

Progress Report 1

COSC 4P02
Software Engineering II
Naser Ezzati-Jivan
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Brock University

Alec Ames
Team Leader
Product Owner
aa19vl@brocku.ca
6843577

Ibrahim Hashmi
Developer
ih17px@brocku.ca
6352926

Tommy Pham
Developer
tp19if@brocku.ca
6733646

Justin Stickel
Scrum Master
js19ge@brocku.ca
6718404

Matthew Benson
Developer
mb19hz@brocku.ca
6729388

Francis Monwe
Developer
fm19pe@brocku.ca
6724355

Abhijeet Prajapati
Developer
ap15qm@brocku.ca
5987722

Haaris Yahya
Developer
hy20ao@brocku.ca
7054984

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1. Overview

Our team has been steadily progressing in our development of an interactive timeline that will be used by the Niagara-on-the-Lake Museum. Currently, we have successfully developed and tested an MVP (minimum viable product) along with some important usability and accessibility features. This document serves to provide insight on how our team has been following the

Agile process, as well as insight on the current status and functionality of our product. Furthermore, this document will outline both our completed and future sprints, as well as identify problems that we have uncovered through our time spent developing.

1.1 Contributions

As outlined in our project proposal, all team members are developers. The Product Owner and Group Leader role was given to Alec Ames, and the role of Scrum Master to Justin Stickel. All developers are tasked with individual backlog items at the beginning of each sprint, and have been responsible for uploading their work to the shared GitHub repository. The Product Owner has had the task of managing the product backlog and frequently providing clarity about the product goals. The Scrum Master likewise has been tasked with creating and managing the sprint backlogs, as well as facilitating and managing each team meeting. Quantitative contributions such as Jira backlog item completion and GitHub commits have been tracked on their associated platforms accordingly. We have also set up a GitHub webhook in our team Discord server that notifies our team members when new commits are pushed, allowing everyone to stay up to date on our codebase.

The following screen capture is our GitHub Network Graph stitched together to show our commits throughout our branches.



| <i>Member</i> | <i>Contributions/Achievements</i> |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alec Ames | Adjusted designs and functionality of UI components and timeline to adhere to mockup design; Added accessibility and navigation menus; Connected application to Supabase database securely; Created responsive layout; |
| Matthew Benson | Implemented theme selector for light, dark, and high contrast themes; Implemented transitions between timeline items; |
| Ibrahim Hashmi | Created initial design and functionality to display timeline data in a component; Formatted timeline layout to scale correctly on test devices; |
| Francis Monwe | Created initial timeline engine and tested functionality with test data; Created timeline bar elements to display all timeline events; |
| Tommy Pham | Converted researched data into a format ready for the Supabase database, as well as storing images in the storage bucket; |

