

COMP3340: Final Project Submission

New City Better Life — Project Team 9

Pao Yu — Chen Qiao — Weichong Wu — Yijiu Xu

University of Windsor — 13/08/2021

Abstract

Summary *New City Better Life*. Almost one quarter of Canadians moved or plan to move since April 2020. These survey participants cited COVID-19 as a reason for relocating. We started *New City Better Life* as a way to help this market do their research on possible dream cities so that they can relocate to any city in Canada. On our website, you may get information on 166 of the most livable cities/towns in Canada.

Purpose The purpose of our website is to help people who have a plan to move in the future. We provide key livability statistics and information on almost all cities and towns in Canada that can be saved by users and help them make decisions regarding their relocation in the future.

Methodology This website was created using the standard LAMP-stack (Linux, Apache, MySQL, and PHP). The front-end is built with HTML, CSS and JavaScript. The project was initially created by carefully planning a sitemap using the project's purpose and background. From this sitemap, we implemented the most important pages by the predicted frequency of use by our potential users, with the index page being the highest priority page to have been implemented. After the most important pages were created (and connected through a working navigation system), we then turned our efforts to the heart of the website's functionality, which was to be able to display database records on dynamic PHP pages and a working login system for admins and clients.

End Result At the end of the semester, we completed an MVP website with the core functionalities and requirements that was needed to make the site operational. It is currently live and running, with users able to register, login and use the site to search for information related to their dream city, while being able to maintain a data-persistent, account-based list of their favorite cities through a logged-in account. The website is also highly-maintainable on the admin side, with high quality documentation for both end-users and admins. Finally, our website and code is open-source on GitHub and is ready to be cloned, deployed and installed by third-party developers who would like to implement our codebase to build similar projects in the future.

Contribution: All team members contributed equally for this project.

Contents

1	Languages Used	4
2	Libraries/Frameworks/APIs Used	5
3	Multimedia Used	6
4	Menu [menu items, ...]	7
5	User Registration and Authentication	8
6	50 Unique Dynamic Pages	9
7	10 Static Pages	10
8	Link To The Main Site Homepage	11
9	Public/Private Functionality	12
10	Documentation	13
11	Search Engine Optimization Features	14
12	Responsiveness On Mobile and Other Platforms	15
13	End-User Training	16
14	Enable Switching 3 Site Templates	17
15	Database Used	18
16	Data Record Manipulations	19
17	User Management	20
18	Admin Documentation	21
19	Status & Monitoring Page	22
20	Database Records	23
21	Open Data Set	24
22	PHP	26
23	Additional Language/Framework	27
24	Software Repository	28

25 Installation and Deployment	29
26 Accessibility	30
27 Mark-Up Validation Service	31
28 Testing	32
29 Team Management	33
30 Overall Completeness & Error Free Functionality	34

Client Interface Checklist

1 Languages Used

e.g. HTML5, CSS3, JavaScript, PHP, etc..

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

1-2 languages = 1pt, 3+ = 2pts (max 2 pts)

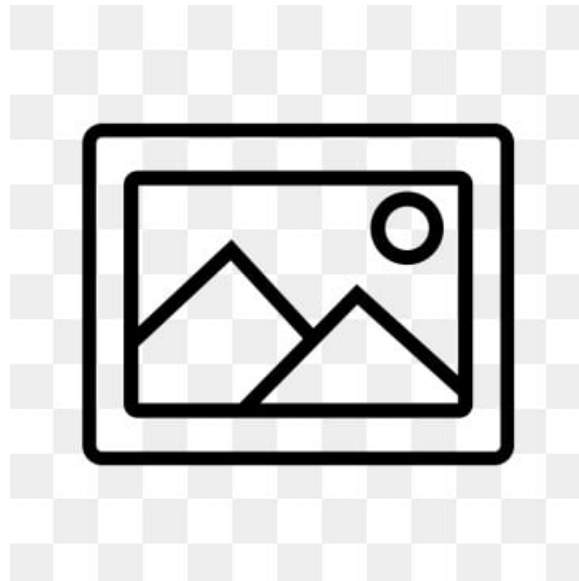


Figure 1: Caption Goes Here

2 Libraries/Frameworks/APIs Used

e.g. React, JQuery, etc.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

2 pts if actually used

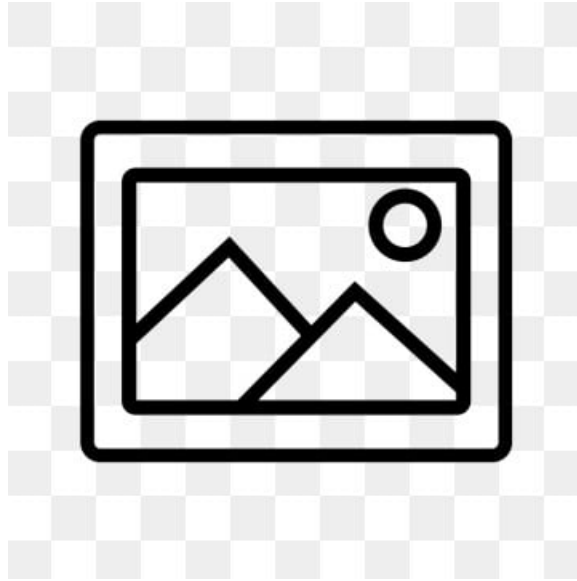


Figure 2: Caption Goes Here

3 Multimedia Used

e.g. 24 images, 3 videos, 1 map

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

1-10 items = 1pt, 11+ = 2pts (any combination)

