Links:

- User site
- Admin Site (Login with brock email) (If email does not work contact sw18jz@brocku.ca)

1. Write the name of your group members and their roles in the group.

Group members:

- Sebastian Wood 6664189, Scrum Master and Full Stack Developer
- Chris Delo 6418024, Product Owner and Developer
- Marcus Pozzobon 6655633, Frontend Developer
- Luke Hopkins 6266928, Backend developer
- Tong Zhang 6787949, Developer
- Ethan Natanegara 6264295, Developer and Graphic Designer
- Yashasvi Sharma 6837892, Developer

2. Discuss your initial backlog, how it was divided and developed over the sprints

   The initial backlog mainly was focused on user story style cards. Each focused on the main requirements (functional and non-functional) designated by the museum. Going into future sprints the user stories were broken down into tasks. These tasks were distributed among the appropriate sprints. During each sprint some items were added to the sprint backlog that were not previously thought of. Otherwise each task was distributed to each group member fairly to give each person work to do.

3. Include a brief list or description of the features (subsystems) that you planned to implement in each sprint, and whether or not you accomplished them.

   Sprint One: Basic Architecture (Jan 31 - Feb 14)
   - Create the various azure resources for deployment
   - Create the initial project
   - Port over previous code from co-ops

   Sprint Two: Basic Features(Feb 14 - Feb 28)
   - Create data models
   - Write API calls for CRUD operations
   - Write unit tests for backend
   - Design visitor user interface (Not fully completed)
   - Connect backend and frontend

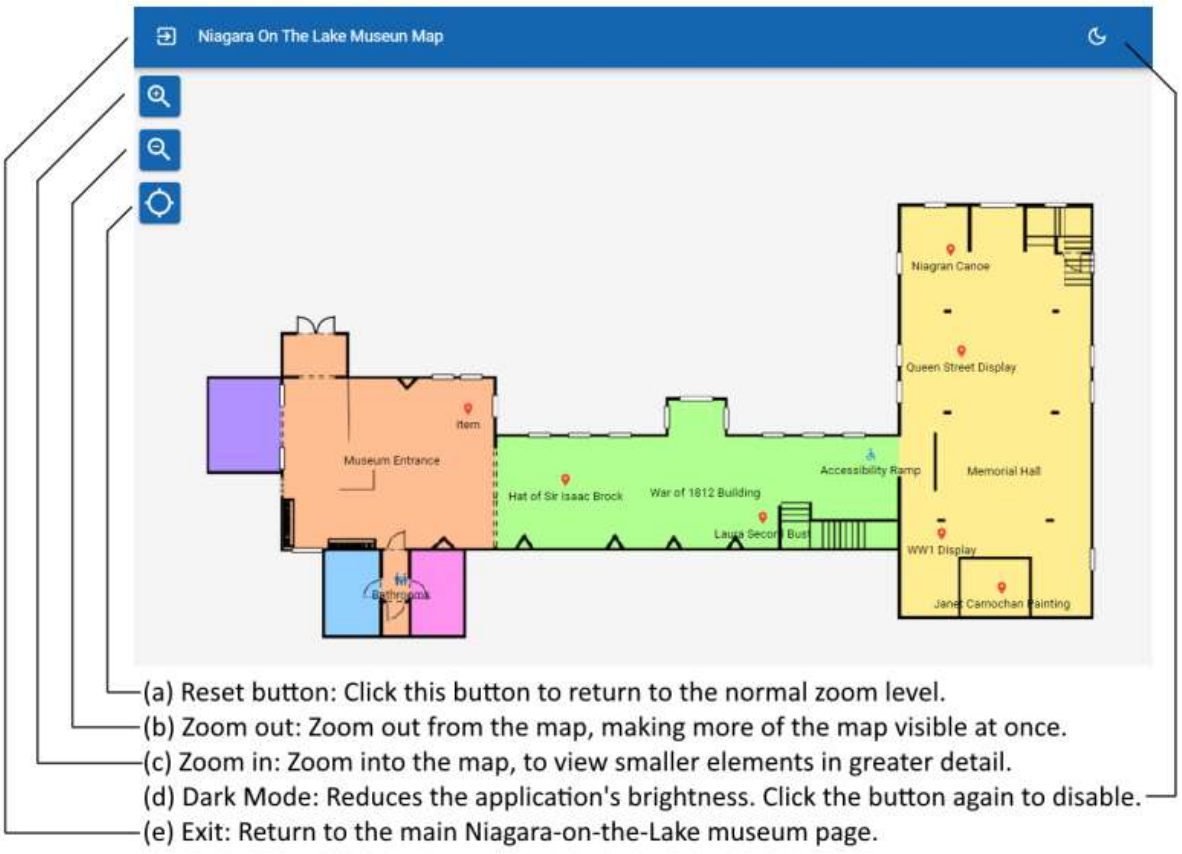
   Sprint Three: MapBased Features (Mar 14 - Apr 2)
   - Finalize visitor interface
   - Create administration interface
   - Create map editor
   - Create active map system