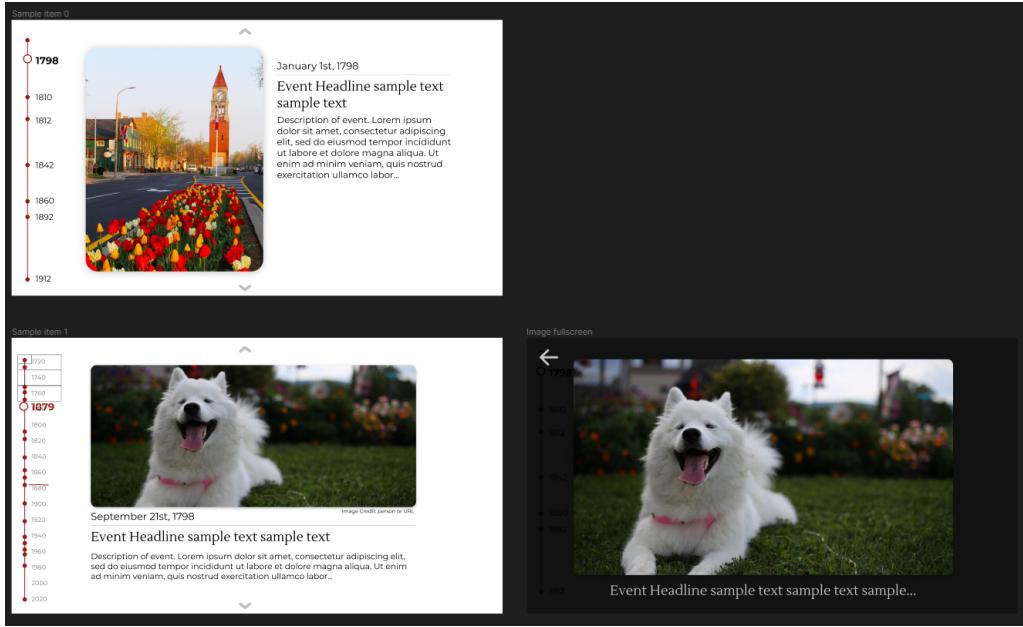
| | |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Abhijeet Prajapati | Researched images for timeline events and created initial implementation font size selector; |
| Justin Stickel | Refined timeline event data and researched information for the event descriptions; Hosted and prepared all weekly meetings; |
| Haaris Yahya | Implemented arrow controls, fullscreen toggle for images, and speech to text engine for timeline events; |

2. Design

For the design and development of our web application, we established the goal of creating an attractive and intuitive user interface while prioritizing accessibility and usability.

2.0 Figma Mock-up

During our initial sprints, we constructed a mock-up prototype using the design tool [Figma](#) in order to provide our developer team with a clear vision of how to construct the web application. Constructing this mock-up prototype allowed our designers and developers to collaborate closely and ensured that the final product would align with our original design concepts and objectives.



2.1 Landing Page

For our landing page, we aimed to create a page that was simplistic yet also displayed provident information. We wanted to ensure that visitors to the application will immediately understand the purpose of this webpage and know where to go next. Additionally, the text displayed can be easily adjusted to fit NOTL Museum's needs.

Welcome to the
Niagara-on-the-Lake Timeline

Explore the rich history of our town.

AN INTERACTIVE TIMELINE OF THE HISTORY OF THE NIAGARA-ON-THE-LAKE

Explore the Timeline

Welcome to the
Niagara-on-the-Lake Timeline

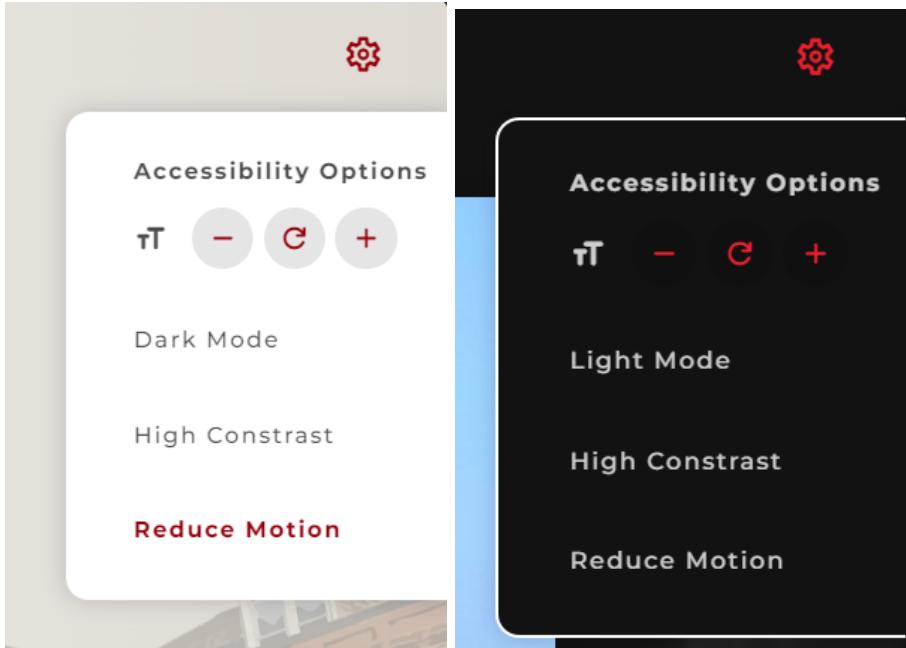
Explore the rich history of our town.

