

Landmark Explorer

22.04.2020

[404_Not_Found](#)

Emily Washer

Bibhas Sharma

Jeffrey Wu,

Lim Wei Ze

Lin Thit Myat Hsu

Overview

Landmark Explorer is a web application which provides users multiple ways to search for landmarks and provides an information aggregation service for looking up landmark information and related events online. Additionally, a trip planner service is provided so an user can plan a route to visit landmarks in the most time efficient manner. The web app aims to address the following problems:

1. Finding information about landmarks takes time and requires accessing multiple sources.
2. There is no easy way to search for landmarks by location.
3. There is no application that provides a concise hub of information on a given landmark.
4. Difficult to search for upcoming events based on location.
5. Given a list of landmarks, find the shortest path that can be travelled to visit all landmarks.

In order to perform all the above tasks, users would need to use multiple websites which would be inconvenient and time consuming. Landmark Explorer addresses all these problems.

Features

1. An interactive map which will display pins to indicate the location of landmarks.
2. The map is able to show your current location and you can find nearby landmarks based on your current location.
3. Users are able to drop a pin anywhere on the map and search for nearby landmarks from the pin.
4. A search bar where you can search for landmarks using keywords.
5. An explore button which takes the users to a random landmark
6. A sidebar which also shows nearby landmarks
7. A trip planner which asks for landmarks and a starting location, then plots the shortest route to visit all the given landmarks and return to the starting location.
8. When at a landmark page, Landmark Explorer will try to find news articles related to the landmark and display them to users
9. When at a landmark page, Landmark Explorer will try to find events related to the landmark and display them to users.
10. A register and login system, allowing registered users to access more features.

11. Registered users are able to bookmark landmarks into a bookmarked bar.
12. Registered users are able to save events found at landmarks into an events calendar.
13. Registered users are able to leave reviews at landmarks, which all users are able to view.

User Stories

Story Point: 1 unit of time = 1.5 hours

Priority: 1-5 Scale, 1 is most important; 5 is least important

Epic Story 1	Interactive Map
Users: Regular Viewers	
As a user, I would like to be able to click, scroll and zoom on an interactive map, so that I can find landmarks.	

Epic Story 2	Searching for Landmarks
Users: Regular Viewers	
As a user, I would like to be able to search for landmarks through various methods provided by the web application, so that I can find landmarks.	

Epic Story 3	Recommend Landmarks
Users: Regular Viewers	
As a user, I would like to have landmarks recommended to me, so that I can learn about landmarks I've never heard of before.	

Epic Story 4	Displaying information about landmarks
Users: Regular Viewers	
As a user, I would like to be able to see additional information, related news and events about a landmark after selecting it, so that I can learn more about the landmark.	

Epic Story 5	Login to review and bookmark landmarks and events
Users: Logged in user	
As a logged in user, I would like to be able to write comments/reviews on landmarks and bookmark landmarks and events.	

Epic Story 6	Plan a trip
Users: Regular Viewers	
As a user, I would like to be able to get the shortest route between a starting location and multiple landmarks so that I can plan the shortest trip to all those landmarks.	

US 1.1	Clicking on a landmark in the map
ES1	Users: Regular Viewers
As a user, I would like to be able to click on landmarks in the map, so that I get additional information about the landmark.	
Acceptance Criteria: <ul style="list-style-type: none"> - There are pins, indicating landmarks on the map. - When a pin is clicked a pop-up window will appear. - Clicking on the name of the landmark within the pop-up window directs the user into a new page, that contains all the information of the landmark. 	
Story Points: 3	
Priority: 1	

US 1.2	Moving around the map
ES1	Users: Regular Viewers
As a user, I would like to be able to move the map around, such that the map shows different places, so that I can find landmarks.	

Acceptance Criteria: <ul style="list-style-type: none"> - I can smoothly move around the map by clicking and dragging. - When moving the map around, a new area should be shown.
Story Points: 1
Priority: 3

US 1.3	Zooming on the map
ES1	Users: Regular Viewers
As a user, I would like to be able to zoom in or out on the map, so that I can more easily navigate to a landmark on the map.	
Acceptance Criteria: <ul style="list-style-type: none"> - I can either use my mouse's scroll wheel or a button on the UI to zoom in and out of the map. 	
Story Points: 1	
Priority: 3	

US 2.1	Searching for landmarks by the search bar
ES2	Users: Regular Viewers
As a user, I would like to be able to type the name of a landmark onto a search bar, and click a search button, so that I can search for a landmark.	
Acceptance Criteria: <ul style="list-style-type: none"> - A user is able to search for a landmark using keywords. - A user is able to search for a landmark by providing an exact name. 	
Story Points: 2	
Priority: 1	

US 2.2	Searching for landmarks by the map
--------	------------------------------------

ES2	Users: Regular Viewers
As a user, I would like to have the ability to scan an area for landmarks, so that I can search an area for landmarks.	
Acceptance Criteria: <ul style="list-style-type: none"> - The user can click anywhere on the map, which is indicated by dropping a pin. - When clicking the "Search this Area" button, landmarks are indicated on the map by a pin. - Clicking on a pin displays a pop-up box with the landmark photo and title. - The sidebar should be updated to the landmarks of the scanned area. 	
Story Points: 3	
Priority: 1	

US 2.3	Moving to the searched location
ES2	Users: Regular Viewers
As a user, I would like it if when I search for a landmark, the map would change and be centered on the landmark.	
Acceptance Criteria: <ul style="list-style-type: none"> - If a user clicks on the "Take Me Somewhere" button, the map will move so that the landmark is in the centre of the screen. - If I use the search bar, the map will move so that the landmark that I searched for is in the centre of the screen. 	
Story Points: 2	
Priority: 2	

US 2.4	Accessing Landmark Page
ES2	Users: Regular Viewers
As a user, I would like to access the specific page of a landmark, so that I can access the hub of information related to it and learn about it.	
Acceptance Criteria:	

<ul style="list-style-type: none"> - The user can click on the pop-up box of the landmark to access the information page. - The user can click on the landmark in the sidebar which will load the relevant page.
Story Points: 2
Priority: 2

US 3.1	Take me somewhere random
ES3	Users: Regular Viewers
As a user, I would like the option of letting the website randomly select a landmark for me, so that I can explore new landmarks.	
Acceptance Criteria: 2 <ul style="list-style-type: none"> - When the user presses the “Take Me Somewhere” button, they are sent to a random landmark. - The map centres on the randomly generated landmark. 	
Story Points: 1	
Priority: 3	

US 3.2	Nearby Recommendations
ES3	Users: Regular Viewers
As a user, I would like to be recommended landmarks by the website, based on my current location in the map, so that I can select nearby landmarks more easily.	
Acceptance Criteria: <ul style="list-style-type: none"> - When a user presses a “Scan this Area” button, the nearest landmarks on the map should be highlighted by pins on the map. - The sidebar should also be updated to reflect the new location. 	
Story Points: 2	

Priority: 3

US 4.1	Landmark details
ES4	Users: Regular Viewers
As a user, I would like to be presented with details such as name, location and origin about the landmark, so that I know more information about it.	
Acceptance Criteria: <ul style="list-style-type: none"> - The name, location, and basic information should be presented on the landmark's information page. 	
Story Points: 1	
Priority: 1	

US 4.2	Image of Landmark
ES4	Users: Regular Viewers
As a user, I would like the website to display an image of the landmark, so that I know what the landmark looks like.	
Acceptance Criteria: <ul style="list-style-type: none"> - An image of the landmark should be presented on the landmark's information page. - If no information is available, this should be indicated to inform the user. 	
Story Points:1	
Priority: 1	

US 4.3	Landmark information
ES4	Users: Regular Viewers
As a user, I would like paragraphs of text containing information about the landmark, so that I can learn more about it.	
Acceptance Criteria:	

<ul style="list-style-type: none"> - Information obtained through an online information API should be gathered and presented in the landmark's information page. - If no information is available, this should be indicated to inform the user.
Story Points: 1
Priority: 1

US 4.4	Return to searching
ES4	Users: Regular Viewers
As a user, I would like when I am at a landmark's information page, to be able to go back to the searching/maps page, so that I can search for more landmarks.	
Acceptance Criteria: <ul style="list-style-type: none"> - There should be a button for the user to return to searching on the landmark information page. - When the button is clicked, the website should redirect the user back to the searching page. 	
Story Points: 1	
Priority: 2	

US 4.5	Display Reviews
ES4	Users: Regular Viewers
As a user, I would like to read reviews of a landmark, so that I can decide if it is worth visiting.	
Acceptance Criteria: <ul style="list-style-type: none"> - Reviews left by previous users will be displayed. - The reviews will display the time and date the review was left, along with the rating, comment and user's name. - The reviews are sorted by time, displaying the most recent reviews first. - If there are no reviews, this should be indicated to the user. 	
Story Points: 1	
Priority: 2	