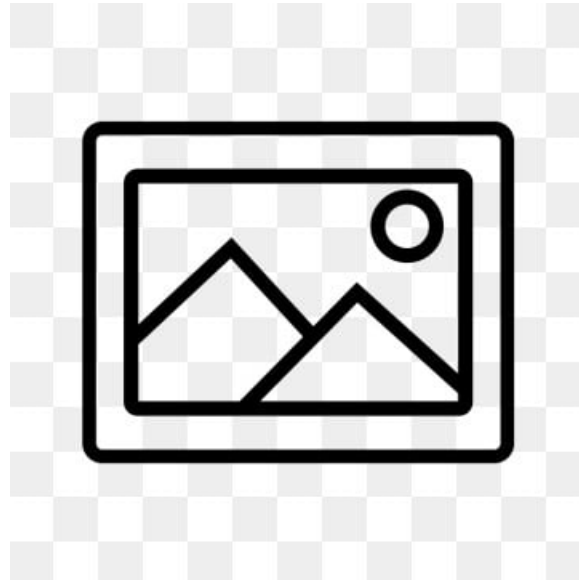


Figure 3: Caption Goes Here

4 Menu [menu items, ...]

e.g. 1 main menu [About, Product, Login], 1 client menu [Add, Remove, Edit, Logout]

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

2 pts for at least one fully functioning menu

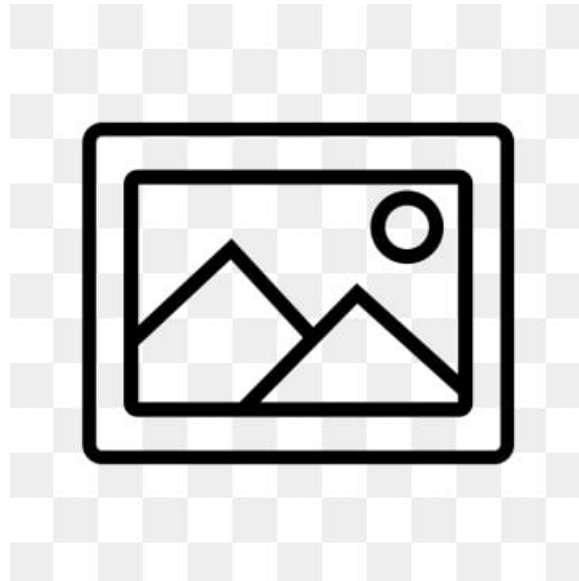


Figure 4: Caption Goes Here

5 User Registration and Authentication

e.g. Able to create new users, authenticate session, login, logout.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts complete functionality

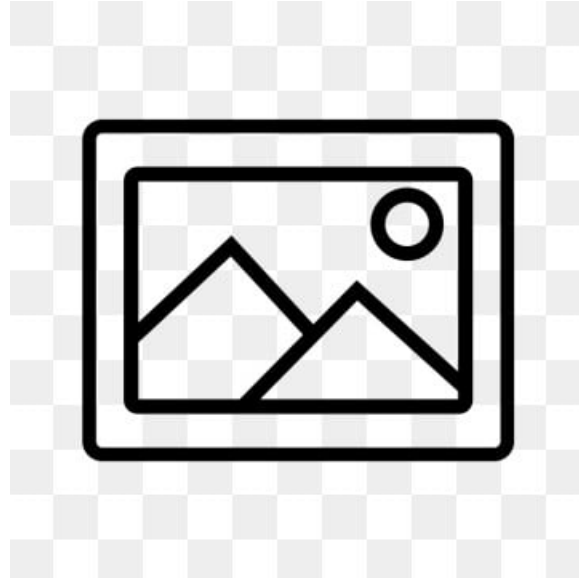


Figure 5: Caption Goes Here

6 50 Unique Dynamic Pages

e.g. using the file "product.php" we are able to generate 50+ different product pages

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts if at least 50 pages can be generated

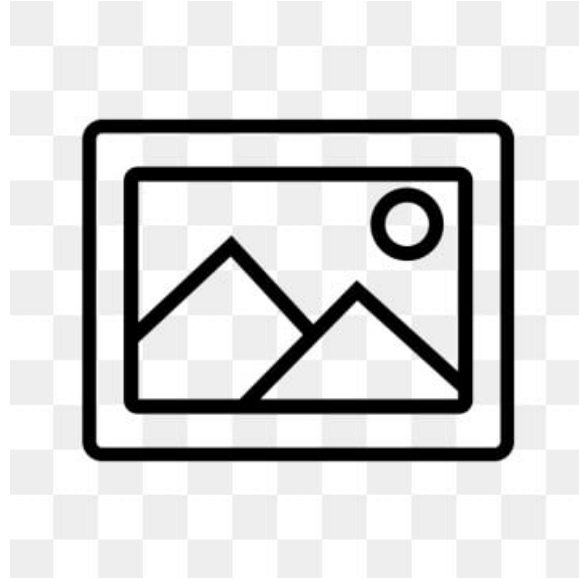


Figure 6: Caption Goes Here

7 10 Static Pages

e.g. we have 10 pages that can be found here:(urls)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts if at least 10 pages

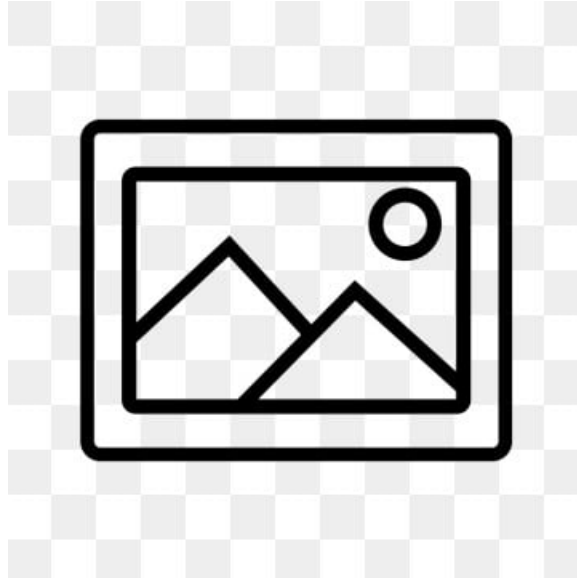


Figure 7: Caption Goes Here

8 Link To The Main Site Homepage

Link to homepage goes here

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts if site is publically accessible (e.g. on myweb)

