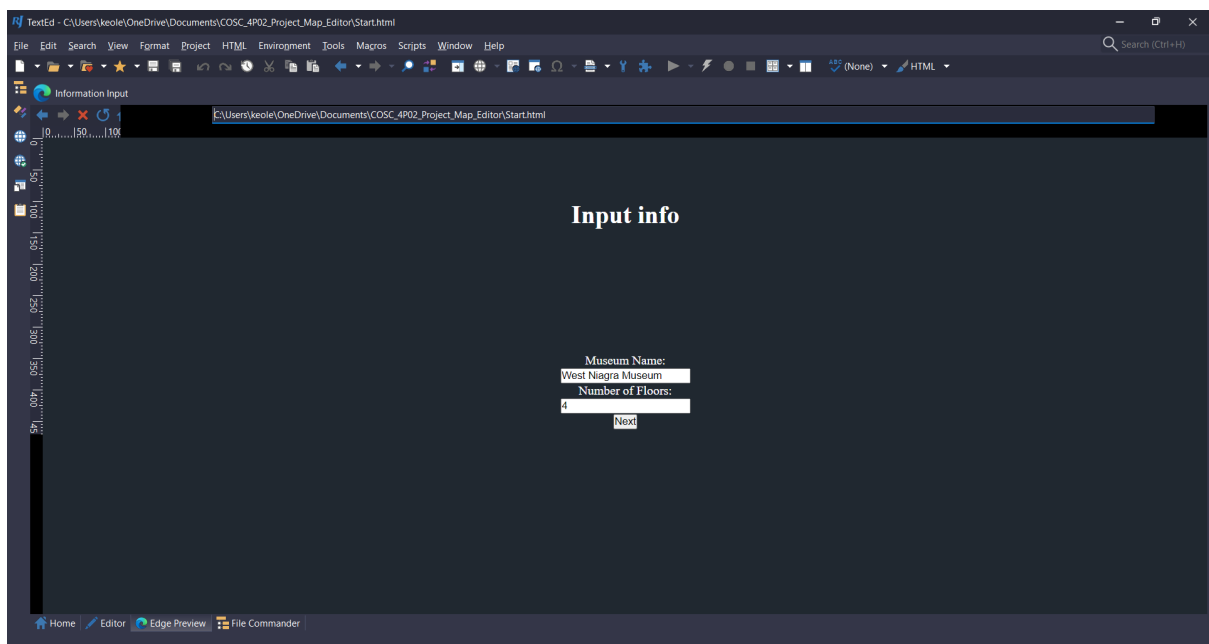


Figure 3.1: Shows portion of application on mobile device

The first new step introduced into the process is depicted in the picture above. This stage is the page where a user defines the name of their museum and the number of floors they will be inputting. The data collected on this page determines the reference key for the museum data in the database and determines how many loops the system must perform to get all the museum map data.

