

# COMP 10244 - Project

**Total Weight: 25% of Final Grade**

## Overview

For the course project, you must create a Bing Map based web application that utilizes Twitter Bootstrap, responsive design, AJAX and a backend database. This is a great opportunity to create a unique, visually-appealing application that you can bring to a co-op or job interview!

The project requires 4 deliverables over the course of the term, with 4 different due dates given below (project proposal, implementation, usability testing, video demonstration). This project is not just about building an application, but also designing an application based on intended users and expected user tasks, usability testing of that application, improving the application based on that usability testing, and presenting the application.

## Project Proposal

**Weight: 5% of Final Grade**

### Due Date

Wednesday October 14th at 11:59pm

### Requirements

Write a report no longer than 5 pages in length (12px font) on your proposed application and its design. The report should contain the following:

- A proposed application name
- A brief description of the purpose of the application
- A description of your target audience
- A list of what tasks your application will allow users to perform
- A description of how your application will allow users to perform each task
- Describe the set(s) of location data your application will use, and describe how you will obtain the data
- Describe any additional data or content your application will use, and how you will obtain or create that data or content

- Discuss how your application will use responsive design to elegantly handle different screen sizes
- At least 2 mockup / wireframe application screens illustrating the design of your application (at least one mobile, at least one desktop)

Your application must incorporate location data, and it must be focused on a Bing Map. Your application must allow intended target users to carry out at least 3-4 different tasks (e.g. search for an open food bank). The location data may be specific points (e.g. library locations) or it may be regions (e.g. federal election ridings). Your application must store an initial, non-empty set of location data in a MySQL database table, this data set must include at least 10 specific points and/or regions, and the Bing Map must be populated with this data by running an SQL statement when the application is first loaded.

At least one of your application's tasks must involve an AJAX call that reads information contained in a MySQL database table and uses it in your application somehow (e.g. displaying information, creating pushpins, etc.). At least two of your application's tasks must require an AJAX call that results in either creating, editing or deleting information contained in a MySQL database table (e.g. inserting new information into a table about the location of something).

Your application must not require or allow users to login and/or create accounts.

Your application must use Twitter Bootstrap for styling in all of the expected ways (buttons, nav bars, etc.). Your application must use responsive design to handle different screen sizes.

A few other notes about tasks...

- Filtering locations, geolocation and providing directions cannot count towards your 3-4 tasks, as we already did these in Lab #1, though you may incorporate these into your application.
- A reminder that tasks are what a user can accomplish with your app, not how they accomplish things. So "search for Italian restaurants in Hamilton" is a task, but something like "click a filter button" is not really a task (though it might be **how** a user accomplishes a task).

Keeping within the requirements outlined, it is up to you to determine exactly what to make, who your target users are, what tasks the application should allow them to perform, and the design of the application. This is a chance to be creative and make something great that you'll enjoy building!

The location data you incorporate into your application can be more or less anything you like... maybe locations for antique stores in Ontario, or used video game stores in Toronto, etc. But keep it work-place appropriate, professional and in good taste. One good source of interesting location data is "open data". Open data is provided by government sources and will list the locations of parks, election ridings, libraries, and other data of public interest.

- [City of Hamilton Open and Accessible Data](#)

- [City of Burlington Open Data Catalogue](#)
- [Government of Canada Open Data](#)

Open data comes in many different formats, and is accessed in many different ways. It can be as simple as a static CSV file accessed via a URL, like for example the [city waterfalls](#) in Hamilton. The data may be provided in formats like JSON, like for example this [Burlington park data](#), which is accessible in multiple formats, including [JSON](#). Or the data may be updated dynamically every few seconds, like the [HSR Transit Data](#), which is provided in [GTFS format](#).

Find at least one set of location data that you believe would form the basis of an application that would be useful for a potential group of users. For example:

- Could the locations of [City of Hamilton waterfalls](#) be useful to tourists?
- Could the locations of [parking spots in Burlington](#) help drivers trying to find a place to park?
- Could the locations of [Niagara-area food banks](#) be useful to lower-income households and/or anti-poverty community groups?

You do not need to use open data, but if you are struggling at all as to what to choose, it is suggested that you use open data. You can use multiple sets of location data in your application if you prefer.

To create your mockup application screens, you can use free web or desktop-based wire-framing tools such as [wireframe.cc](#) or [Pencil](#), free image manipulation programs such as [Inkscape](#) or [GIMP](#), or you can use HTML/CSS/JavaScript to mockup the application pages (without actually implementing the expected functionality).

**Important: be mindful of scope!** Allowing your target users to perform 3-4 tasks with the restrictions above in mind is sufficient enough in terms of complexity.

## Submission

Submit your project proposal as a PDF file in the associated drop box.