   Sprint Four: Clean up and Demo (Apr 2 - Apr 23)
   - Fix several bugs

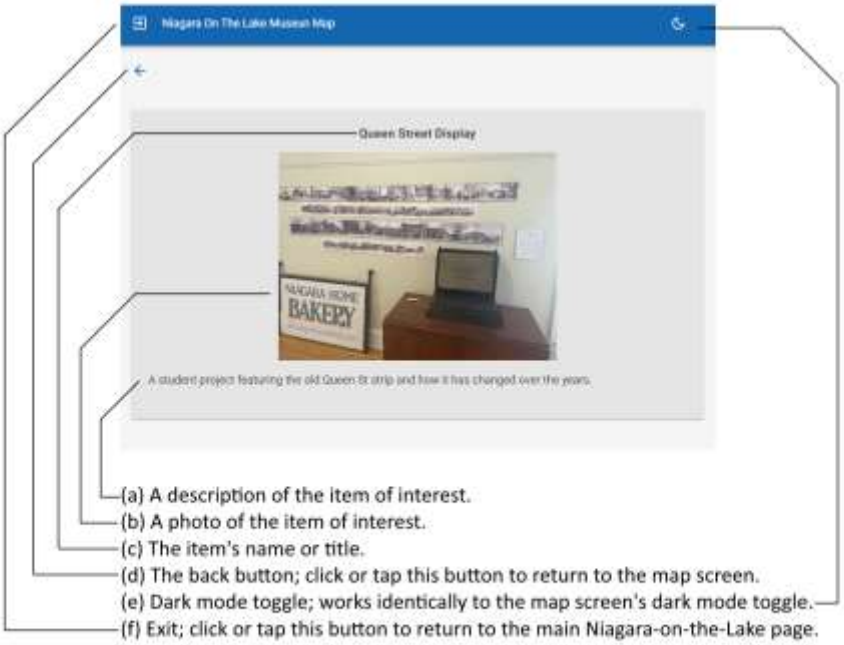
- Clean up several UI elements
- Add various accessibility features
- Add language support

4. User Manual

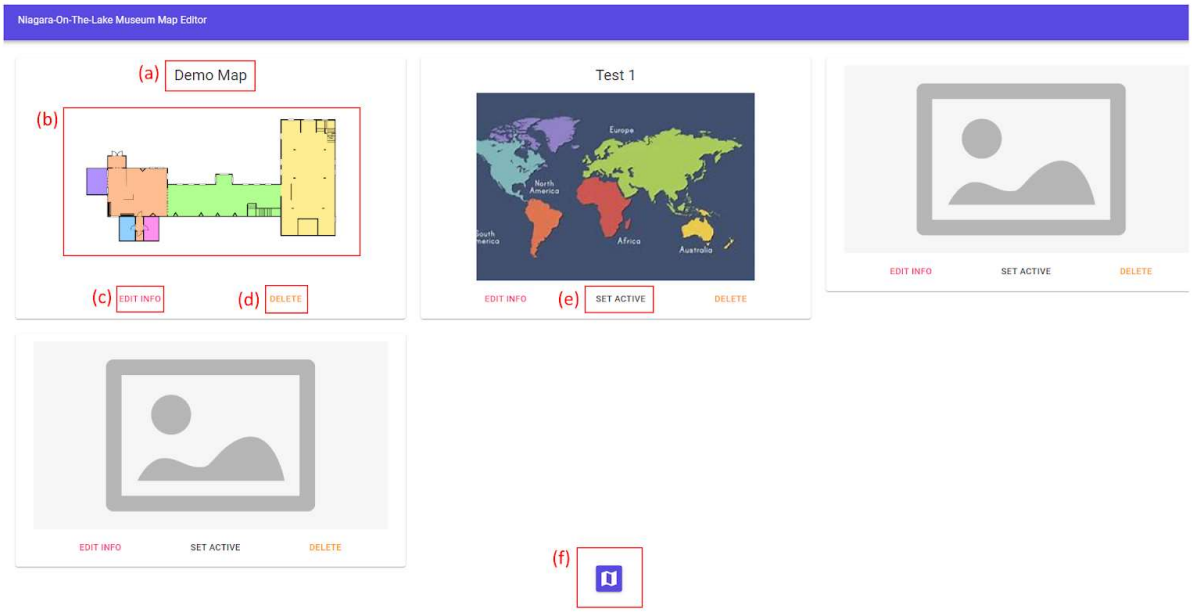
Visitor site:



While viewing the map, you can click or tap a location (indicated with text and an icon) to view the point of interest in greater detail. This will show a second screen (see below).

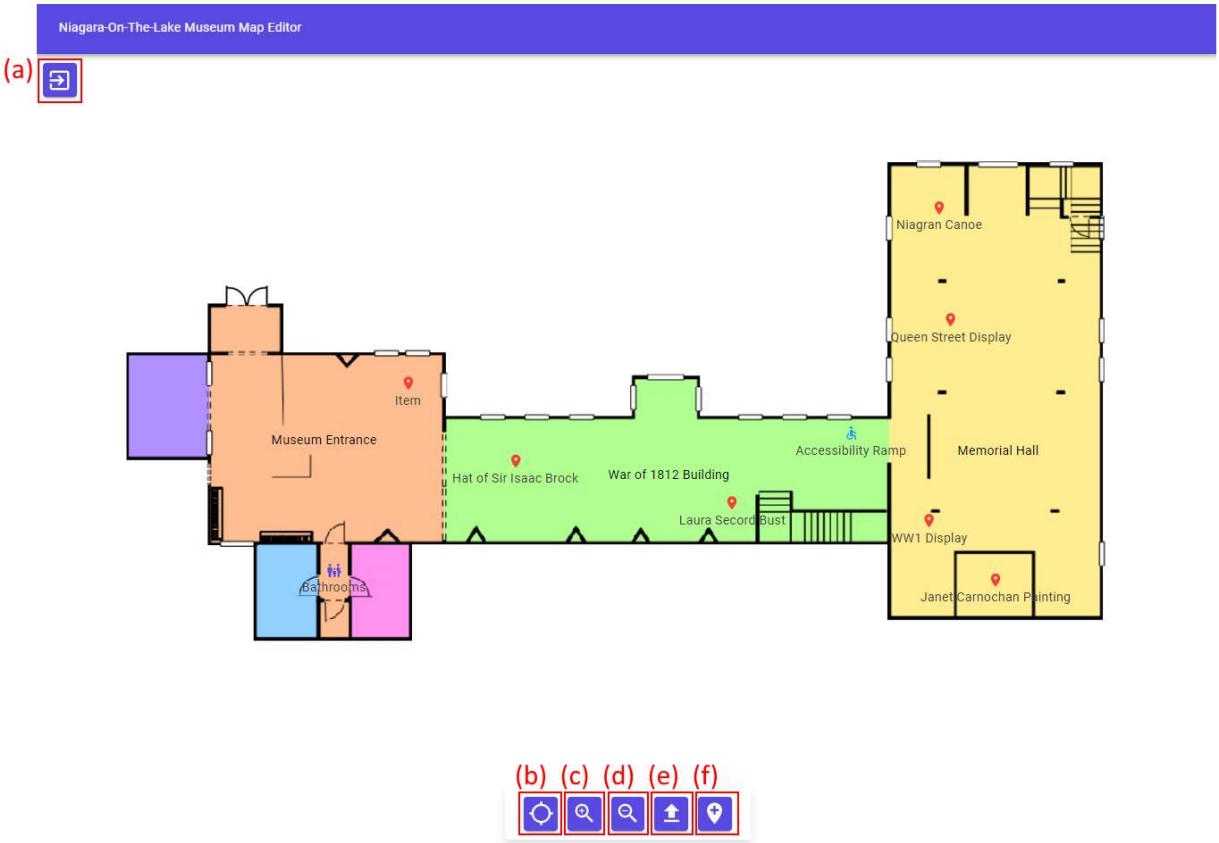


Admin site:

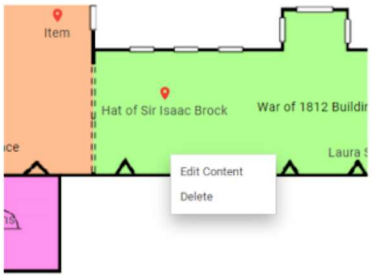


a) The title of an individual map.
b) A preview image of the map.
c) The "edit info" button; click on this to edit the information of the map, such as points of interest, the layout of the map, the title, etc.
d) The delete button; clicking on this will delete the relevant map, after confirming that you want to delete it.
e) The "set active" button; at any given point, one map will be the "active map". The active map is the one that will be shown to viewers. Clicking on the "set active" button will change the active map to be the relevant map.
f) The "new map" button.

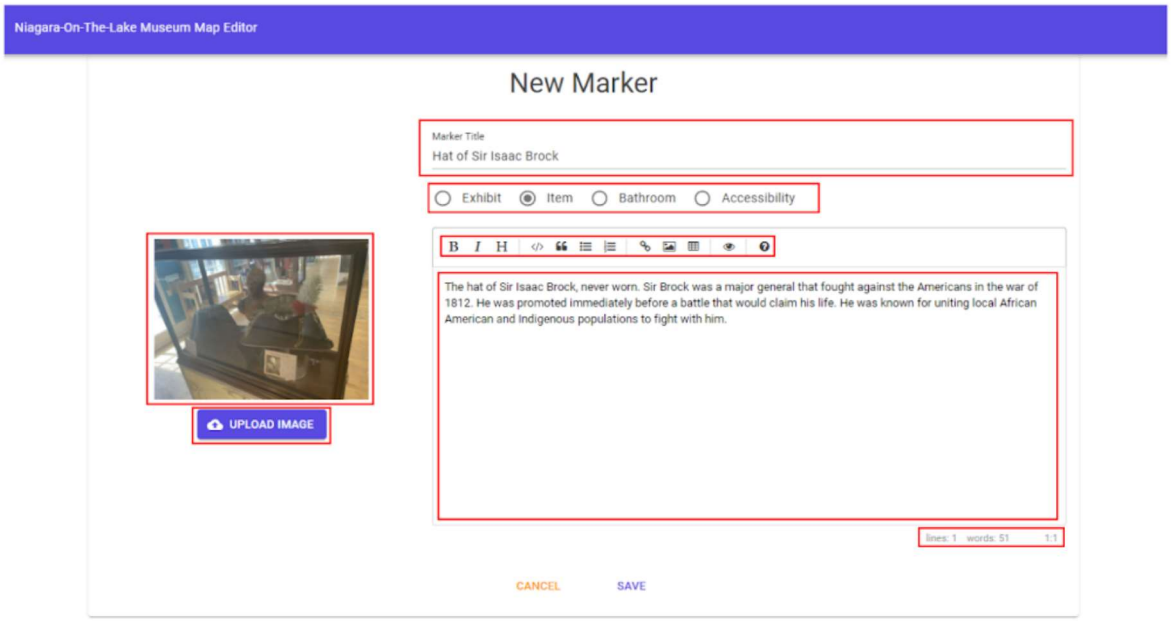
a) The "map name" field. Type into this box to set the name of the new map.
b) The preview image of the new map. If you have uploaded an image for the map, it will appear here.
c) The cancel button; clicking this button will delete your progress and return you to the map list screen.
d) The "upload image" button. This will upload a new map image to provide the layout of the map. You will need to create your own map image or obtain it from an external source (ex. building plans)
e) The save button. This will save your progress and return to the map list screen.



a) The exit button. This will save your changes and return you to the list of maps.
b) The reset zoom button. This will return the map's zoom level back to normal.
c) The zoom in button. This allows you to see the map in greater detail.
d) The zoom out button. This allows you to see more of the map at once.
e) The map upload button. Click this to upload a new map image to serve as the background, or change the name assigned to the current map.
f) The new POI button. Click this button to add a new point of interest to the map.
When adding new points of interest to the map, they will immediately appear with the name "Item" and the default location marker as their icon.