US 4.6	Upcoming Events at Landmark
ES4	Users: Regular Viewers
As a user, I would like to be able to see upcoming events held at a landmark, so that I know what's ongoing at the place.	
Acceptance Criteria: <ul style="list-style-type: none"> - If there are upcoming events located at the landmark, the title, data and a brief overview of the event should be displayed. - If there are no upcoming events, it should display a message which indicates that there are no upcoming events at the location. 	
Story Points: 2	
Priority: 3	

US 4.7	Past News at Landmark
ES4	Users: Regular Viewers
As a user, I would like to see past headlines of news articles associated with the landmark, so that I know what past events occurred there.	
Acceptance Criteria: <ul style="list-style-type: none"> - If there are news articles associated with the landmark, then the headlines of the articles should appear on the landmark's information page. - If there are no news articles found, a message should be displayed indicating this. 	
Story Points: 2	
Priority: 3	

US 4.8	Link to article
ES4	Users: Regular Viewers
As a user, I would like to be able to click on a news headline and go to the respective news article, so that if I am interested I can easily find out more.	
Acceptance Criteria: <ul style="list-style-type: none"> - If there are news articles related to the landmark, the headlines displayed should be 	

links to the original news articles.
Story Points: 1
Priority: 3

US 4.9	Link to event page
ES4	Users: Regular Viewers
As a user, I would like to be able to click on an event and go to the respective event page, so that if I am interested I can easily find out more.	
Acceptance Criteria: <ul style="list-style-type: none"> - If there are events related to the landmark, the event displayed should be a link to the event page. 	
Story Points: 1	
Priority: 3	

US 5.1	Sign up
ES5	Users: Regular Viewers
As a user, I would like to be able to sign up and create an account for the website, so that I can access more features on the website.	
Acceptance Criteria: <ul style="list-style-type: none"> - Users can fill up a form to register for an account, providing username, email address and password. - If the provided user email address has already been used for an account, the no new account is created. - If the provided username has already been used, no new account is created. 	
Story Points: 2	
Priority: 4	

US 5.2	Login
ES5	Users: Regular Viewers
As a user, I would like to be able to log into an existing account so that I can access more features on the website.	
Acceptance Criteria: <ul style="list-style-type: none"> - Users can go to a login interface and enter their username and password - If the provided username and password matches an existing account, the user is then logged into the account - If the provided information is not correct, the user prompted that the details are not correct and the user is not logged in 	
Story Points: 1	
Priority: 4	

US 5.3	Bookmark landmarks
ES5	Users: Logged in user
As a logged in user, I would like to be able to bookmark landmarks, so that I can easily access those landmarks in the future	
Acceptance Criteria: <ul style="list-style-type: none"> - Logged in users are able to bookmark landmarks via the "Bookmark" button on the landmark page. - Bookmarked landmarks will appear in a modal where the user can access a link that redirects them to the landmark page. - The user can remove landmarks from their bookmark list. - If the user has no bookmarked landmarks, this is indicated by a message. 	
Story Points: 2	
Priority: 4	

US 5.4	Write reviews
ES5	Users: Logged in user

As a logged in user, I would like to be able to write reviews of a landmark, so that I can share my opinions of a landmark to other users.

Acceptance Criteria:

- Users can give the landmark a rating out of 5 and post a review of it.
- A user's posted reviews can be viewed by all users on the page of the landmark.

Story Points: 2

Priority: 4

US 5.5	Save Events
ES5	Users: Logged in user
As a logged in user, I would like to be able to save events,	
Acceptance Criteria: <ul style="list-style-type: none"> - A logged in user can save an event on the landmark page by clicking the calendar button adjacent to the related event. - Events will appear in a modal where the user can access a link to the event page. - The user can remove events. - If there are no saved events, there is a message indicating this. 	
Story Points: 2	
Priority: 4	

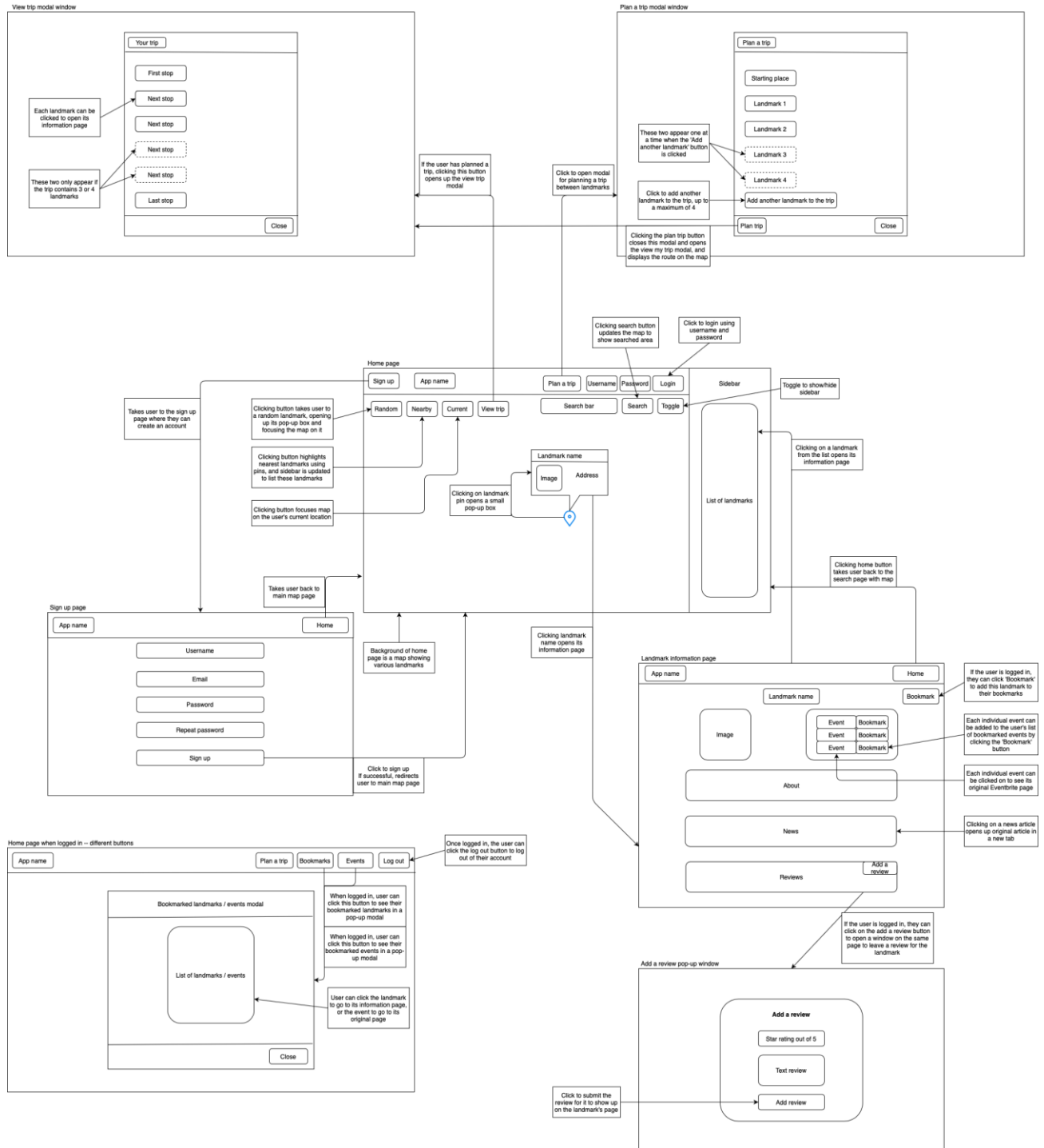
US 6.1	Trip planner
ES6	Users: Regular Viewers
As a user, I would like to be able to have a trip planner to recommend me plans, so that I can have more efficient trips.	
Acceptance Criteria: <ul style="list-style-type: none"> - When users press the "Plan a Trip" button, a modal appears prompting users to fill in a form. - If a user fills in the starting location and between 2-4 landmarks and clicks the submit button, the shortest path is calculated and presented in a modal. - The recommended route is displayed to the user on the interactive map. - A "View My Trip" button should be visible when there is an active trip, which will reopen the modal containing the trip's information. 	



