Department of Computer Science

COSC 4P02 - Interactive Mapping System

Progress Report 1

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Contents

1   Overview

The development of our Interactive Mapping program has been progressing slowly over the past few months. Our team has been using this time to focus on a museums ability to upload information into the system and on the design of the overall application. This document will convey what our team has accomplished these past few months and the roadblocks we had to overcome to achieve these results, also covering how we have been conducting our meetings, made progress in our assigned sprints, coordinating our work with each other, and solutions to problems we encountered with our work methodologies. This report will also cover the next steps our group will take for future development of this project, and how we will accomplish those goals.

1.1   Previous Sprints

Our group is currently moving towards the finishing of our second sprint, our first rounds of sprints consisted of the team being separated into two sub-teams. The first team consisted of Connor Vriewyk, Salman Saeed and Riley Benson, this team worked on the design and creation of the user-interface portion of the application, while the other team which consisted Kevin Olenic and William McCormick designed, developed and tested the mapping/mapping interactions of the application.

Through each sprint, each team has been working on collecting all necessary research, data, code, and all other required materials and information for the application to function correctly. We are currently entering into the crucial portion of our production timetable where the teams will now convene and begin bringing their potion of the project to a stage where it will be compatible with the other teams work.

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 complete Reports and documentation of sprint meetings.

- Team Members Kevin Olenic, William McCormick and Salman Saeed have uploaded their code to the GitHub page.

- Team Member Kevin Olenic designed and implemented the tile map interface, tile selection portion of the map interface and information submission portion of the map interface.

- Team member William McCormick performed additional research into performing additional design modifications of the tile interface.

- Team member Riley Benson performed research and into the database that will be used for our mapping application.
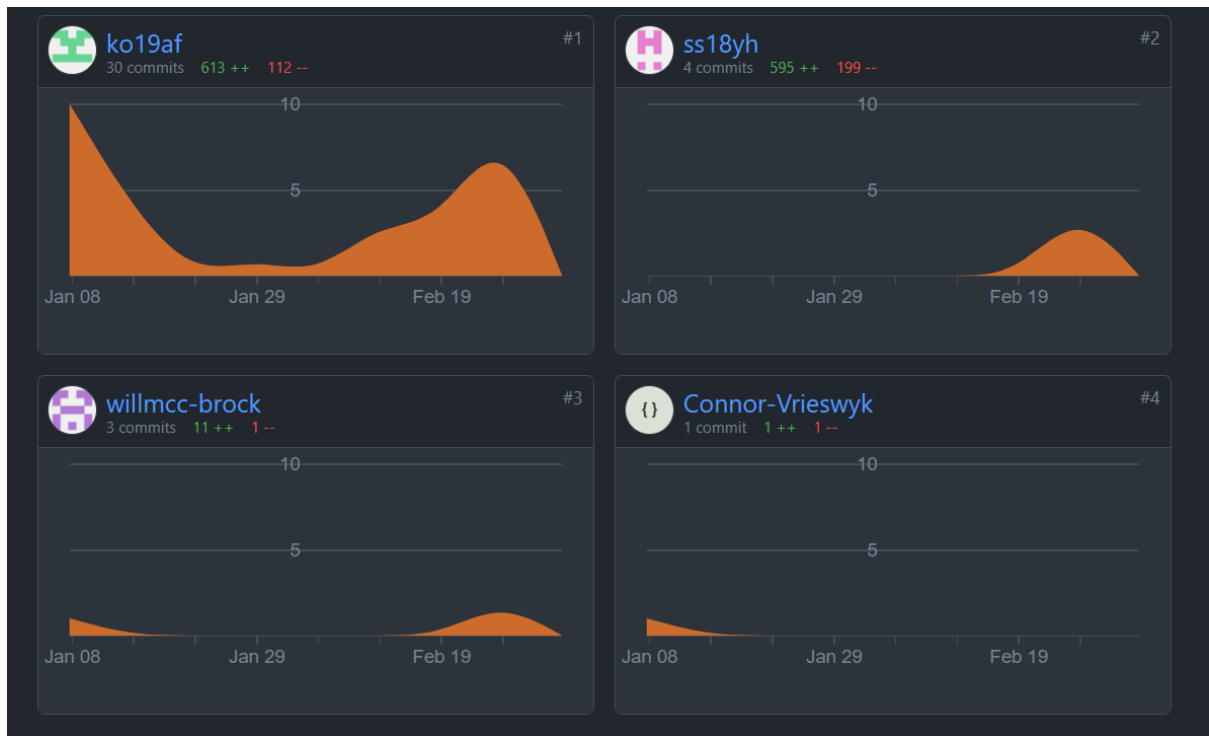
Figure 1.1: Figure 1.1 Shows the contributions of team members to the GitHub page
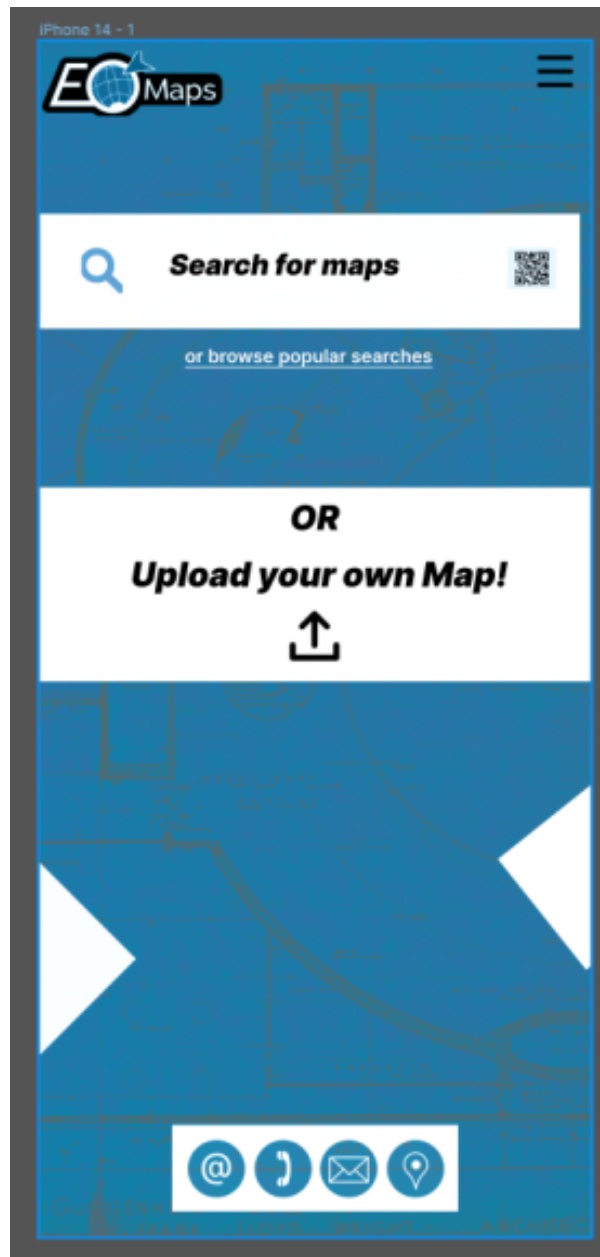
2 Design