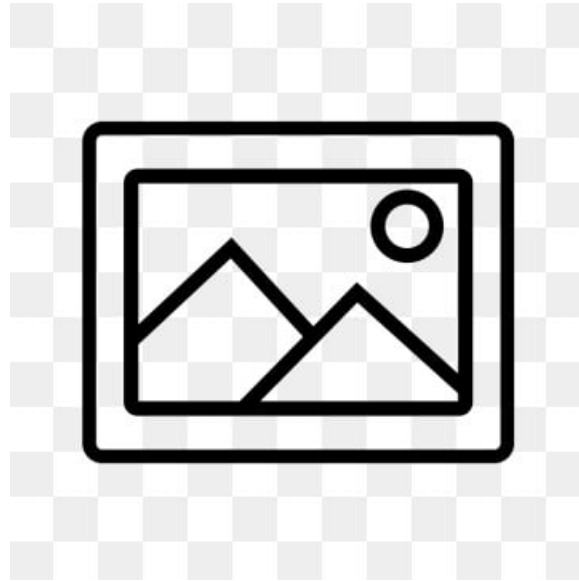


Figure 8: Caption Goes Here

9 Public/Private Functionality

public: public users can see create/login screen, about us, product catalogue.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

private: logged in users can add products to cart, view/edit cart, and checkout; as well as update user preferences.

up to 5 pts for full functionality

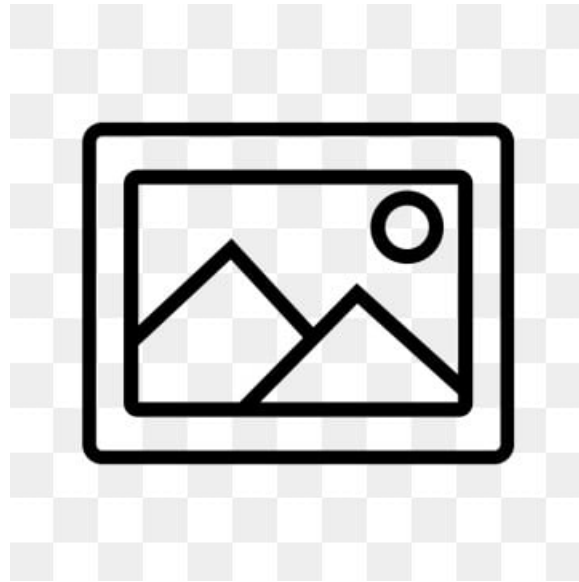


Figure 9: Caption Goes Here

10 Documentation

registered users to the website can find the help pages here: (url) an FAQ section is also added.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for documentation based on quality and completeness

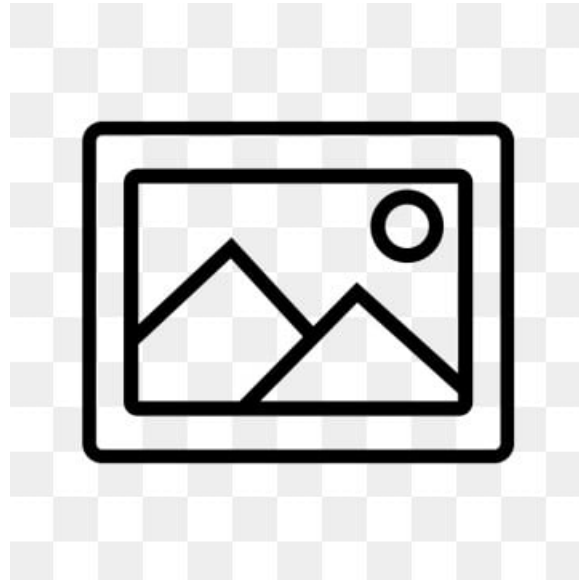


Figure 10: Caption Goes Here

11 Search Engine Optimization Features

Added minimum 5 keywords to each landing page, and customized meta-tags in the headings (you can paste a sample heading here showing what you did, eg. keywords, description, etc)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts based on the quality of work done

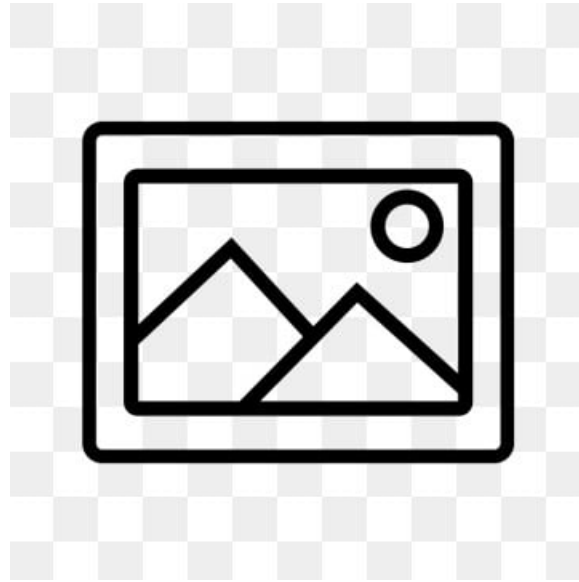


Figure 11: Caption Goes Here

12 Responsiveness On Mobile and Other Platforms

used Bootstrap template (downloaded from here: [url link here](#)) and tested it on iPhone, windows, iMAC, android, Linux Ubuntu. Screenshots attached.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for showing on at least 5 different platforms/or screen sizes.