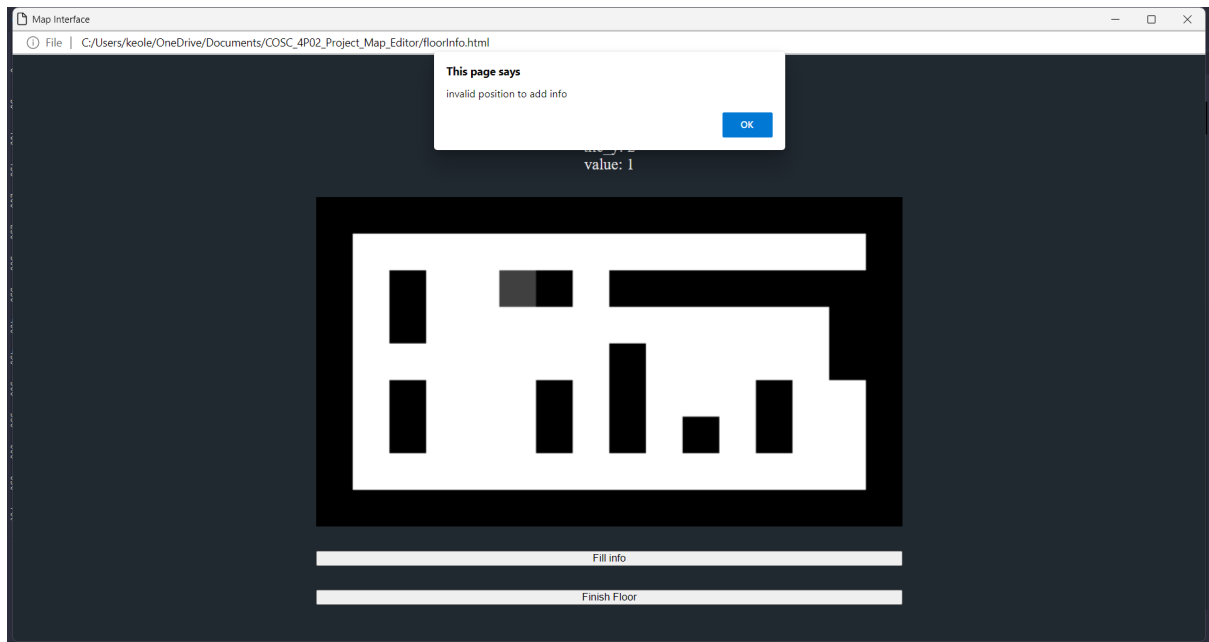


Figure 3.2: Shows the altered floor plan from the previous picture

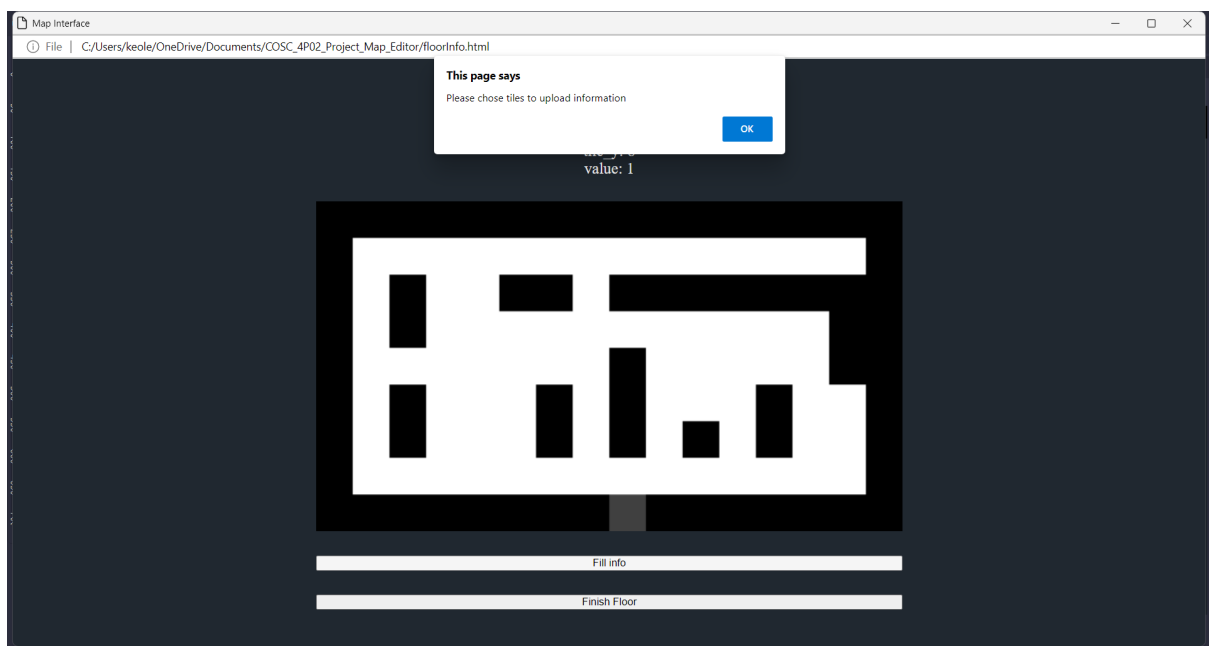


Figure 3.3: Shows the altered floor plan from the previous picture

The pictures above demonstrate the restrictions implemented in the information input portion of the process, where a user defines which tiles associate with certain information. These restrictions ensure users cannot write data onto tiles representing walls, and they cannot input information into the system if they have not selected any tiles in the map to associate this data with.