AN INTERACTIVE TIMELINE OF THE HISTORY OF THE NIAGARA-ON-THE-LAKE

Explore the Timeline

2.2 Timeline

After experimenting with horizontal designs for the timeline, we decided that implementing a vertical timeline would be much more usable for both desktop and mobile view, and would also lead to the least amount of wasted space on screen. For the user's convenience, we set the height of the timeline navigation to be set to the height of the screen itself. This allows the user to visualize the whole timeframe of the history of Niagara-on-the-Lake. Furthermore, this design also eliminates a lot of blank space from the screen which would otherwise be wasted. To read about an event, at the current stage, the user can simply select a year on the timeline, or click on either arrow icon and the displayed data will dynamically update in response. It also supports keyboard navigation with the arrow keys, for increased accessibility.



Welcome to the Niagara-on-the-Lake Timeline

Travel through time with us.

AN INTERACTIVE TIMELINE OF THE HISTORY OF THE NIAGARA-ON-THE-LAKE

[Explore the Timeline](#)



46 | NOTL Museum | NOTL | Niagara Region | © 2023



2.3 Database

Currently, we are using Supabase to store our timeline events, store images, and handle user authentication. At this time, we have a `timeline` table that contains the data that will populate the timeline event components dynamically via Supabase API calls.

| | crea... | times... | start_date | date | title | text | body | text | image | text | image_credit | text | + |
|---|---------------------|------------|---------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------|------|--------------|------|---|
| 1 | 2023-02-25 04:20:47 | 1726-01-01 | Fort Niagara Built | France erected the permanent fort, | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/Fort_Niagara_Built.jpg | http://fortwiki.com/File:Fort_Niagara_Built.jpg | | | | | | | |
| 2 | 2023-02-25 04:26:17 | 1764-01-01 | Treaty of Niagara | The treaty between the Royal Crown and the Iroquois Confederacy. | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/Treaty_of_Niagara.jpg | https://artsandculture.google.com/asset/1764-treaty-of-niagara | | | | | | | |
| 3 | 2023-02-25 04:27:58 | 1775-04-18 | American Revolution Br | On April 18th British troops stormed | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/American_Revolution_Battle_of_Bunker_Hill.jpg | https://artgallery.yale.edu/collections/american-revolution/battle-bunker-hill | | | | | | | |
| 4 | 2023-02-25 05:06:31 | 1780-01-01 | Peter Secord, Senior be | Peter Secord, a member of the Butler's Rangers, captured the British flag during the Battle of Bunker Hill. | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/Peter_Secord_capturing_the_British_flag_during_the_Battle_of_Bunker_Hill.jpg | https://artsandculture.google.com/asset/1780-peter-secord-capturing-the-british-flag-during-the-battle-of-bunker-hill | | | | | | | |
| 5 | 2023-02-25 05:11:09 | 1781-01-01 | Niagara Purchase (Treaty) | The Niagara Purchase, otherwise known as the Jay Treaty. | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/Niagara_Purchase_Treaty.jpg | https://www.ontario.ca/page/map-niagara-purchase-treaty | | | | | | | |
| 6 | 2023-02-25 05:14:27 | 1783-09-03 | American Revolution Er | After over six years of battles on Seneca Lake, the British surrendered. | https://kpmienkzagrmxvrhvvn.supabasestorage.net/file/American_Revolution_End_of_the_War.jpg | https://dkfindout.com/us/history/the-end-of-the-american-revolution/ | | | | | | | |

Additionally, we are storing the images used for the timeline in a protected storage bucket which we then reference using their link. Our next step is to convert the images into lightweight file formats such as .webp, and to store optimized / compressed versions as well to account for slow network speeds and to better account for mobile devices.