Story Points: 4
Priority: 4

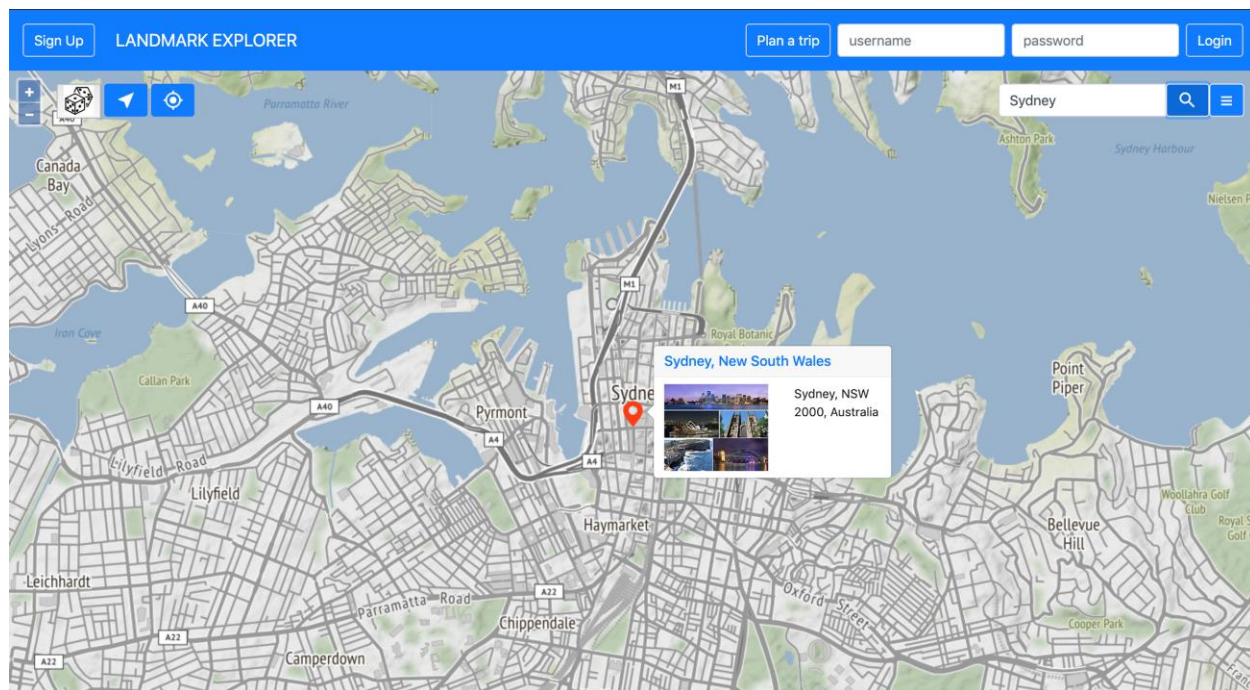
Screenshots

Low fidelity diagram

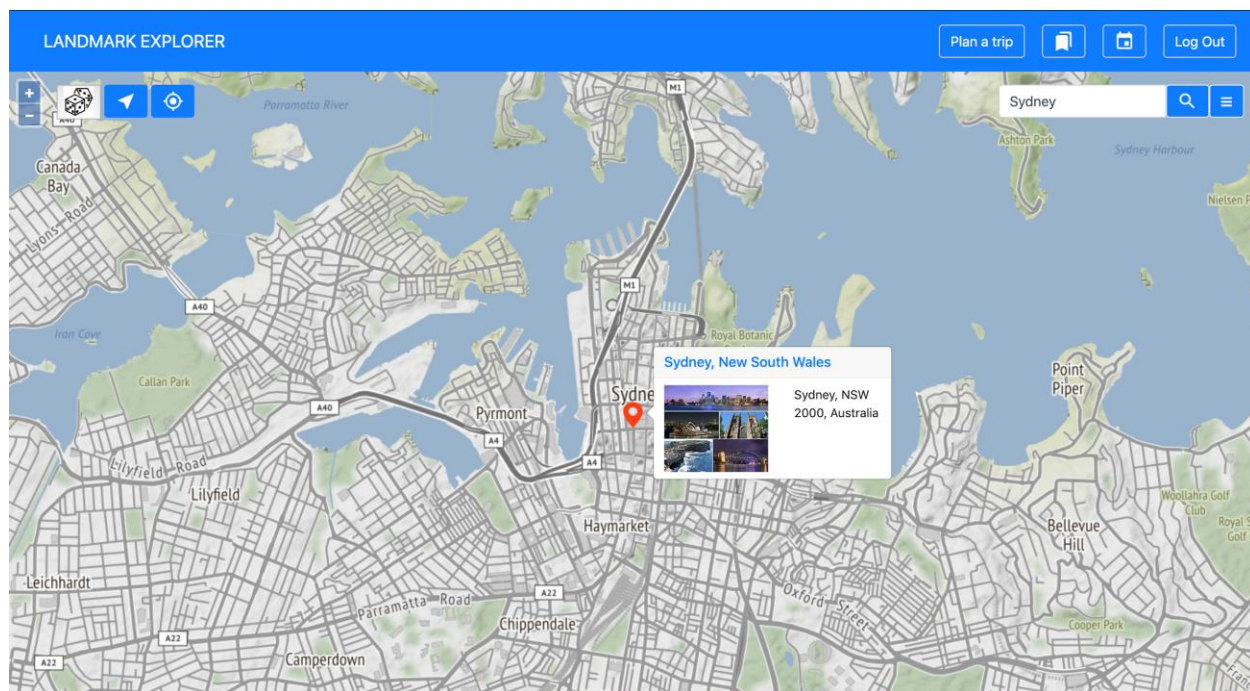


High fidelity screenshots

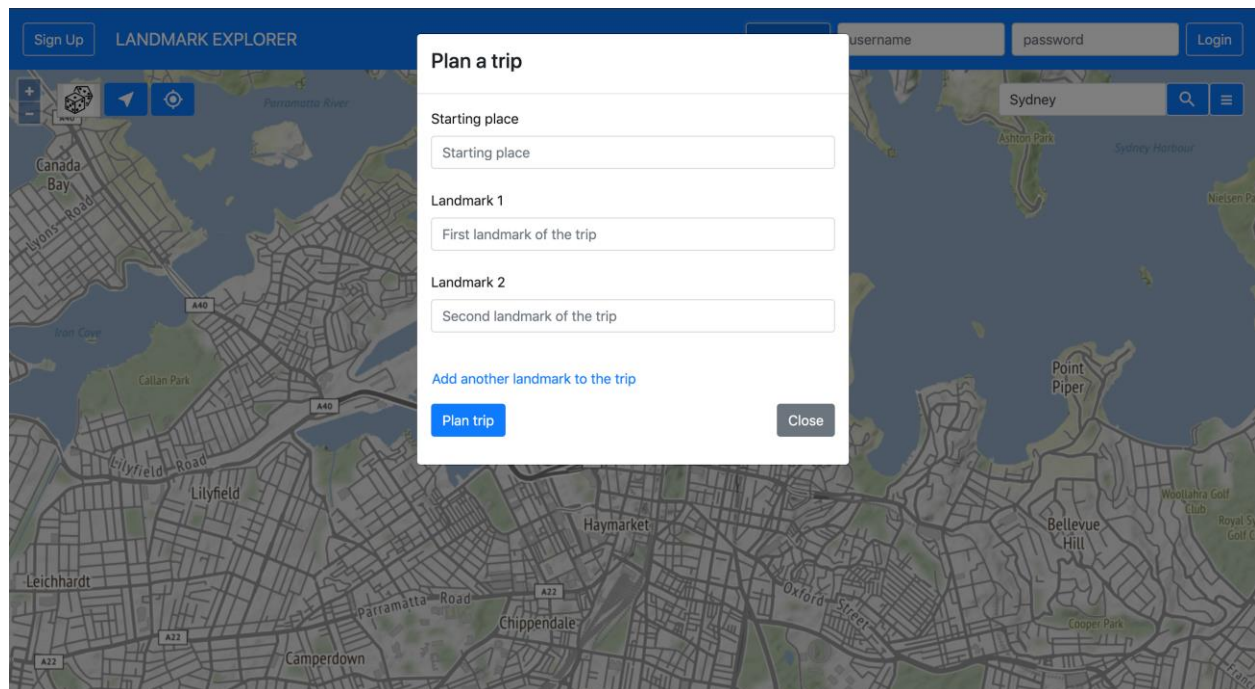
Home page logged out



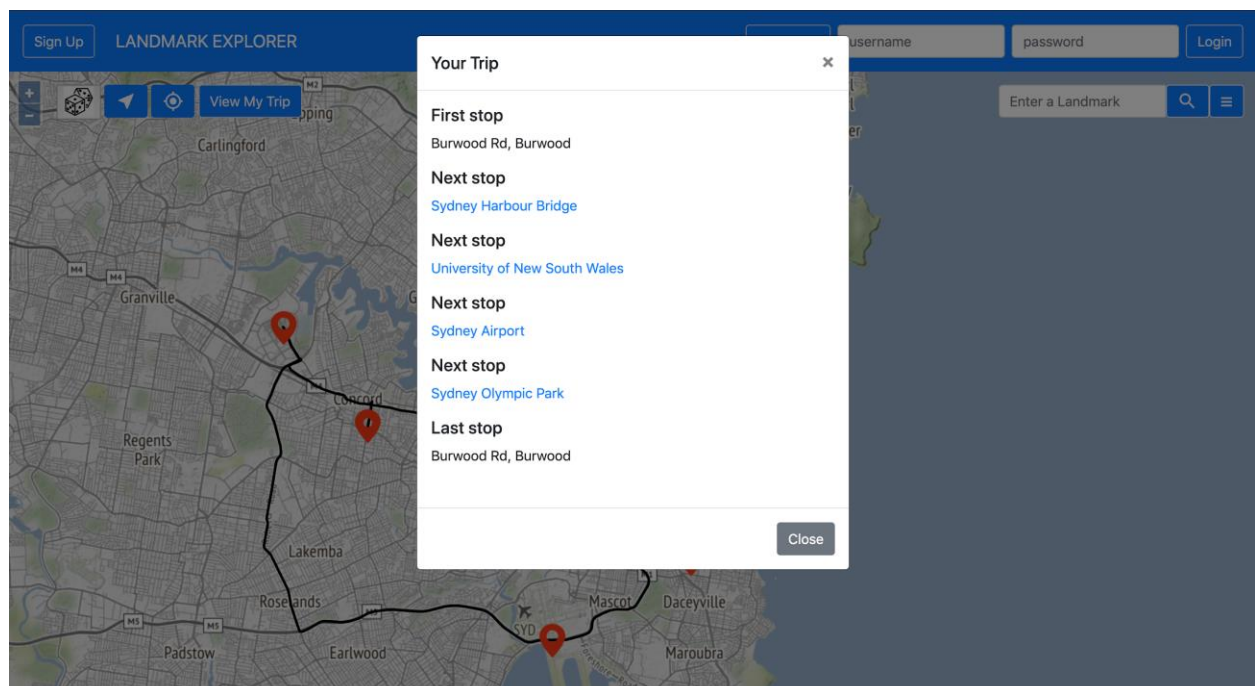