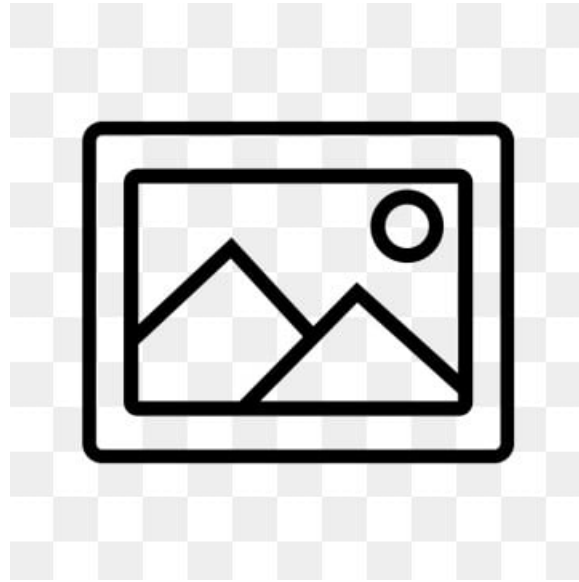


Figure 12: Caption Goes Here

13 End-User Training

In addition to the general documentation, we created training step by step interactive document to educate users on how the site works and how to complete an order. We did a video 2 minutes ([link here url](#))

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for quality training and interactive materials

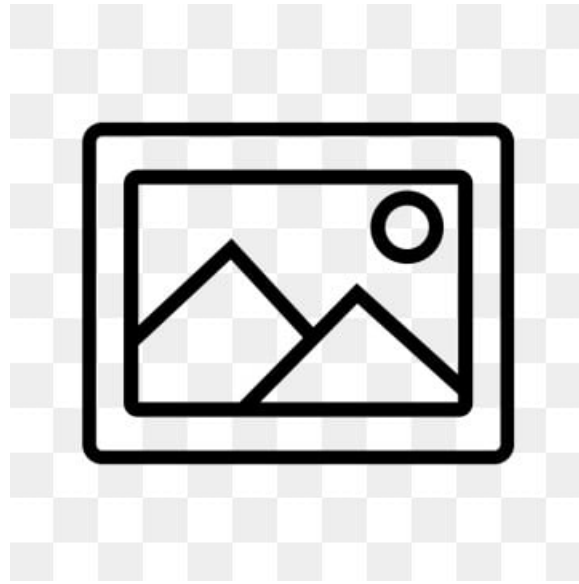


Figure 13: Caption Goes Here

14 Enable Switching 3 Site Templates

An admin user can log in and select an option between 3 colour schemes that would impact our entire site. Here are 3 screenshots (thumbnails), a sample page generated based on each template: `img 1`, `img 2`, `img 3`.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for full functionality

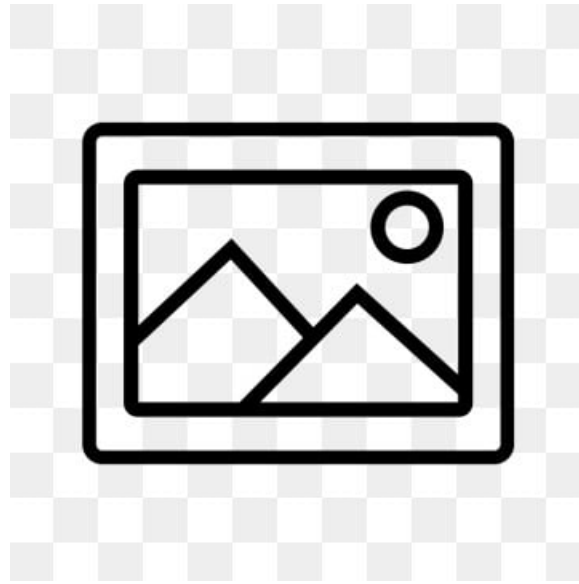


Figure 14: Caption Goes Here

15 Database Used

MySQL database used with 15 tables created

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for using a database with minimum 5 tables

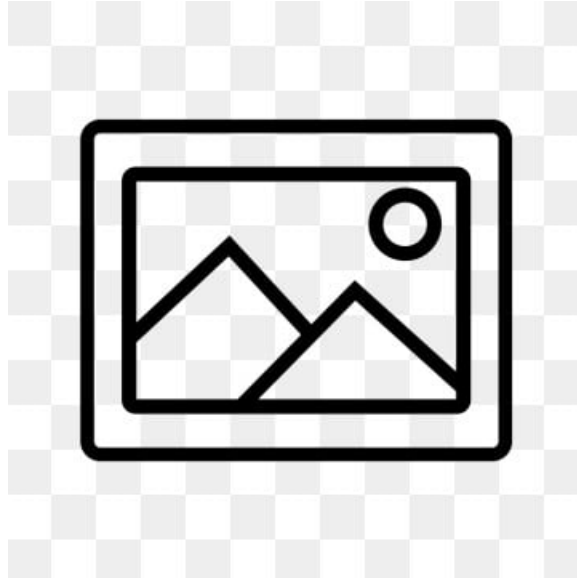


Figure 15: Caption Goes Here

16 Data Record Manipulations

we used "insert", "select", "delete" and "update" SQL queries. Here are some sample commands from the PHP code for each:

¡SQL 1¡ // this SQL inserts a new order into table called "orders" with a unique order id generated automatically

¡SQL 2¡ // this SQL deletes a product from our product table. It also checks to make sure the product does not exist in any order.