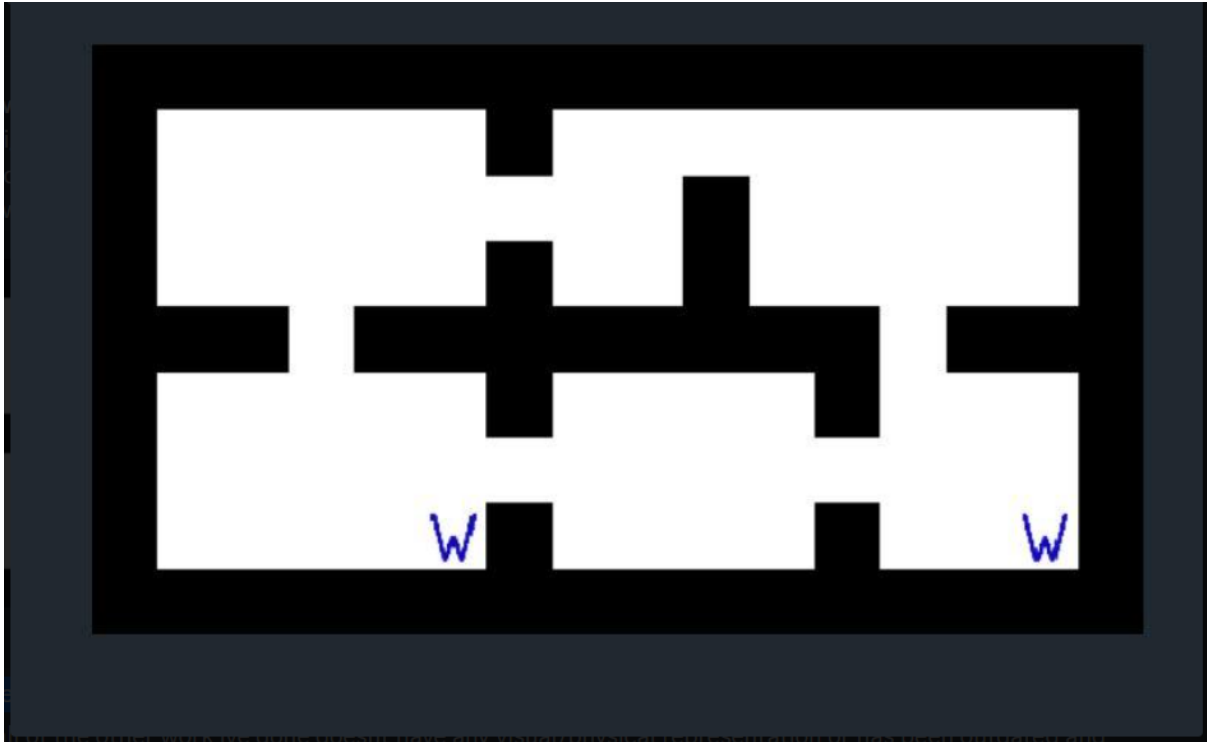


Figure 3.4: Shows the ability to add images to the map indicating points of interest (in this case the washroom)

The above picture illustrates the implementation of the ability to add images to the map to indicate where points of interest are located, in the above case, we have added a W to the map to indicate the location of a washroom on this floor, in the future we will use image editing software to increase the types of images we can impose onto our map so it includes: stairwells, emergency exits, elevators, etc.