Home page logged in



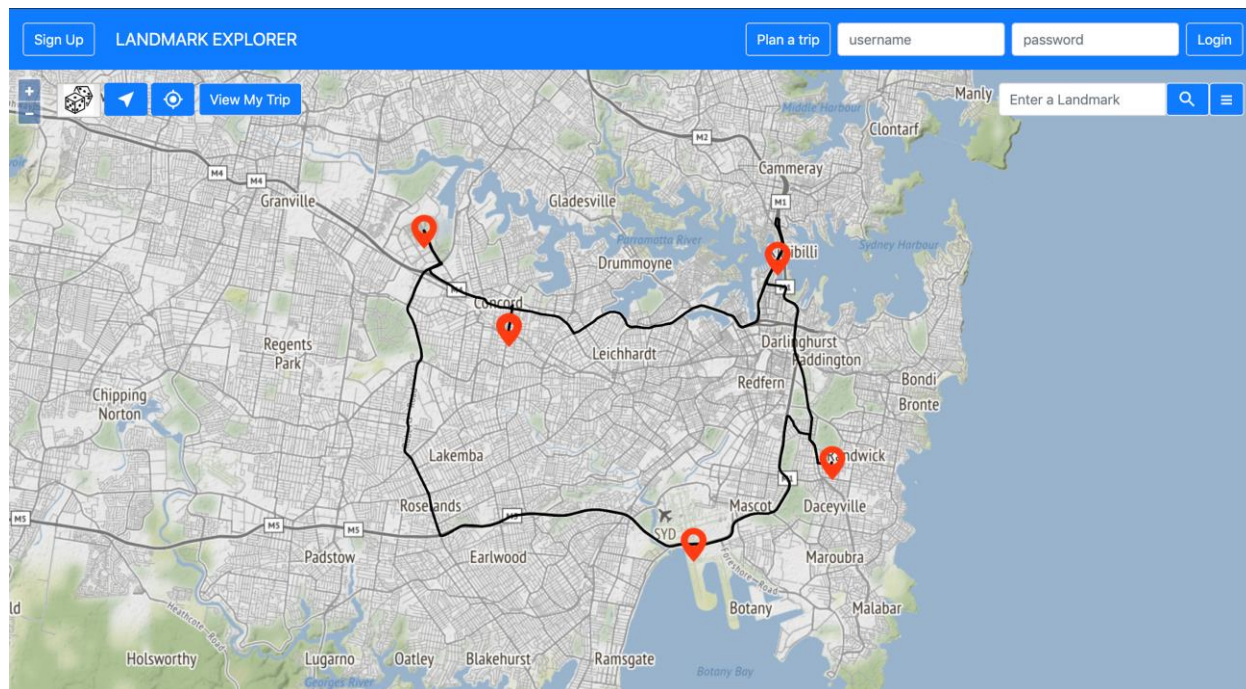
Trip planner window



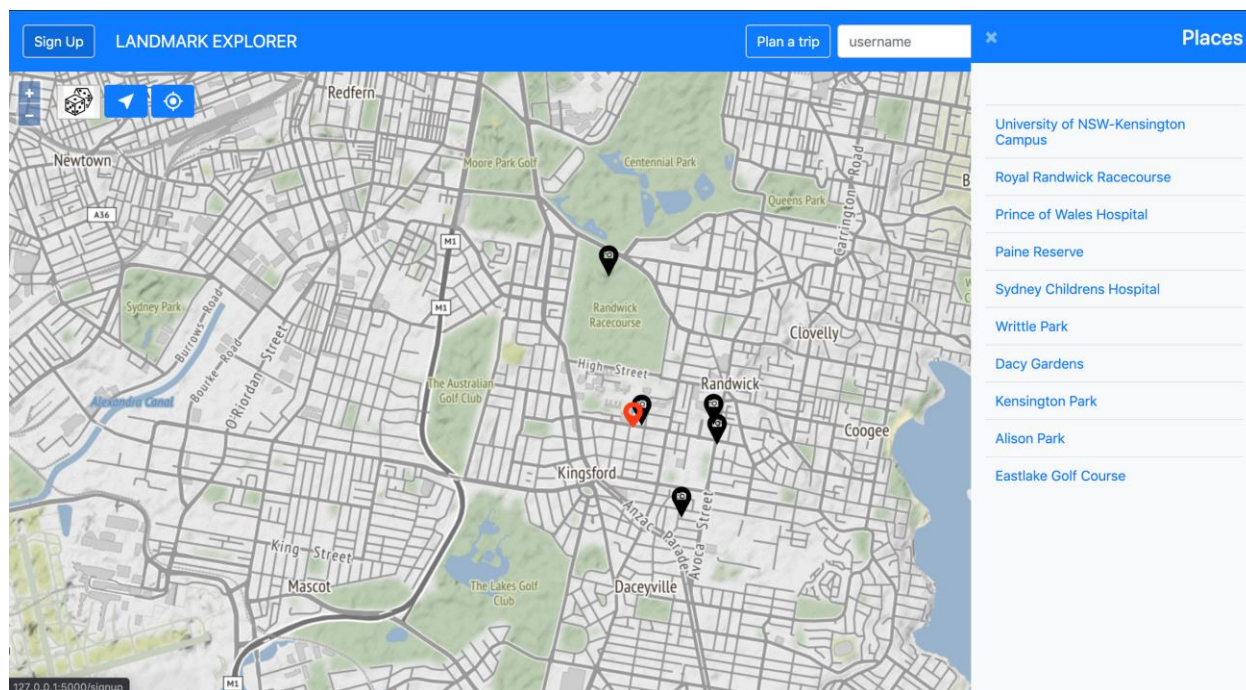
View trip window



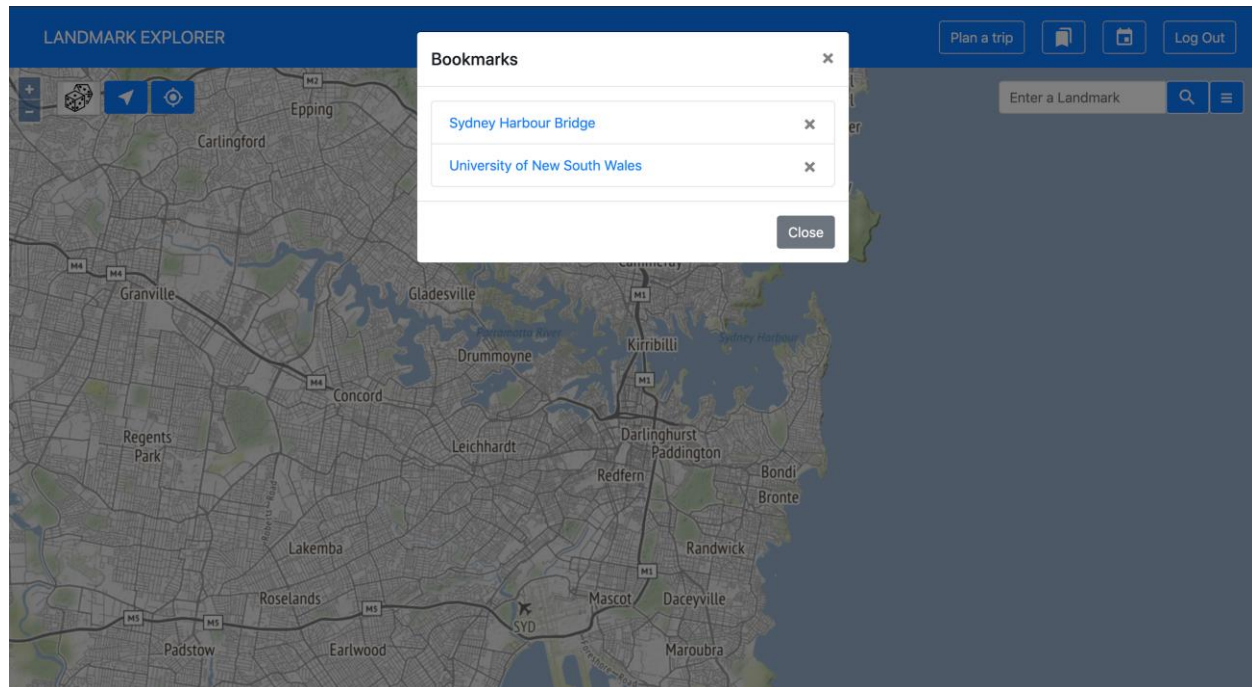
Route of trip on map



Sidebar



User's bookmarks



Sign up page

LANDMARK EXPLORER [Home](#)