¡...¡

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for correct use of SQL and non-trivial queries, at least 3 different SQL commands used (e.g. select, insert, delete)

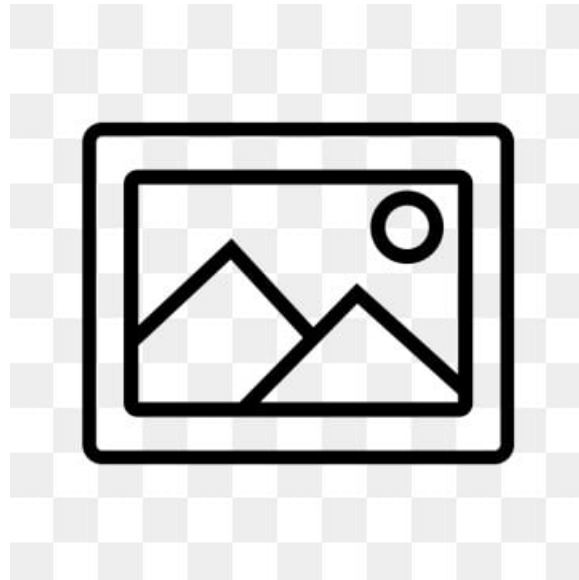


Figure 16: Caption Goes Here

17 User Management

admin user can add, remove, update user records and disable accounts without removing them; admin user can generate list of all registered users and generate an email list.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for user management functions

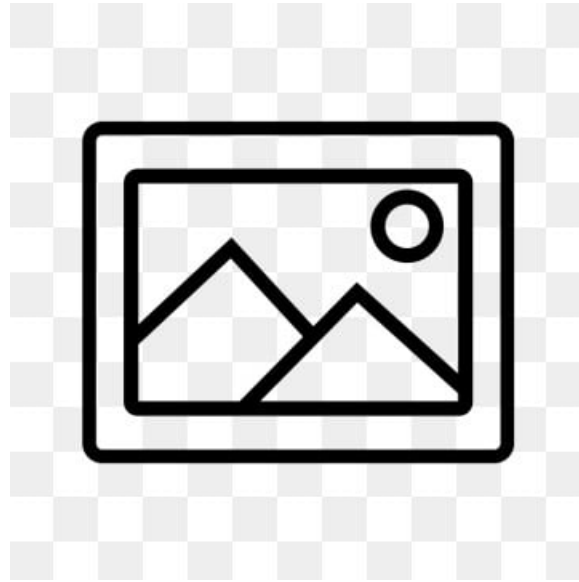


Figure 17: Caption Goes Here

18 Admin Documentation

(url here) used to provide the admin with the details and use of the admin features.

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts for admin documentation page(s)

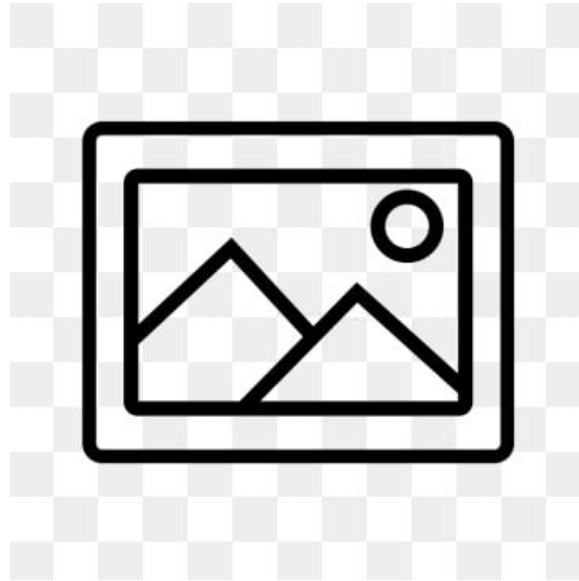


Figure 18: Caption Goes Here

19 Status & Monitoring Page

status.php url here this page when loaded it tests to see if the database is working (green light), if the webserver is working (green light), it shows red otherwise. Implemented on a different server. hint: to test if a db is working just connect and run a dummy query. to test if a site is working, you just call a PHP script that returns some value and if it fails (check the return call) then it would not be working.).

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts for a working monitor

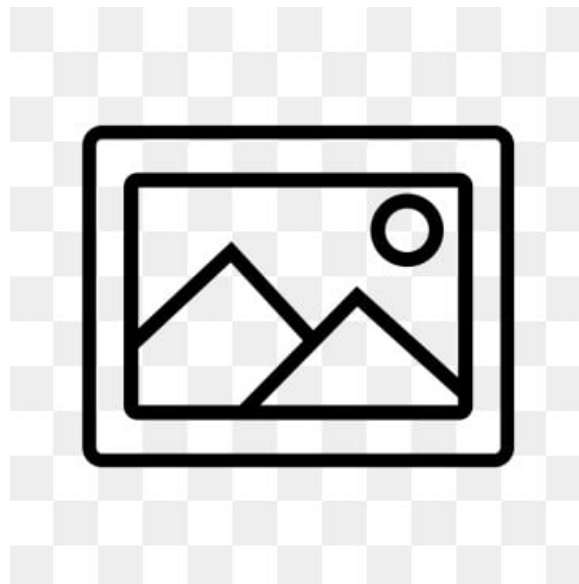


Figure 19: Caption Goes Here

20 Database Records

the table "product" has 50 records, the table "orders" has 10 records. (total should be minimum 50)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for at least 50 records overall in the db

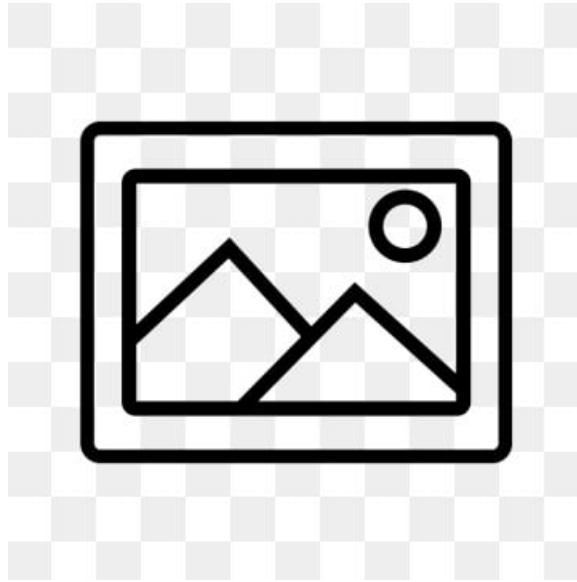


Figure 20: Caption Goes Here

21 Open Data Set

Air Quality Data by Canadian Province

For our open dataset, we used one of the Government of Canada's official datasets. The data set is from *Environment and Climate Change Canada* department, and describes air quality monitoring data gathered by the *National Air Pollution Surveillance Program* (NAPS) from the years 1974 to 2020. To make this dataset more relevant to our audience, we opted to only include data from the most recent year available, 2020.