2.1 Mobile

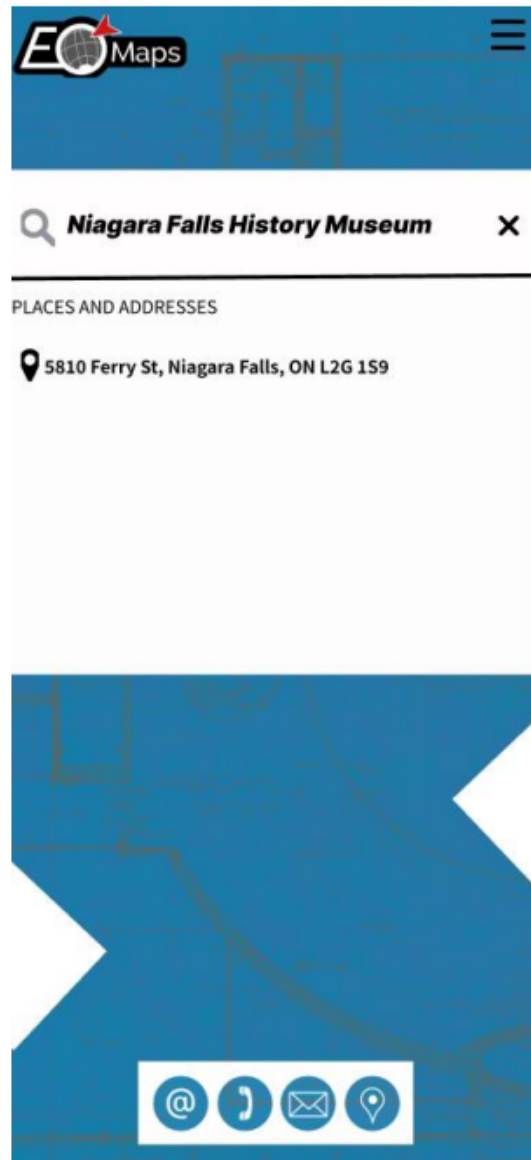Figure 2.1: Shows the initial design of our applications homepage

Figure 2.2: Shows the initial design of our applications museum reference page

For the site mockup, members Salman and Connor utilized the open-source IDE android studio and Figma. This software created an environment that allowed them to design, develop and change the interface's layout to our liking and without much difficulty, allowing integration of new ideas or functions deemed necessary or advantageous along the way.