Username

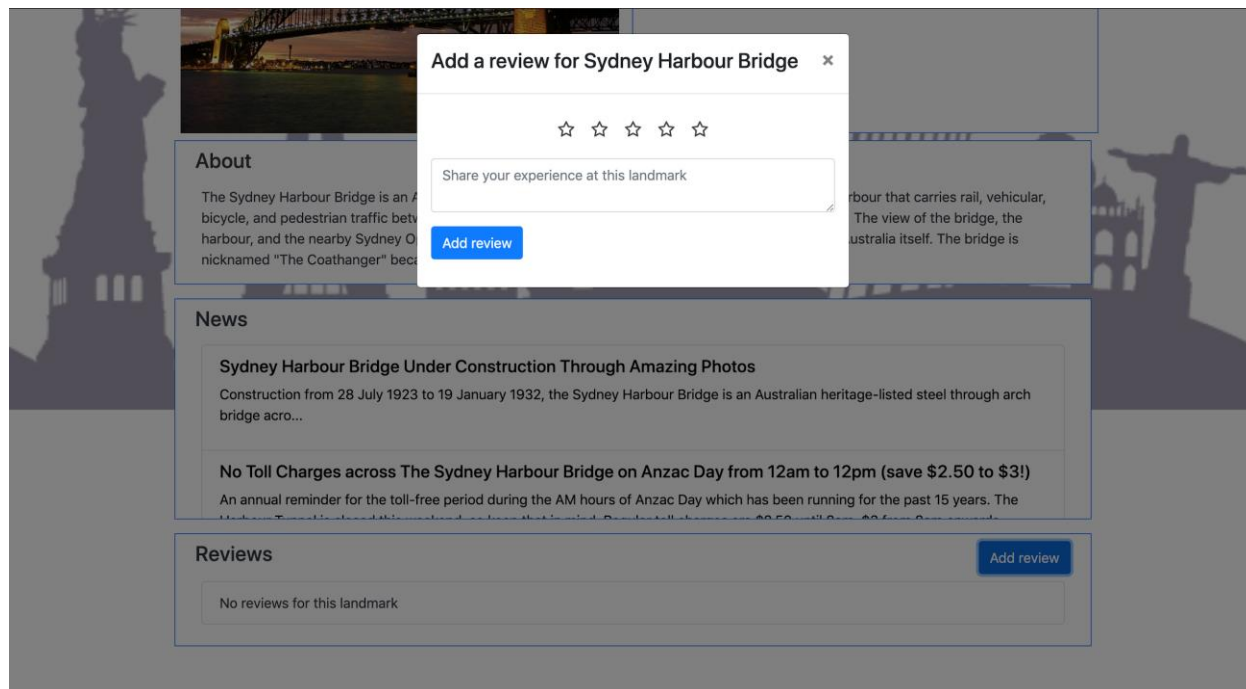
Email

Password

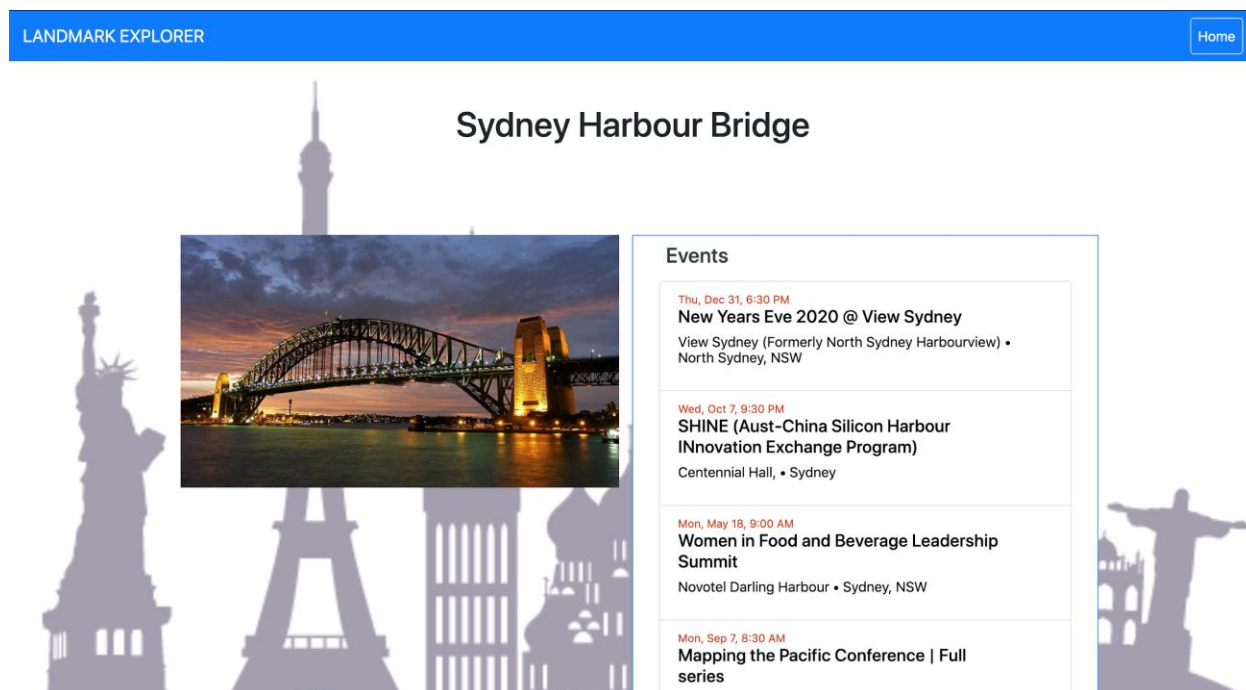
Repeat password

[Sign up](#)

Add a review window



Landmarked page logged out



Landmark page logged out (continued)

series
State Library of New South Wales • Sydney, NSW

About

The Sydney Harbour Bridge is an Australian heritage-listed steel through arch bridge across Sydney Harbour that carries rail, vehicular, bicycle, and pedestrian traffic between the Sydney central business district (CBD) and the North Shore. The view of the bridge, the harbour, and the nearby Sydney Opera House is widely regarded as an iconic image of Sydney, and of Australia itself. The bridge is nicknamed "The Coathanger" because of its arch-based design.

News

Sydney Harbour Bridge Under Construction Through Amazing Photos

Construction from 28 July 1923 to 19 January 1932, the Sydney Harbour Bridge is an Australian heritage-listed steel through arch bridge across...

No Toll Charges across The Sydney Harbour Bridge on Anzac Day from 12am to 12pm (save \$2.50 to \$3!)

An annual reminder for the toll-free period during the AM hours of Anzac Day which has been running for the past 15 years. The...

Reviews

Jeff


★★★★★ 27-04-2020 at 04:48 PM

Very beautiful

Landmark page logged in

LANDMARK EXPLORER
Home

Sydney Harbour Bridge
Bookmark



Events

Thu, Dec 31, 6:30 PM

New Years Eve 2020 @ View Sydney

View Sydney (Formerly North Sydney Harbourview) • North Sydney, NSW

Wed, Oct 7, 9:30 PM

SHINE (Aust-China Silicon Harbour INnovation Exchange Program)

Centennial Hall, • Sydney

Mon, May 18, 9:00 AM

Women in Food and Beverage Leadership Summit

Novotel Darling Harbour • Sydney, NSW

Mon, Sep 7, 8:30 AM

Mapping the Pacific Conference | Full series

Landmark page logged in (continued)

Series
State Library of New South Wales • Sydney, NSW

About

The Sydney Harbour Bridge is an Australian heritage-listed steel through arch bridge across Sydney Harbour that carries rail, vehicular, bicycle, and pedestrian traffic between the Sydney central business district (CBD) and the North Shore. The view of the bridge, the harbour, and the nearby Sydney Opera House is widely regarded as an iconic image of Sydney, and of Australia itself. The bridge is nicknamed "The Coathanger" because of its arch-based design.