Dataset URL

The URL for the complete dataset can be found here <https://data-donnees.ec.gc.ca/data/air/monitor/national-air-pollution-surveillance-naps-program/Data-Donnees/?lang=en>.

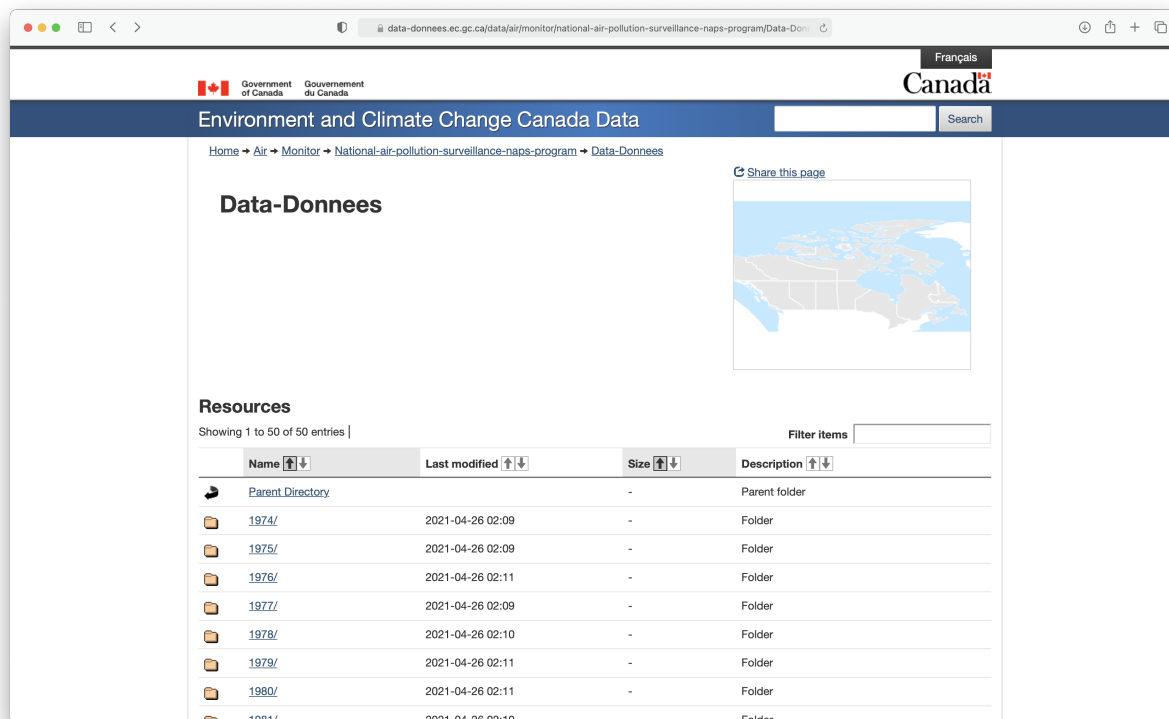


Figure 21: NAPS Program: Live Open Dataset

Code Implementation

The open dataset was provided in separate CSV files (by city) and was manually reorganized, cleansed and formatted into a single CSV table. The table was then summarized using an Excel pivot table and the data directly applied to a JavaScript data visualization framework (Plotly.js) displayed below to maximize data visualization speed and performance:

```
1 var trace1 = {
2     x: ['AB', 'BC', 'MB', 'NB', 'NL', 'NS', 'ON', 'PE', 'QC', 'SK', 'YU'],
3     y: [5.764, 4.922, 3.614, 5.668, 3.657, 3.674, 6.182, 3.321, 6.545, 4.722, 2.588],
4     type: 'bar',
5     text: ['5.764 (micro)g/m3', '4.922 (micro)g/m3', '3.614 (micro)g/m3',
6           '5.668 (micro)g/m3', '3.657 (micro)g/m3', '3.674 (micro)g/m3',
7           '6.182 (micro)g/m3', '3.321 (micro)g/m3', '6.545 (micro)g/m3',
8           '4.722 (micro)g/m3', '2.588 (micro)g/m3'],
9     marker: { color: '#ffcc99' }
10 };
11
12 var data = [trace1];
13
14 var titleCode = `
15     <span id="airQualityTitle" style="font-family: 'Public Sans',
16         sans-serif; font-size: 1.618rem; font-weight: bold;">
17         Statistic data of PM2.5
18     </span>
19     <br>
20     <span id="airQualitySubtitle" style="font-family: 'Public Sans',
21         sans-serif; font-size: 1rem;">
22         Based on National Air Pollution <br> Surveillance (NAPS)
23         Program
24     </span>
25 `;
26
27 var layout = {
28     title: titleCode,
29     font: { family: 'Raleway, sans-serif' },
30     showlegend: false,
31     xaxis: { tickangle: -45 },
32     yaxis: {
33         zeroline: false,
34         gridwidth: 2
35     },
36     bargap: 0.5
37 };
38
39 Plotly.newPlot('airQuality', data, layout);
```

22 PHP

we created 23 separate PHP scripts

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for at least 5 PHP scripts [all code must be documented]