It was decided, for the interface, to keep it as minimalist as possible while still aesthetically pleasing in the early stages of development, preventing ourselves from becoming over-encumbered by non-essential functions. This allowed the developers to focus more on the functionality of the user interface while still considering design features.

2.2 Map Interface

Currently, the design for the map interface has not begun, as the effort is focused on ensuring the base functionality of the program is working before implementing any design features.

3 Implementation

3.1 Map Interface

In designing our interactive mapping application, the first step we had to complete was uploading the map information into the database. As such, we had to divide the process into multiple stages to fully understand what we would be required to design and develop to implement the interface completely. In our research, we determined that the first step of the map interface would be to upload the layout of each floor in the museum. The second step is to designate which rooms on that floor belong to an exhibit. The final stage of the interface would be to input that information corresponding to a room and then upload that information into our database, storing the map information.
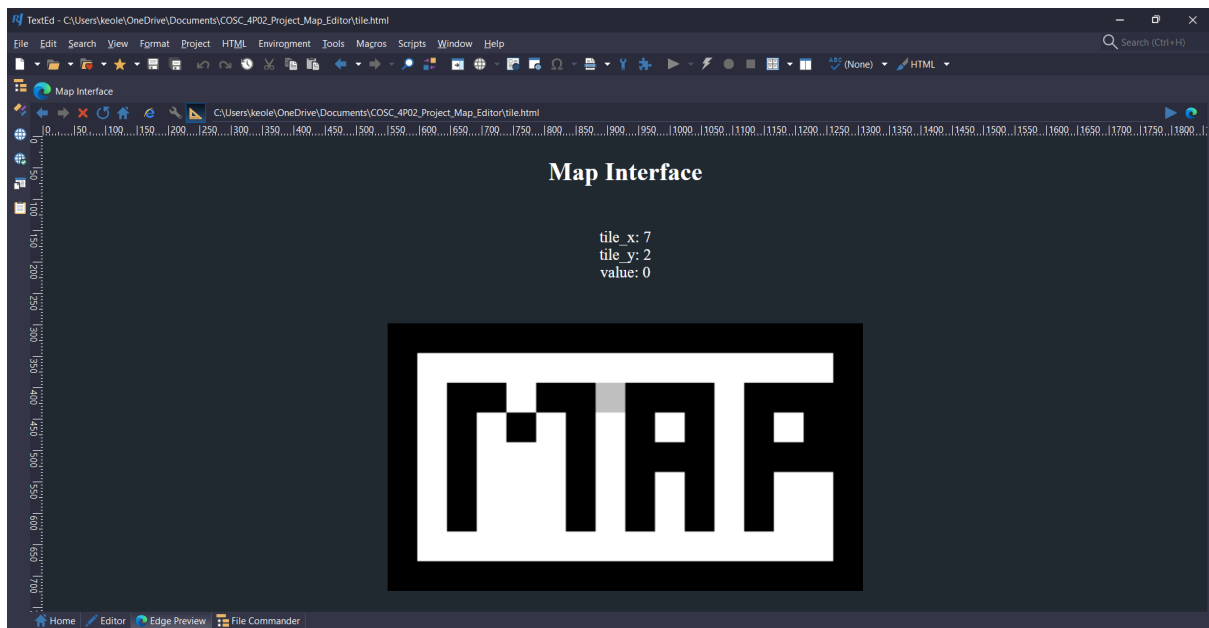