News

Sydney Harbour Bridge Under Construction Through Amazing Photos

Construction from 28 July 1923 to 19 January 1932, the Sydney Harbour Bridge is an Australian heritage-listed steel through arch bridge across...

No Toll Charges across The Sydney Harbour Bridge on Anzac Day from 12am to 12pm (save \$2.50 to \$3!)

An annual reminder for the toll-free period during the AM hours of Anzac Day which has been running for the past 15 years. The...

Reviews

Add review


Jeff

★★★★★ 27-04-2020 at 04:48 PM

Very beautiful

Saved event pop-up

Event added



Events

Fri, Oct 2, 7:00 PM

Inner & Outer Tech - The Digital Japan

Tokyo • Tokyo

Tomorrow at 7:00 PM

Let's Explore local Tokyo nightlife!

Shibuya

Fri, Jun 19, 7:00 PM

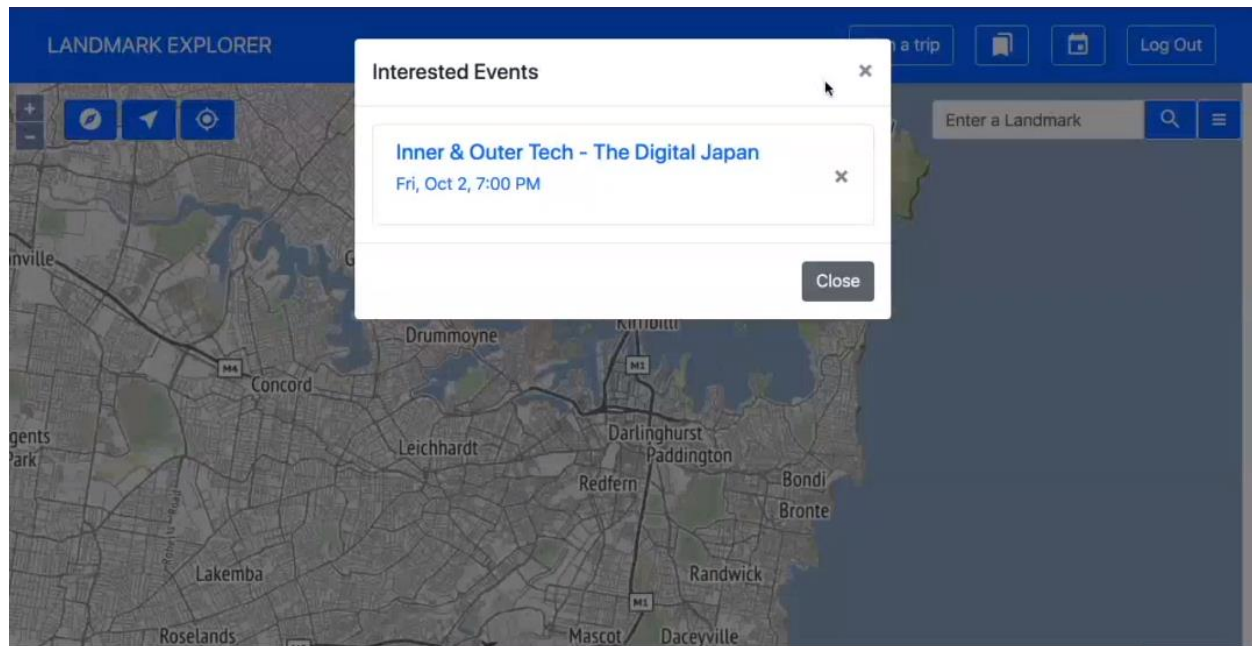
11th Japan Bachata Festival 2020

First Place Tokyo (Hotel Lungwood)
• Arakawa-ku, Tōkyō-to

Wed, Oct 28, 9:00 AM

3rd Japan Solar + Energy

User's saved events



Software Architecture

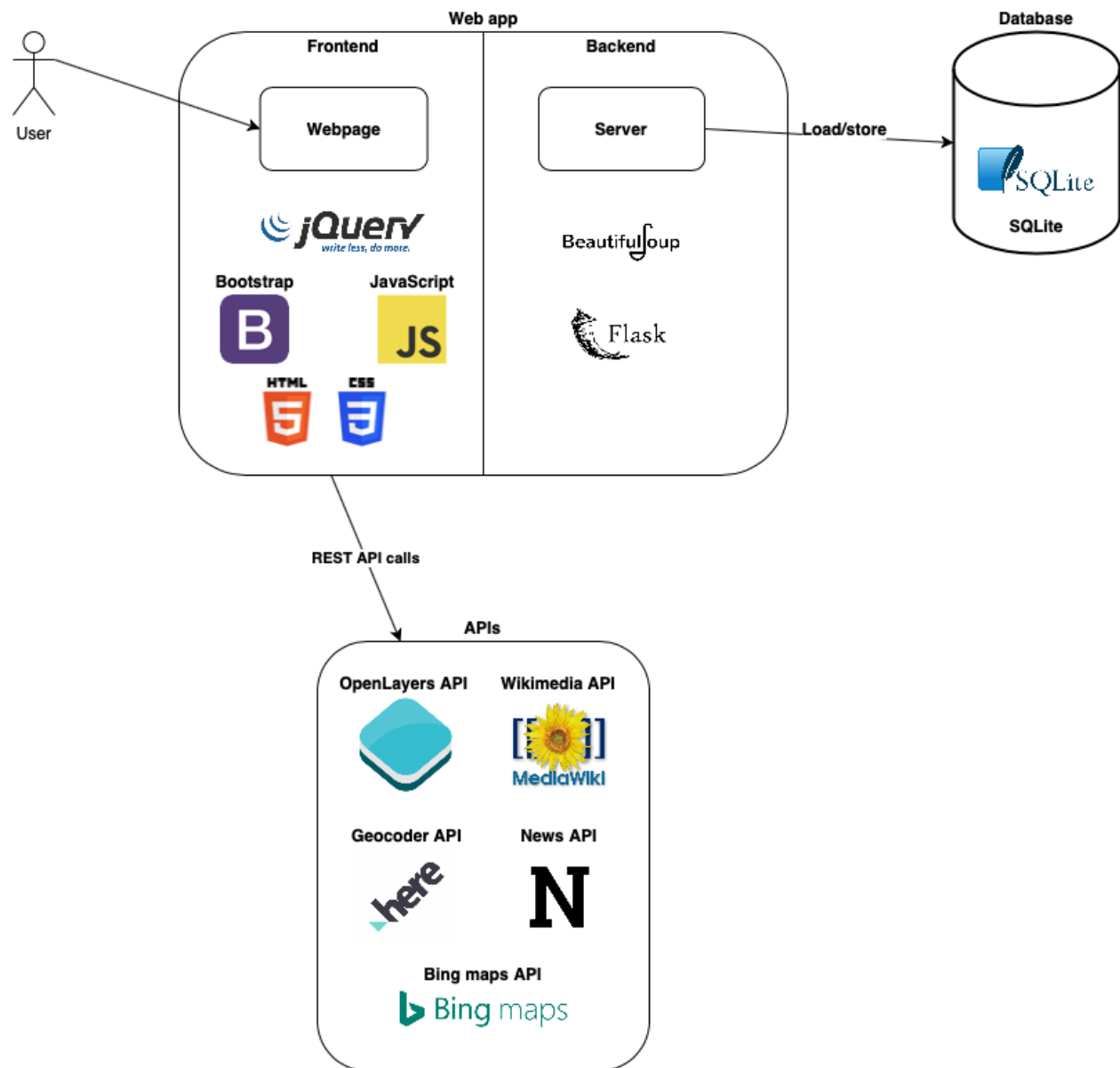
Software Components:

External Data Sources	
Web Scraper	
Beautiful Soup Web Scraper in Python 3	<p>Will be used to retrieve events regarding a particular landmark.</p> <p>There wasn't a single API that returned enough results</p>
APIs	
Wikimedia API	<p>Used to find information and royalty free images on a particular landmark</p> <p>Most comprehensive online datasource, able to search for a vast number of landmarks</p>
Geocoders API	<p>Used to search for landmarks based off coordinates and radius</p> <p>Used to reverse search for landmarks based off a location name</p> <p>Offers coverage for a huge range of countries, is easy to use, and provides all functionality we need</p>
OpenLayers 6 API	<p>Easy way to insert an interactive map into our webpage and has a large library that covers our requirements</p>
News API	<p>Used to find news articles</p>

	Searches articles from many different sources from a big range of countries, increasing chances of finding articles about landmarks. Also easy to use and provides searching using various types of queries
Bing maps API	<p>Used in the trip planning feature by obtaining a distance matrix between all landmarks the user wants to visit, and solving the travelling salesman problem. Then, used to calculate a route between two given points (landmarks) to be displayed on the map</p> <p>This API is easy to use and provides a wide range of functionality that encompasses all the needs for this feature</p>
Frameworks and Libraries	
Flask	<p>Using familiar tools improves efficiency as it reduces the time spent learning.</p> <p>Has an easy to implement login system in its library.</p>
SQLAlchemy	A library in Python that makes it easier to manage a SQL database.
Languages	
SQLite for database	<p>Not storing large amounts of data or writing in high volumes, therefore PostgreSQL or MySQL aren't as necessary.</p> <p>Easier to handle, as it doesn't run a server process.</p>
Python 3 for backend	<p>Easy language to work with, allowing more work to be done using less time</p> <p>Well known by the group members</p>

Javascript for Frontend, incl. JQuery library	Used to create/update elements and directly interact with the DOM.
Bootstrap 4, CSS	Easy to use and gives an aesthetically pleasing UI
HTML	Majority of webpages are based off HTML
Choice of Platform	
Google Chrome	Most widely used web browser. Group members are also familiar with the provided dev tools.