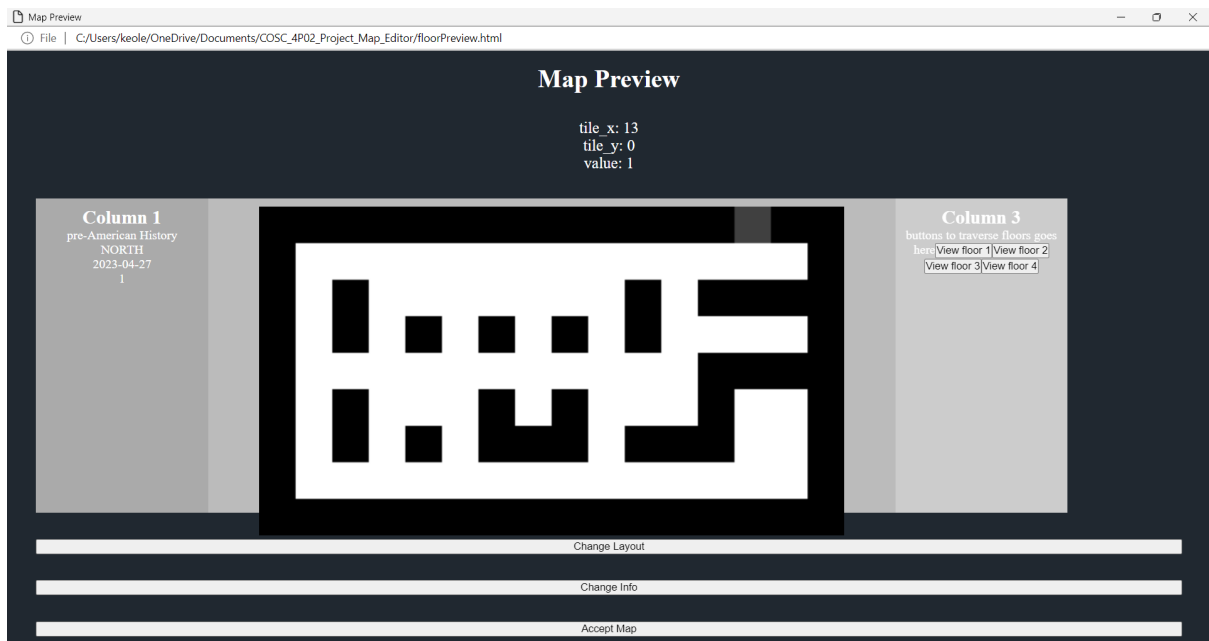


Figure 3.5: Shows the Preview of the final map that will be displayed to users

The above picture depicts the semi-final stage in the map uploading process. Here users are given a preview of how their map presents itself to the user (i.e. patrons of the museum). It is fully interactive, allowing the user to click the buttons in the right-most column to navigate the different floors of the museum. Also, by clicking on the floor tiles, the user will be presented with information associated with it in the leftmost column. This portion also gives options to edit the map through the change layout button, which allows the user to change the layout of the museum floor they are viewing, and the change info button, allowing the user to change the information associated with that floor's tiles.

Now that the basic functionality of the map input interface is complete, further development will focus on increasing the types of data stored in each tile, allowing users to store short videos, voice recordings and short paragraphs about information about the exhibit. Development is also working on expanding the types of pictures that are placable on the map, accomplished through photoshop/gimp, increasing what images we have on hand.

3.2 Database

Currently, research and development are progressing on the database design and development for our mapping application. Thus, we have nothing to show for this section at this time, but completion of this section is expected at the end of the coming weeks.

4 Testing

As we near the final stages of this project, we mustn't overlook the reliability and security of this project. As such, when we reference the project requirements, it is clear what is feasible. In particular, what data should be accepted, stored, and presented to the users?

Do not currently possess any material test cases, as most testing during development was performed on isolated sections of the code with no dedicated testing frameworks. Going forward, we shall consider how both the testing and authentication frameworks are to be integrated into our future sprints to ensure proper testing, validation and authentication of our software. We will be doing this by:

- Creating test cases for inserting, updating, and retrieving different data from our database.
- Creating procedures for inserting, updating, and retrieving information from the database. As there is a significant amount of interfacing with the database by users, it is important to ensure no bad actors can negatively affect the database.
- Creating test cases for interacting with the map interface, ensuring proper output is achieved. This includes responding to invalid requests correctly, correctly responding to scenarios where certain information is unavailable and responding correctly when the information is available.
- Ensuring functionality of the system is complete and fully meets the users requirements.

- Ensuring the application and its functionality is what the user actually wants.

5 Sprints

5.1 Meetings

All members attend meetings, as it is important each member understand the work they must accomplish. We perform bi-weekly meetings but as we head into the final month of development we may switch to weekly meetings.

5.2 Sprints

During each sprint, members work to complete the tasks associated with their area of development, resulting in each sprint moving the development of the project forward iteratively as we build the system up. Team members can select which tasks they will perform for a sprint from our product backlog located on Scrumdesk, which allows us to visualize our sprints and keep track of our progress/completed tasks.

5.3 Future Sprints

For Future sprints, we shall continue to iteratively build up the design and functionality of our map and user interfaces and continue development on the database portion of our application. As well as focus on testing the system, which will entail building test cases for the system and all of its methods, ensuring they return the correct output. Ensuring the application coincides with user desires and all deliverables become produced in their specified sprint. The current backlog can be viewed at the bottom of this report or on our ScrumDesk page, in-which access will be provided by e-mailing Kevin Olenic at ko19af@brocku.ca.

5.4 Backlog Items

Below is the list of the planned Backlog items (features) completed for the sprints of this project.

- Update floor layout
- Update floor information
- Preview Floor information
- Display Map information
- Incorporate images, depicting location of points of interest
- Map upload start page

Below is the list of planned Backlog items (features) not completed for the sprints of this project.

- User interface (sign-in page)
- User Interface (Input museum info page)
- Upload Map data to database
- Retrieve Data from database

Below is a list of the Backlog items (features) we plan to complete in future sprints.

- Map Legend
- User interface (sign-in page)
- Storing information in the database
- Retrieving information from the database
- Update visuals for inputting museum information

6 Problems

- All members of the team do not perform Daily Scrum
- Communication between members needs improvement
- Getting the map preview page to display the correct map information on a button press
- Updating the correct map information when pressing a editing button
- Getting the Firebase database operational

7 Links

GitHub: https://github.com/ko19af/COSC_4P02_Project