Figure 3.1: Shows the initial design Implementation for entering the layout of a museum floor
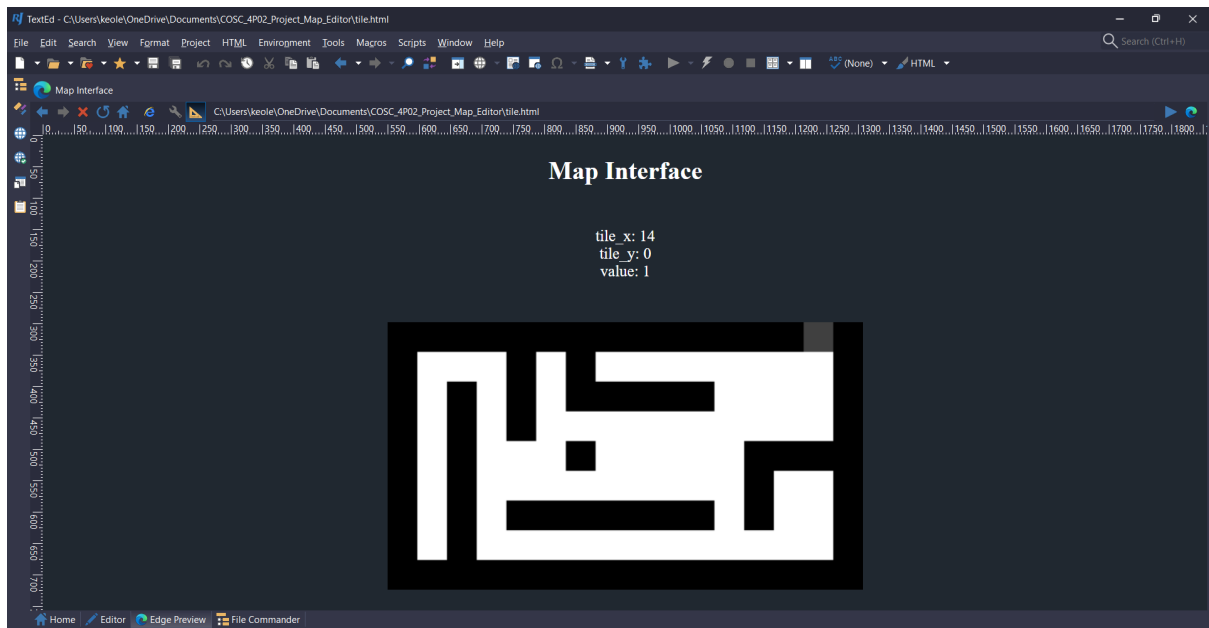
Figure 3.2: Shows the altered floor plan from the previous picture

The pictures above demonstrate the first phase of our mapping interface. Here the museum will upload the layout of a floor in their museum. The interface used for this portion is a clickable tile map, wherein the user can click on a tile to designate it as a wall (black tile) or open floor (white tile). Once the user has finished uploading the information into the interface, they will click a button to save the layout and move the user to the next phase of the process. In the future, we plan to increase the size of the interface to allow the user to create more detailed floor plans and implement a click-and-drag feature to permit the user to select multiple tiles at a time instead of clicking a single tile at a time.
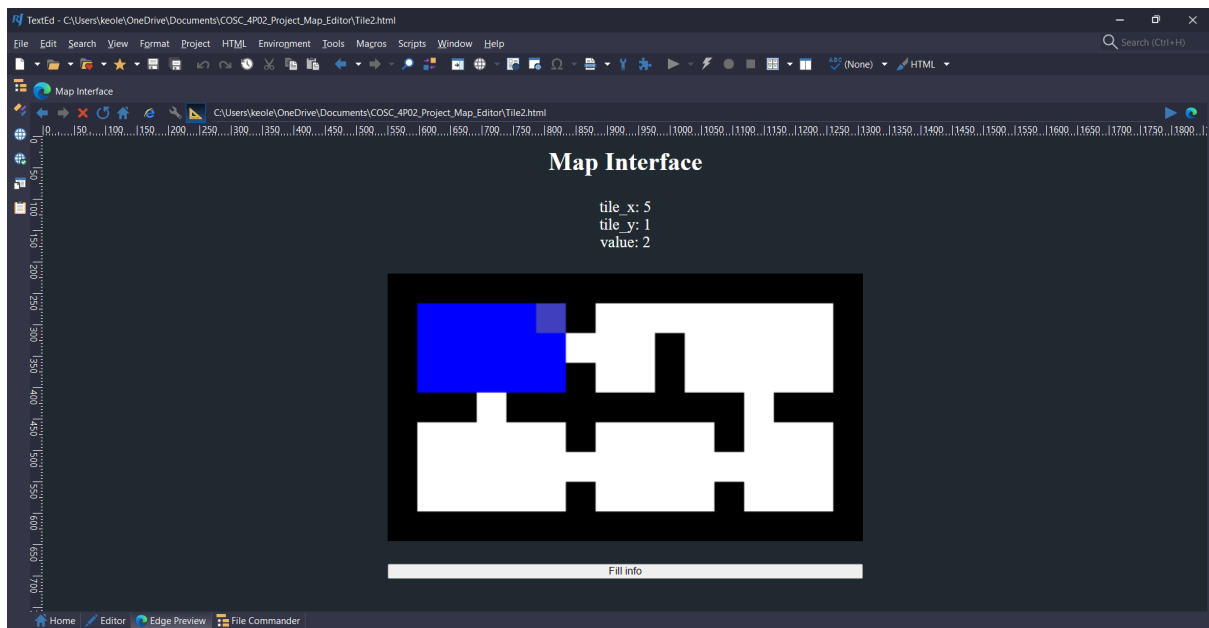