Software Architecture Diagram:



Sequence Diagrams

Use Case 1

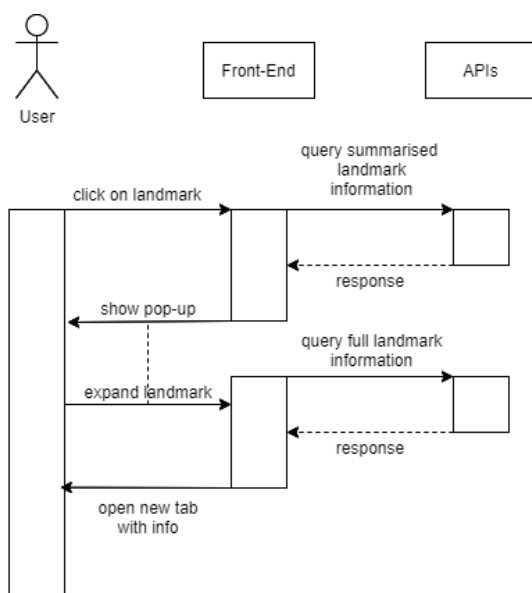
Interactive Map

The user first clicks on a pin on the landmark

Which shows a popup with the summarised information of the landmark

Then we click in a link to show the full information

Which is opened in a new tab



Use Case 2

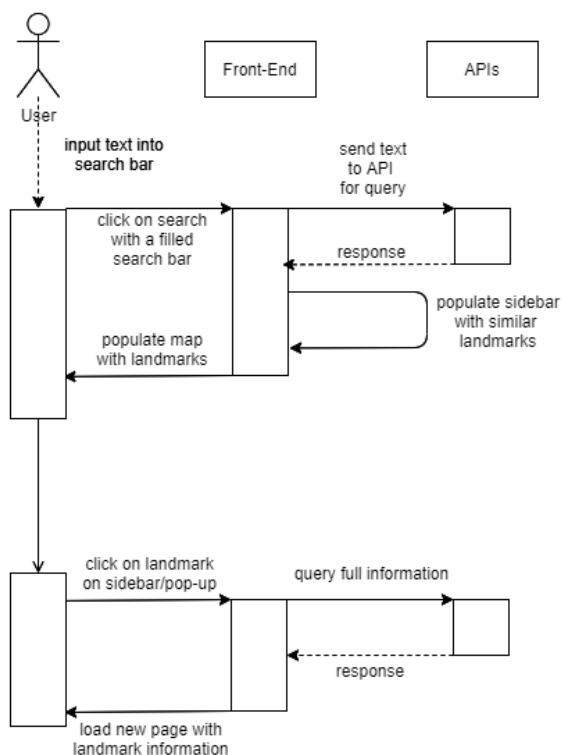
Searching for Landmarks

The user clicks on the search button, after filling the search bar .

The program sends the text to be reverse-searched by the API.

The response by the API is then sent to the program, which interprets it to fill the sidebar and creates pins on the landmarks on the map.

When a landmark is clicked on the sidebar, the landmarks' information is displayed in a new tab



Use Case 3

Recommended Landmarks

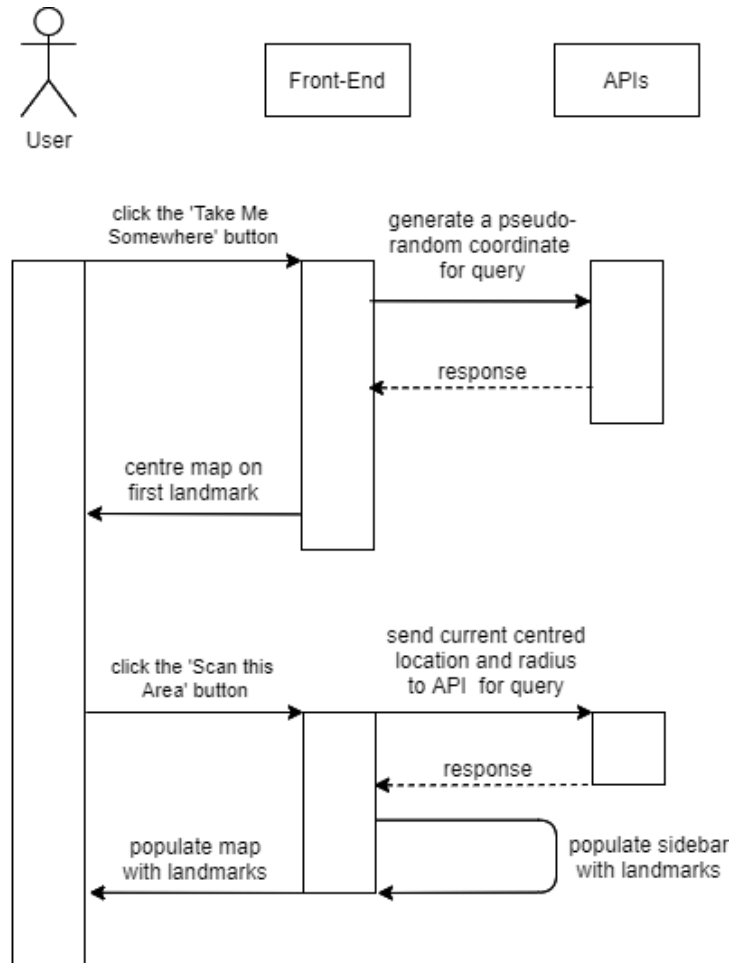
The user clicks on the 'Take Me Somewhere' button

The front-end generates a coordinates randomly using the current coordinates and sends it to the API to be searched.

The API then returns the list of landmarks, and the first landmark returned is then focused on the map.

When the user clicks the 'Scan this Area' button, it will send the current location and a fixed radius in the code to the API to search for landmarks

The API then returns any landmarks to the front-end, where they will be filled onto the map and the sidebar



Use Case 4

Display Information

The user clicks on a landmark to retrieve the full information page

A query is then sent to the API, the web scraper and the database

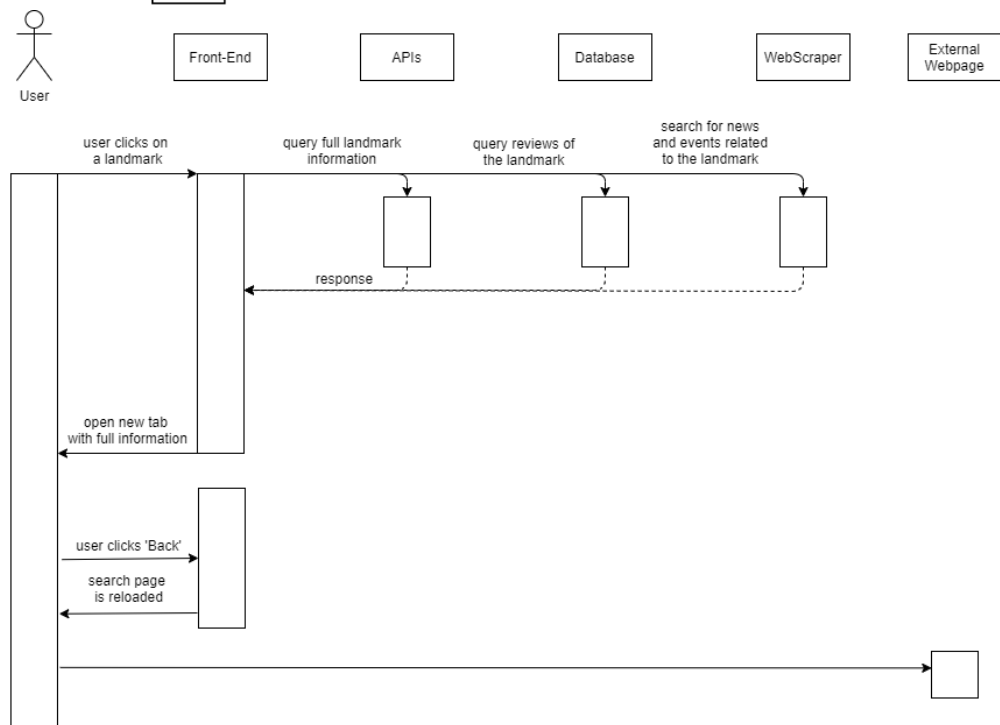
API returns the image, details and a paragraph of text to be displayed on the information page. If no information or image is available, this is displayed along with the details.