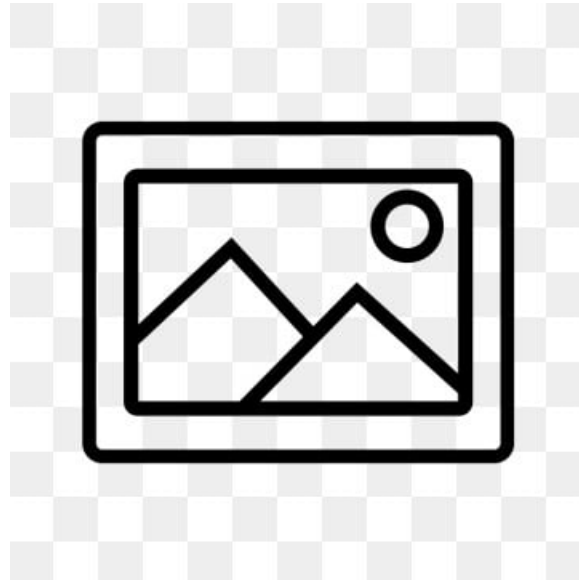


Figure 22: Caption Goes Here

23 Additional Language/Framework

we created 11 reactJS scripts

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for non-trivial use of another language/framework

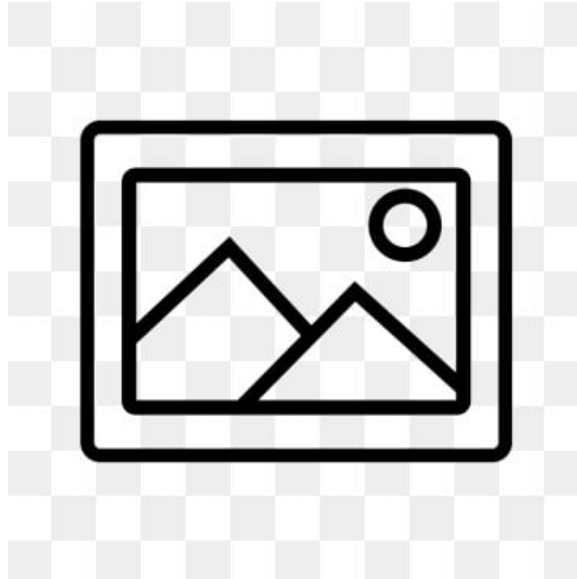


Figure 23: Caption Goes Here

24 Software Repository

we used github here is the link: url here (be sure to provide public access to it; or a guest username/password)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for showing a thorough repository with multiple branches/history

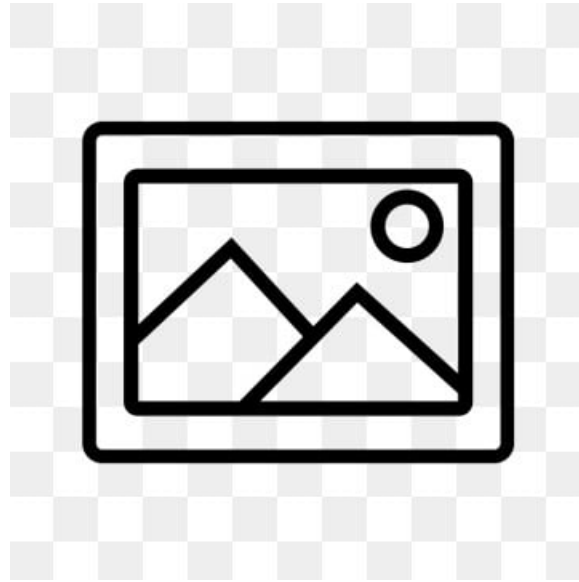


Figure 24: Caption Goes Here

25 Installation and Deployment

this site can be cloned from the github repository using the following branch, with instructions to configure the db manually found here: [url here](#)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 2 pts for installation instructions

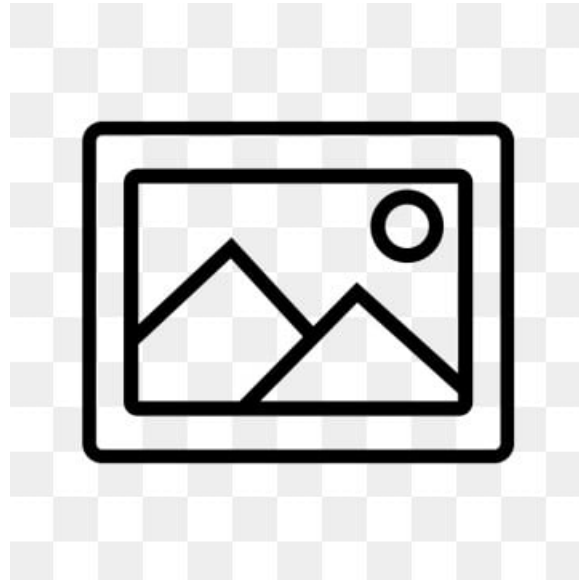


Figure 25: Caption Goes Here

26 Accessibility

we used tags for all images, and ensure compliance with WCAG2.0 standard (url) tool used:
.. Link: [HTTP:// report attached](http://report.attached).

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for the report printout showing compliance for the site

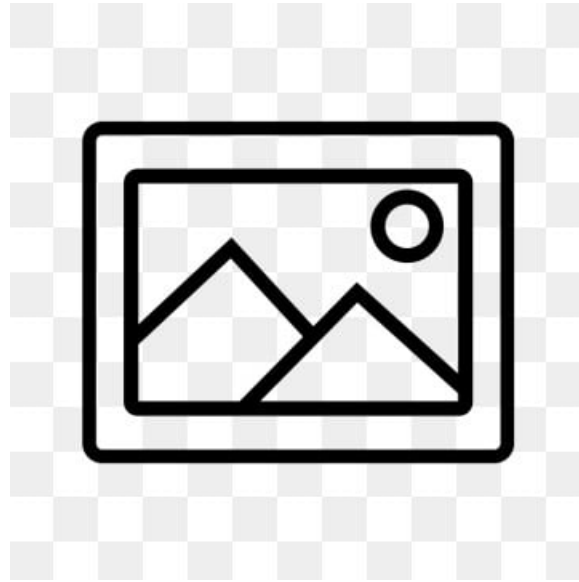


Figure 26: Caption Goes Here

27 Mark-Up Validation Service

Ran the site on: <https://validator.w3.org/>
report attached

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for the report printout showing compliance for the site.