## Marking Scheme

Name	/5
Purpose description	/5
Target audience description	/10
Tasks identified	/20
Description of how application allows tasks to be performed	/10
Data set(s) identified	/10
Screen size plan	/10
Mockup screens	/30

**Total**

/100

## **Project Implementation**

**Weight: 10% of Final Grade**

### **Due Date**

Wednesday Nov 18<sup>th</sup> at 11:59pm

### **Requirements**

Your instructor will mark your project proposal within 7 days of receiving it, and in their feedback they may instruct you to remove certain features, add certain features, or modify certain features in your proposed application. You should implement what you have planned in your project proposal, and follow any of these instructions provided by your instructor, as these are considered requirements for your implementation as well.

To implement the Bing Maps functionality, you can use the [Bing Maps API](#) directly. If there is a different map technology (Google Maps, TomTom, etc) you wish to use to implement maps functionality in your application, this might be allowed, but ask your instructor for approval first.

### **Submission**

The filename for accessing your application from within this folder should be one of either **index.html** or **index.php**.

### **Marking Scheme**

Tasks implemented	/40
Responsive design	/15
Twitter Bootstrap	/15
Quality	/30
<b>Total</b>	<b>/100</b>

# Usability Testing

**Weight: 5% of Final Grade**

## Due Date

Wednesday November 25<sup>th</sup> at 11:59pm

**UPDATE:** Given the situation with the COVID-19 virus, please conduct your usability testing remotely using [Zoom](#) or similar software. Zoom is free, it will allow you to conduct video chats with your tests, where they can share their desktop and webcam with you.

## Requirements

Conduct a usability test with 5 volunteers according to the following requirements, and write a report of your results no longer than 5 pages (12px font).

Your usability test should involve doing the following with each of your 5 participants, and recording the results:

- **Task Performance Measurements**
  - Without telling your usability test participants how to perform the tasks your application allows them to perform, ask them to perform each task individually with an example (e.g. ask each participant to find when the skating rink in Stoney Creek is open in until on Fridays).
  - Measure and record how long in seconds it takes each participant to perform each task.
- **System Usability Scale**
  - Have each participant fill out a [System Usability Scale \(SUS\)](#).
  - You can print out and use this nice one-page version of SUS and have each participant fill it out: [SUS.pdf](#). Or if you prefer, you can setup the survey yourself in something like Google Forms and have your users fill it out electronically.
- **Observe and Interview**
  - Observe how your participants interact with the application and record what you observe. Do they seem frustrated when performing any particular task? Do they seem to enjoy any particular aspects of your application?
  - Ask your participants at least the following two questions. You may ask additional questions if you like! Record the results.
    - What did you like about the application?
    - What do you think could be improved about the application?

Present the results of your usability test in a report. You should present the minimum, maximum, and average time in seconds to complete each task. You should present the average scores of the SUS, both the individual question averages, and the overall SUS average score (use either a table

and/or a graph for the individual questions). You should present your observations of the participants performing the tasks, as well as their responses to your interview questions.

Based on the results of your performance test, SUS, observations and interview questions, how can your application be improved? Provide 3-4 recommendations for how your application can be improved.

You should be able to find volunteers in the class lab, and should be able to conduct your testing during lab time. It would be best if you didn't test your application with friends or family, because they may "be nice" to you and not tell you what could be improved with your application! You will get more out of this experience if you test the application with other students, or other people. However, if you must, testing your application with friends and family is acceptable.

## **Submission**

Submit your project proposal as a PDF file in the associated drop box.

## **Marking Scheme**

Task performance results	/20
SUS results	/20
Observations	/10
Interview question results	/20
Recommendations	/30
<b>Total</b>	<b>/100</b>

## **Video Demonstration**

**Weight: 5% of Final Grade**

### **Due Date**

Wednesday December 2<sup>nd</sup> at 11:59pm

### **Requirements**

Create a 3 minute maximum length video demo-ing your application. Your video should describe the purpose of your application and your target user. Your video should feature you demo-ing the different tasks that your application allows users to accomplish, describing what you are doing as

you demo the application ("When I enter my address into the textbox, the application gives me the route to the closest park..."). Your video should demonstrate how your application looks on devices with different screen sizes.

You can use free desktop capture software such as [CamStudio](#) to create the video (CamStudio offers an optional anti-virus software as part of the installation process, so be extra careful as you're clicking during the install process not to install that if you don't want it). Ensure that the audio quality is reasonable and at a high enough volume for someone to easily listen to the video.

Upload the video to YouTube. **The video must be set to either unlisted or public so that the instructor can view it** (if it is set to unlisted, only someone with the URL can view it). **Do not set the video to private or it will not be marked.** The video presentations will be played during the last week of class.

## Submission

Submit your video demonstration YouTube URL in the associated dropbox as a .txt file (NOT a .PDF or .DOCX file).

## Marking Scheme

Video/audio quality reasonable	/10
Delivery	/20
Purpose	/10
Target users	/10
Screen sizes	/10
Task demos and descriptions	/40
<b>Total</b>	<b>/100</b>