3. Implementation

3.1 Timeline

For our web application, we are using the [Svelte](#) JavaScript framework. Svelte is reactive by nature, and allows us to write more concise and effective code. The Svelte framework compiles on build instead of interpreting on runtime, making it much faster and lighter than other frameworks like React or Vue. It was also heralded as the second most loved framework in 2022, and first most loved in 2021, according to the [Stack Overflow Developer Survey](#). Another benefit to using Svelte is that it does not require learning custom syntax such as [JSX for React](#), allowing our developer team to read and write

components, in what is essentially standard HTML, CSS and JavaScript, much quicker.

3.2 Database

After evaluating several options, we decided on using [Supabase](#) for our central database. Supabase is an open source alternative to Firebase that also allows self-hosting. Supabase provides a PostgreSQL database and storage, all on a free tier. It also handles authentication, which was a requirement for our clients over at Niagara-on-the-Lake Museum as they requested to be able to modify and/or add contents to the timeline. Its ease of use along with its overall power made it our number one choice for database services.

4. Sprints

4.1 Meetings

Before we began our weekly group stand-up meetings, we first met to create as many possible user stories for our proposed timeline. We then went through each user story and converted them into one or more tasks that would be inserted into the product backlog. With the backlog in place, we then began our routine of hosting meetings every Friday, for which full attendance has been mandated.

Apart from formal meetings, our team has been in frequent communication with each other through the use of Discord. If specific urgencies arise, affected team members will often break out into smaller impromptu meetings to address and resolve the issue.

4.2 Past Sprints

After our product backlog was created, we began our first sprint planning session the following week, with our sprint timeline being two weeks. Each sprint meeting was hosted by the Scrum Master, with developers in attendance to decide on unassigned sprint items, and to collaborate on strategies for said items. Our team has been using [Jira](#) as an organization and planning tool for our sprints, where items are directly assigned to developers, along with an effort value that gives our estimations for how long we think it will take for the item to be complete. At the end of each sprint, we host a Sprint Retrospect on [Miro](#) which features a collaborative whiteboard to visualize and better communicate our progress and problems within the recent sprint. Some of our notable tasks on the last two sprints were:

4.2.1 Sprint 1

- Creating the landing page
- Creating a mock-up for the timeline
- Creating dynamic font-

- Developing functionality to store cookies for preferences for user sessions

4.2.2 Sprint 2

- Creating and finalizing our timeline engine
- Initializing database with Supabase
- Gathering images for selected database events
- Research and add to descriptions to timeline events
- Clean data and prepare for database
- Add menu to store accessibility options
- Implement dark mode as a theme
- Implement high contrast mode as a theme
- Include option to reduce motion for accessibility

4.3 Future Sprints

As of this report, we have currently completed half of our total planned sprints for this development project. Since we have already successfully completed an MVP along with some additional features, we will continue to add to the Timeline's functionality whilst also completing remaining product backlog items to ensure that our user requirements are met. Additionally, we have allotted room for potential bugs to be worked on, should they arise during our routine testing of our code. Usability and accessibility is always a priority for each sprint.

5. Issues

When planning for our project, we prepared to display artifacts and exhibits from the museum in a digital format on our timeline. Believing this to be our objective, we planned our work accordingly and were in the process of developing multiple timeline exhibits during our first sprint. Once the museum staff, Shawna, responded to our inquiry for procuring data, we discussed their requirements, in which they were excited to focus on the history of the town of Niagara-on-the-Lake, rather than the museum and its artifacts. With this information, we revised current and existing backlog items all to adapt to the change in requirements. We took this opportunity to reassess future backlog items, and to tweak the schedule of our planned sprint cycles.

6. Links

GitHub Repository: <https://github.com/SWE-2023/COSC-4P02-Project>