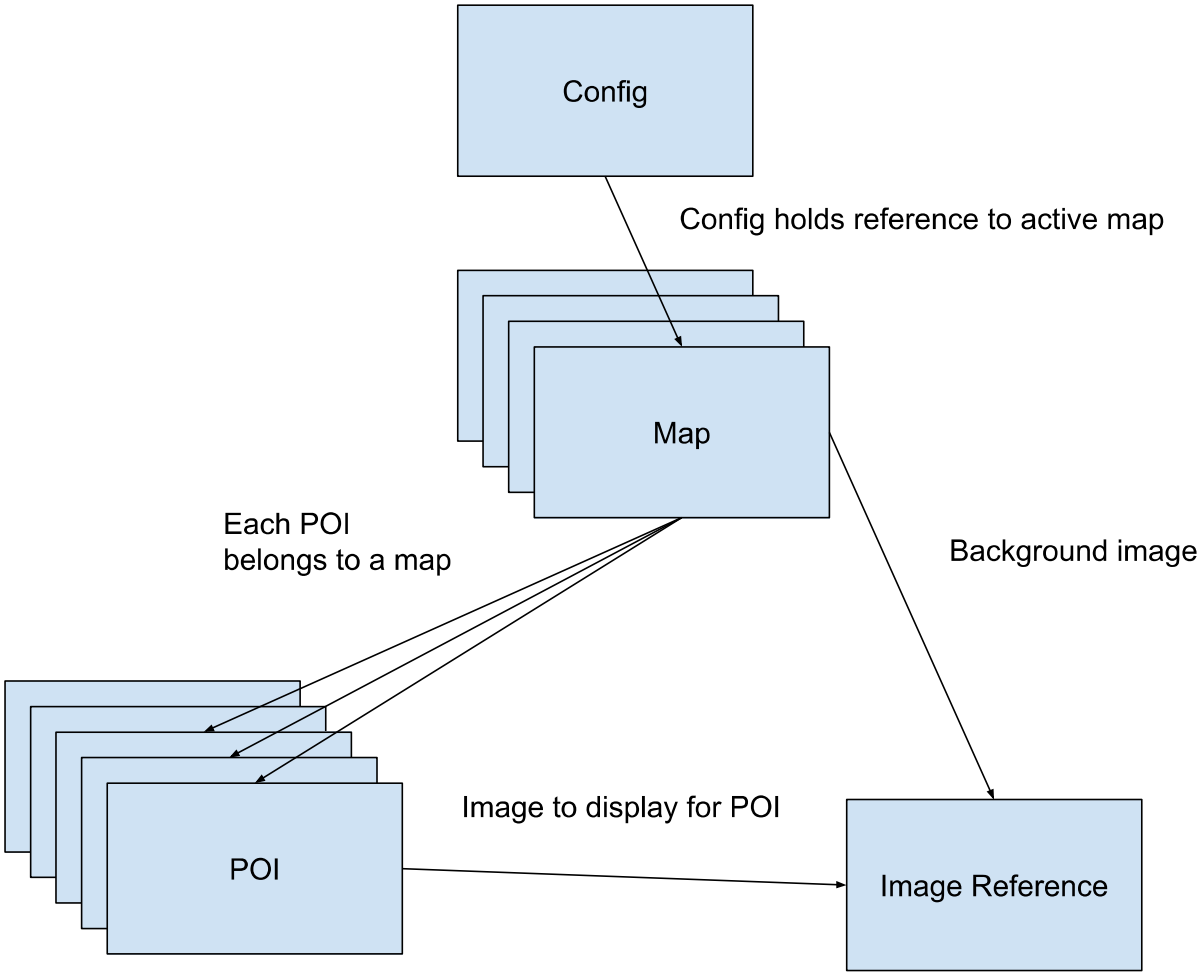


From the map editor screen, existing POIs can be right-clicked to bring up a menu. From there, you can delete the POI, or edit the contents that appear inside when users click on the respective POI in the map.