Figure 3.3: Shows the tile selection ability of the map to identify what tiles belong to which exhibit

The above picture demonstrates the interface's ability to allow the user to select which tiles correspond to an exhibit or area. This stage is similar to the previous one, as users need only click on the tiles they wish to associate with a display. The grouped tiles are coloured blue, signifying that these are the tiles the user wishes to associate. However, they may only click on the tiles designated as open floors (white tiles), and users may not select any tiles specified as walls (black tiles). After choosing the tiles corresponding to an exhibit, the user will click the button to insert the information.

Figure 3.4: Shows the information input page to input the information tied to the tiles

The above picture represents the final stage in the map interface, which uses the groupings created in the previous portion. Here the user inputs the information associated with the tiles. After inputting the details of an area/tile into the system, the details become attached to each tile in the grouping. Thus when the map becomes displayed on a website, phone or kiosk, a user clicks on the area of the map, selects one of the tiles, and will be shown all the necessary information for that area and its exhibit.

Further development will increase the types of data stored in each tile, allowing users to store short videos, voice recordings and short paragraphs about information about the exhibit. Additional work is being performed to increase the detail of each tile, so pictures designate the location of bathrooms, stairwells, elevators, and other areas of interest visitors should be aware of in the museum.

3.2 Database

At this time research and development is being performed on the database design and development of the database for our mapping application. As such we have nothing to show for this section at this time.

4 Sprints

4.1 Meetings

The first actions we performed for this project was getting together to determine the project we would develop for this course, research the features and user stories of the project, and assign the tasks to group members. Using the information gathered, we planned which sprints we would build specific components of the project. Due to conflicting schedules, not all team members could attend every meeting. However, they were informed by other team members what happened during the meeting so they would not be left behind. Formal sprint meetings are held twice a week so members can discuss any issues or questions about their portion of the project. We maintain a constant communication channel between each other, both through our dedicated team's group chat and Discord chat room.

4.2 Sprints

As stated above, user stories decomposed into individual tasks for completion during a sprint. At the end of the sprint, the team member who claimed that job presents the work they have accomplished and, if finished, chooses the next task they will tackle for the sprint. For the first few sprints, our team agreed we would pair into groups to tackle large portions of the project together, with Kevin Olenic and William McCormick working on the map interface section of the project and Connor Vrieswyk and Salmaan Saeed working on the User Interface portion of the application, Riley Benson was assigned to work on the database portion of the application. If a group faced any issues during the development of their portion Riley would be allocated to help them in their work. Our team choose to use ScrumDesk to visualize our sprints and monitor the progress of complete/incomplete tasks. The completed items can be seen at the bottom of this report, if access is required please e-mail Kevin Olenic at ko19af@brocku.ca to be added to the page.

4.3 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. We shall also reference the user stories and requirements to ensure that the application we are developing coincides with user desires and ensure 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.

4.4 Backlog Items

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

- Upload floor layout

- Choose tiles associated with Exhibit

- Upload information to tiles

- User interface (Homepage)

- User interface (Museum Navigation page)

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

- Update Map information

- User interface (sign-in page)

- User Interface (Input museum info page)

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

- Map Legend

- Update Map information

- Upload Map data to database

- Retrieve Data from database

- Display Map information

- User interface (sign-in page)

- User Interface (Input museum info page)

- Update visuals for inputting museum information

5 Problems

One of the first problems encountered was deciding how to upload the map information into our application. Originally we planned to take a picture or blueprint of the floor layout. However, we encountered several problems, such as none of us knew how to accomplish this feat, and there is very little documentation on how to achieve this effect on the internet. There was the problem of whether the information loaded correctly into the system. So our solution to this problem was to implement an interface that would prompt the museum to input the floor layout by hand, thus removing the need for any pictures and minimizing the risk of error when uploading the floor's structure.

The second problem we faced was familiarizing ourselves with the different languages and tools we would have to use to develop this project. For example, the user interface team had to become acquainted with Figma, a design website. The group had to educate

themselves with the unique features and interfaces that Figma offered, which differ from those of other design tools the team has used before. Even the map interface and database teams needed to search how to perform certain operations and create certain functions in JavaScript and database languages.

6   Links

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