The web scraper searches for any events and news related to the landmark, and returns them if they exist. If no information exists, that is displayed.

The database gathers all the reviews of the landmark, and then displays the reviews in the information page, along with the average review. If no reviews exist, that is displayed.

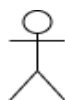
The user clicks on the 'Back' button, which causes the original search page and map to be reloaded

The user clicks on a news article or event and the related web page is loaded.



Use Case 5

Login, Review, Bookmark and Calendar



User

Front-End

Database

The user enters their credentials and attempt to login. These credentials are sent to the database to be verified.

If the credentials are false, a false response is sent to the front-end which displays this information

If the credentials are true, the database sends a true response.

When the user bookmarks a landmark, the data of the landmark is sent to the database, with the user's information, to be stored in the database of the user.

The response is then received by the front-end, which refreshes the modal to include the new bookmarked landmark.

When a bookmark is removed, entry is removed from the database and front-end updated.

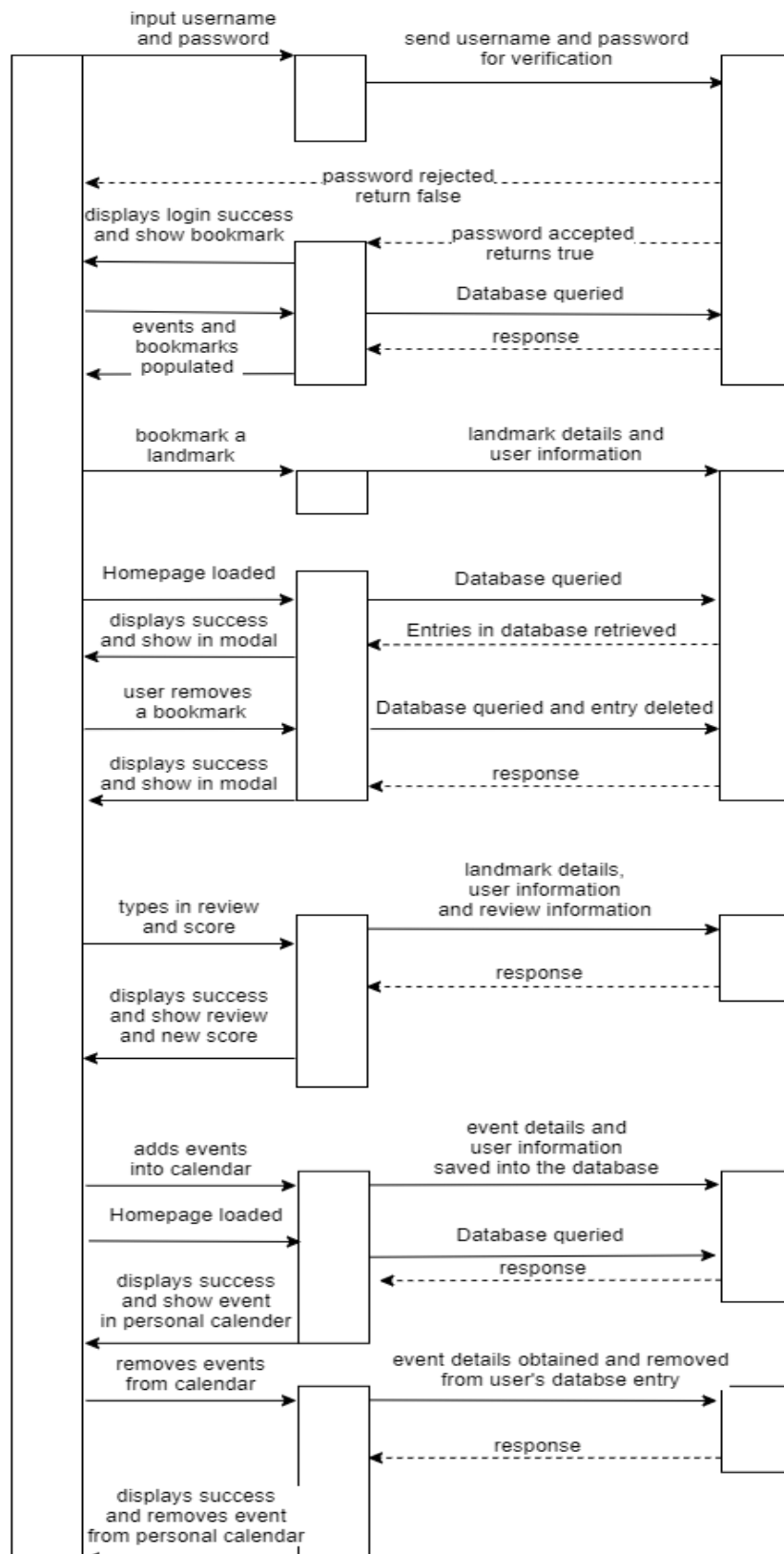
When the user reviews a landmark, the review information and the user credentials are sent to the database related to the reviewed landmark to be stored.

The response contains a calculated average score with the new review, which is then displayed in full information once requested.

When the user saves an event, the data relating to the event is saved to the database.

When the user clicks on the saved events button, the data from the database is retrieved and displayed in the modal for the user to see.

When the event is removed, the data is removed from the database and the results updated in the modal.



Use Case 6

Finding a Path



User

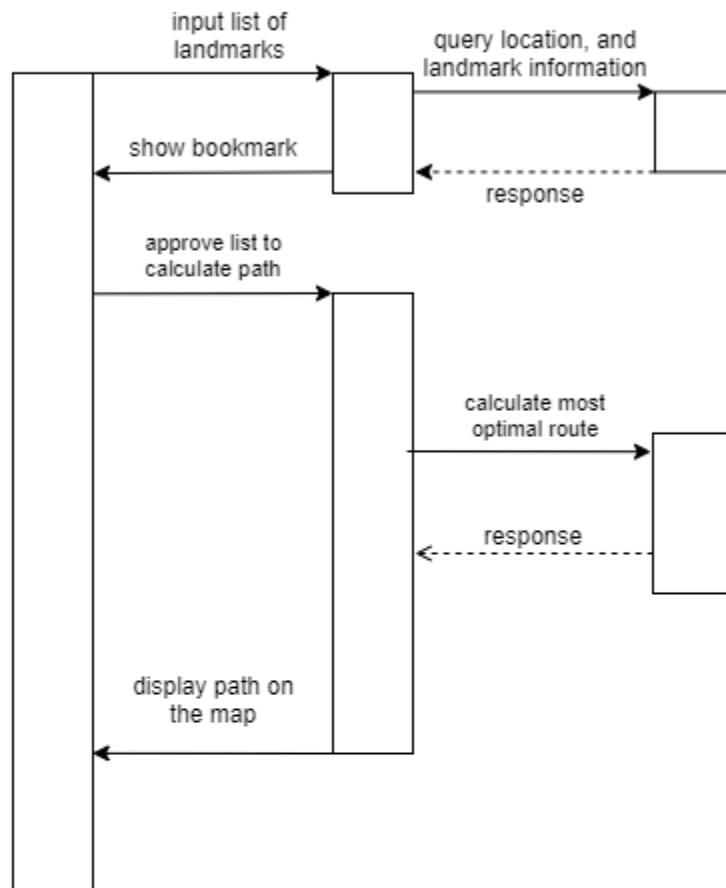
Front-End

APIs

The user inputs a list of landmarks that they want to visit into the system. The system will find and output the location of the landmarks to the map.

When the list is send to find a path, the system will send the list to a pair of APIs - one to find the route between each landmarks and a second which will find the shortest and most optimal routes between the landmarks.

Once the route has been calculated, the front-end will draw a path and list off the landmarks in order to get the optimal path.



Team Organization

Organization

We had weekly meetings on Tuesday to plan and discuss the project and allocate responsibilities. Some members would work on deliverables while others focus on implementation and research. After the mentor meeting on Thursday, we would reflect on the progress made and set deadlines so that deliverables are completed before the next mentor meeting and before the submission deadline, so that we have the opportunity to ask for feedback.

How did the project go

Overall, we believe that the project went well. The UI is well developed and looks clean and modern. All the planned features were implemented and extensions were also added, such as the trip planner.

Issues

Landmark name clashes was the main issue of the project. For example, there are many “royal botanical gardens”, there is one in Sydney and one in the United Kingdom. When at the landmark page for the Royal Botanical Gardens, the various apis used to collect event information, news information, images and facts may mismatch. This was solved by adding more information to the api calls, such as adding the city/state name into the api calls.

Reflections

If this project was done again, we would store landmarks locally in a database, as this would improve the performance of the web app by having less API calls. It would also solve the issue of landmarks sharing the same name but are in different locations by having their own unique id within the database.