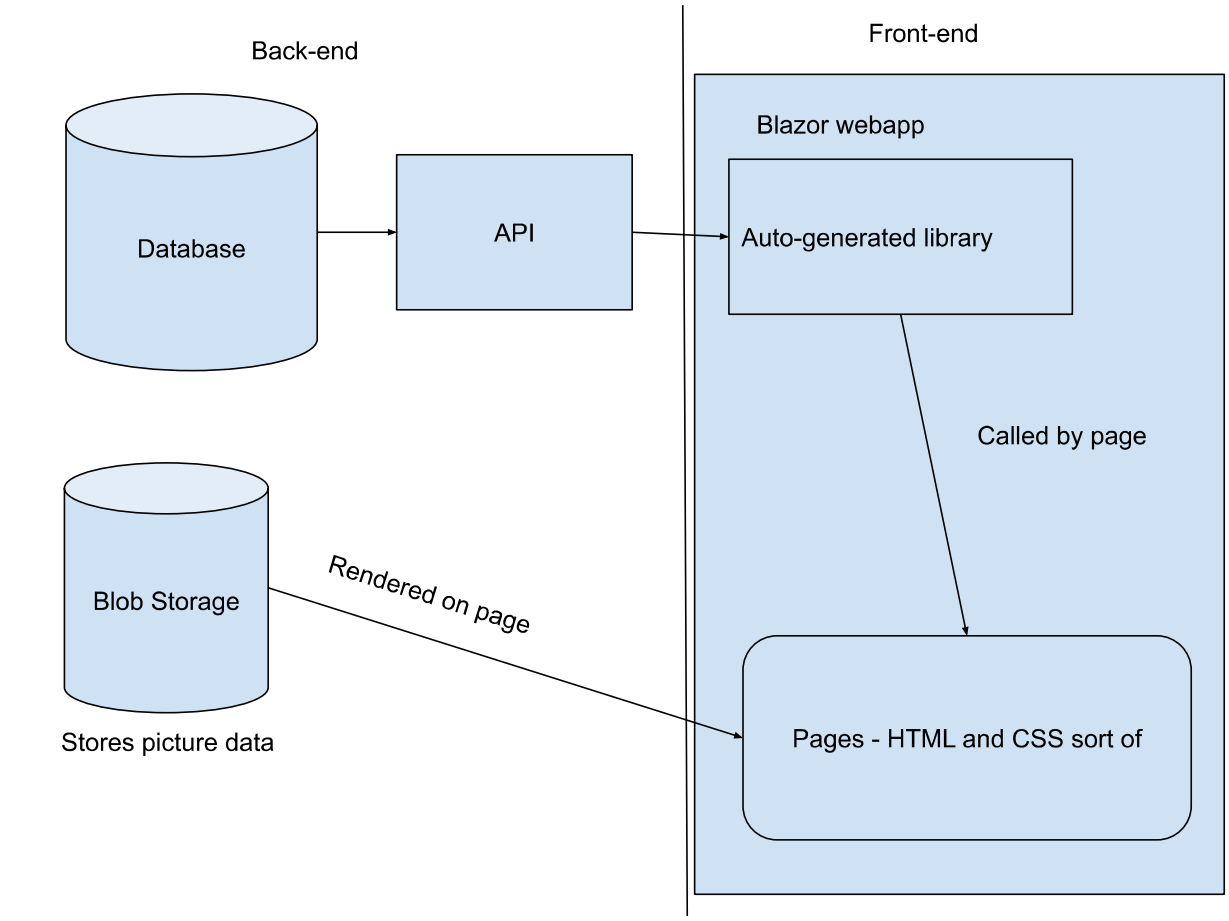
a) The preview image of the POI. This image will show when the user views the POI in the map.
b) The upload image button. This button allows you to upload a new image for the POI.
c) The POI's name. Edit this to change what name the POI has on the map and when it is clicked.
d) The POI type. Except for Exhibits, each type will appear differently on the map:
- Items:
- Bathrooms:
- Accessibilities:
e) The editor buttons, which allow you to change the text in the description to add more detail, such as making certain words or groups of words into bold font, or adding bulleted or numbered lists.
f) The description box. This is where you can type in a text description for users to read when they click on the POI.
g) The text metadata. "Lines" indicates how many lines of text there are, distinguished by the number of times the enter key is pressed; words indicates the number of words in total. The 1:1 indicates the cursor's location in the text, row first (so 1:26 would be the 26th letter in the first row).
h) The cancel button. Click this to discard any changes you have made to the POI and return to the map editor screen.
i) The save button. Click this to save your changes you made to the POI and return to the map editor screen.