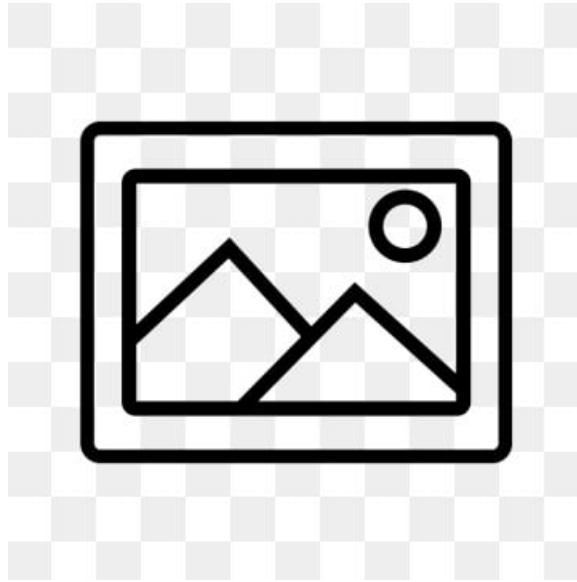


Figure 27: Caption Goes Here

28 Testing

used selenium to test for broken links and a bug reporting tool on redmine. (testing tool not required; but any form of testing is expected, at least one)

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for a testing strategy

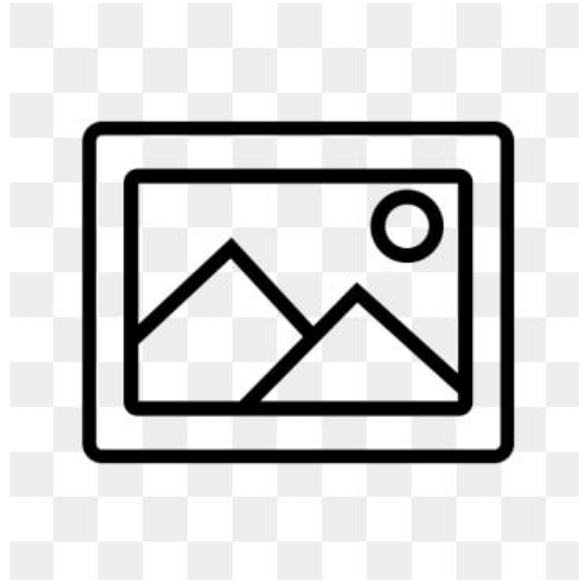


Figure 28: Caption Goes Here

29 Team Management

We used redmine for team management link here be sure to provide guest access or plenty of screenshots

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 5 pts for team work organized over a period of no less than 4 weeks

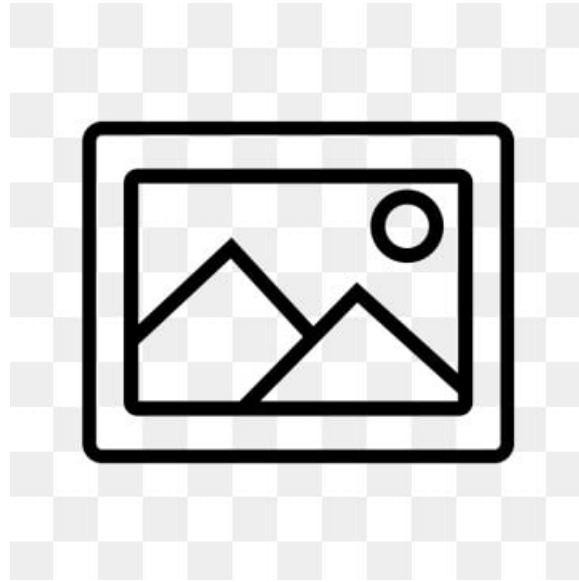


Figure 29: Caption Goes Here

30 Overall Completeness & Error Free Functionality

Site can be tested here, we completed 100 percent of the functionality here is the sitemap showing all the features

In your report, for each item using the corresponding section number from the table above to present/expand on the work you have done. You can include code segments, screenshots and charts as needed for each individual section. You will receive points as indicated above for each section. There is no page limit. Keep the screenshots readable.

up to 10 pts for overall impression of the site in terms of complete functionality and error free (aesthetics / look and feel are not given grades, but CSS use is expected).

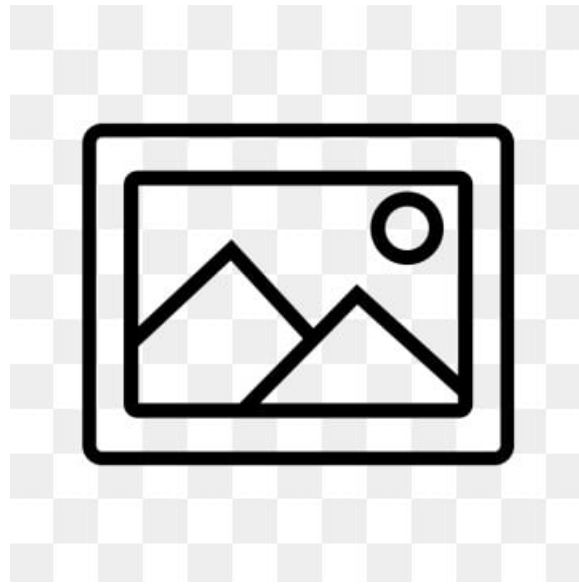


Figure 30: Caption Goes Here