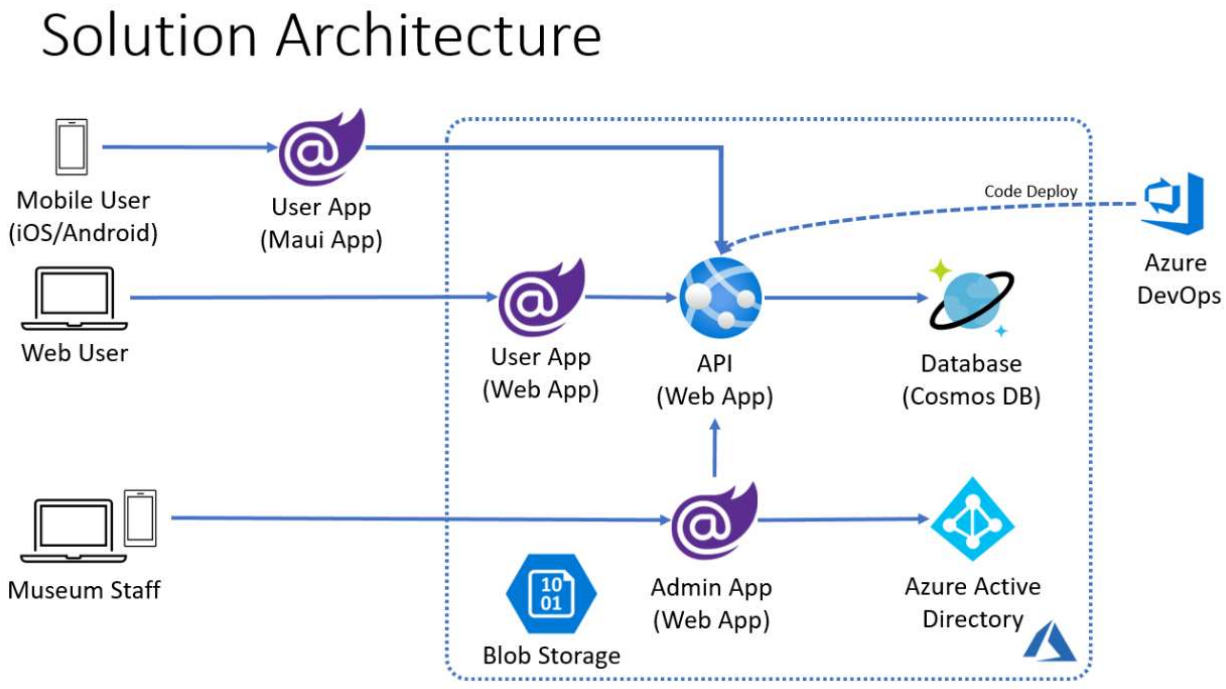
5. Database Models



6. Architecture.

Backend to Frontend design:





7. Mention any issues that you encountered.
    - In the second sprint, the backend needed to be developed before any meaningful work could be done. This meant that the more front-end oriented members had to wait for the block to be finished.
    - During the third sprint, several features were developed without proper forethought. This led to having to refactor several features in the final sprint.
    - During our last sprint of development, the week before the last presentation, Ethan ran into an issue where he could not access the client web-app from his version of the code despite keeping up to date on it with everyone else's version. After some trial-and-error and consultation with Sebastian, it was discovered that the issue was with his local version of the code; deleting it and redownloading seems to have fixed it.
    - During our last sprint, we encountered an issue where the positions of the POI's on the admin map editor were not syncing up with the active client-side map that is being displayed to the user.
    - One of the bugs we attempted to fix was POIs jumping to the top corner when editing. After several days, a solution could not be found. A similar situation occurred with POI bounds detection. With hindsight, the tool we used for displaying movable objects was not reliable enough for our purposes. We might have benefited from designing our own system earlier in the project.
8. Describe the contributions and achievements of each member of the group as well as their GitHub logs
    - Marcus:

      As a frontend developer for this project, Marcus worked on many of the maps basic interactivity features of the map itself. These included implementing the zoom functionality, making the map pannable and moveable, actually displaying the map and getting the POIs to display on the map and move and scale with the map. Then, Marcus moved on to create the POI as their own component for more customization of a map, having them display different icons depending on the type of POI, such as exhibit or bathroom, etc. Another thing Marcus worked on was the admin map editor/.customization tool. The parts of that that he worked on was the overall design of it as well as the creation of the user interface using razor pages. Also, Marcus helped finalize the map's final look, this included the placements of the buttons for interactivity such as the zoom and reset buttons as well as the back button when looking at a POI description. Also, Marcus helped create a final demo map that had some sample data from the NOTL museum. During the last sprint especially, Marcus worked on some bug fixes such as the 'jumping' POIs in the map editor and the syncing issue between the admin map editor and the user end map. Another thing to note is that Marcus assisted in finding a suitable library for integrating the interactivity featured in Blazor, which is Blazor Panzoom.

        - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=mp18gb
        - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=marcuspozzobon
    - Tong:

In the earlier sprint, I developed some APIs as a backend developer to create a map, get maps, and get map POIs. I also wrote test codes for the APIs, including map modification tests and get maps tests. In the later sprint, I worked as a frontend developer and was responsible for displaying POI content. This task involved creating a back button to the map, designing an overlay, implementing the functionality to display the description, and adjusting the style. Additionally, I developed the "upload image" page, which included creating the form, integrating it into the map editor, and adding it to the new map event. In the final sprint, I focused on debugging and attempted to fix some issues.

    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=antoniotongzhang

- Ethan:

  I provided most of the graphical design/input for this project. The layout of the admin tool especially, I put in most of the design for that. The non-placeholder map image for the actual museum was my responsibility as well, in addition to designing the logo for the favicon/tab icon image (the Niagara-on-the-lake official website does not have a favicon, so I had to create a new one using the museum's existing logo as a starting point). Other graphical design-related requests were my responsibility, such as these images, which we used tentatively as buttons for adding and deleting points of interest, or the image walkthroughs on this progress report and on previous to visually demonstrate how someone would use our application. Additionally, I did some of the coding work in the project; the map editor is one example of this, as I programmed in the ability to add POIs into a map as well as upload new images into existing maps. I also reevaluated our application during our final sprint, seeing some things I found unpolished; progress meters and mild text animations in loading screens to show that the application was working and tooltips for buttons in the admin tool are some of the things I have added later in development.

    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=Pyhrrous

- Chris:
    - As the product owner I was in communication with the museum staff to find out what requirements we needed to fill, both non-functional and functional. The few gaps in requirements we had I then worked to fill, making sure to keep the system as simple as possible and user friendly. The first few sprints had the biggest workload for product owner responsibilities, so when those declined I picked up more development responsibilities. I had a large hand in creating the "POI update" functions, I programmed the back end API and the front end in Blazor. In summary: my role in this spanned multiple disciplines, including requirements engineering, front end UI development, and back-end programming work.
    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=CDelo
- Luke:
    - As a backend developer in the early stages of development I assisted in working on the API calls, specifically I created the delete functions for the

Map and POIs, as well as created unit tests for the functions. In the later sprints as the project became more front end heavy, I worked on the functionality for the context menus in the admin center, allowing users to edit and delete pois when editing a map, as well as testing and debugging the context menus functionality in the final sprint. Aside from programming I accompanied Chris to the museum to take a tour and take pictures, which were then uploaded and used in the map so there is a visual aid when selecting a POI.

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    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=Hopper2

- Yashasvi: I was responsible mainly for the front-end developing including implementing the user interface and creating responsive layouts. As a developer I worked on the map editor, designing a user-friendly interface and implementing a zoom range feature to ensure that users could not zoom in too far or out too far. Moreover, I also worked on the backend code, to ensure that the map data is always saved and retrieved effectively and POIs were bound correctly and also helped in writing test codes for maps. In the final sprint, we focused on fixing bugs and making quick fixes to ensure our website is stable..
    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=yashasvisharma2019
- Sebastian: I introduced the team to .NET Blazor development. I have used it in all 3 of my co-ops. I have also worked with Azure cloud development in the past. This allowed us to jump start the project. I was able to quickly set up the azure resources and port over much of my previous code. Code which has been through several refactor cycles. However, this came with a downside as most of the team would need to learn the new framework. I worked heavily with each member to teach them the architecture and framework. I also had many pair programming sessions with each member to help complete their tasks. I would like to say that all the team members pulled their weight. One of the main reasons that I have many commits and lines added on github is because of the initial project set up. Probably 15,000 of my lines are auto generated code. So I would take that number with a grain of salt. Also most of my commits were just code clean ups, quick fixes, and gitignore changes. So my numbers there are probably inflated.
    - https://github.com/seb74813/COSC4P02NOTLInterctivemap/commits?author=seb74813