CSCI 5709 - Advanced Topics in Web Development

Assignment 3

Novel Life

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1. Introduction

The Novel Life Web application is dedicated to keeping people safe and aware during the Covid-19 pandemic. The main goal of the app is to provide information about cases, resources, help and donation during the pandemic. We want users to have a website where they can find all useful information related to pandemics and diseases. This platform can be trusted by Nova Scotia people and enable them to find correct and reliable information on it.

2. Application Features

The features we've decided and planned to develop in Novel Life websites are up to 13, listed as follows [1]:

1. User profile management;
2. Interactive map and statistics about Covid-19;
3. Latest updates about Covid-19;
4. Self-assessment of symptoms;
5. Allow the elderly and disabled to seek assistance;
6. Check eligibility for government-funded financial support;
7. Seek mental health support;
8. Seek educational assistance;
9. Local food resources;
10. Volunteer to teach, offer mental support, and assist the elderly or disabled;
11. Donate to local businesses, charities, and foodbanks;
12. Travel Advisory;
13. User Stories.

For this assignment, I chose the 11th and 12th to for analysis to facilitate future development**.**

2.1 Donation

This feature is about designing an on-line donation web page to enable every person/household to easily donate to local business, organisations, and charities affected by the epidemic. The basic idea is to help people to select preferred charity organisations and send the donation information online to inform charity organisations [3].

2.2 Travel Advisory

One of the most dramatic impact of the COVID-19 pandemic is that it greatly reduces people's travel and movement between cities and countries. To control the spread of virus worldwide, many travel advisories and restrictions are set to be effective and be strictly obeyed during a certain period of time. It is essential that our users can find the latest advice from authorities such as the Government of Canada [2]. This feature will give users important advice to help them make informed decisions and to travel safely while they are abroad.

3. Application Details

As designed to fit our target users, we designate user personas as users between the ages of 16 and 50, who live in Nova Scotia [1].

Also, there are some basic requirements that users must fulfil to use this application. One is that we assume the user has at least one digital device connected to the Internet and has a basic knowledge of surfing through the website. Another pre-requisite is that most people affected by the pandemic are willing to know how to get help and how to provide help to others in the province's communities. Users will use the website as it is going to be interactive and includes everything related to Covid-19.

3.1 Donation Feature

3.1.1 Target User Insight

The intended users of this feature will be organizations and people who want to donate. Our users will want to be able to donate and keep a track of their donations. This feature will also require users to log in first and willing to provide their contact information as well as bank account information to donate.

3.1.2 User-Centered Design Approach

To explore the needs of users when it comes to the donation section, I've considered using questionnaires to gather information from our potential users, but it will take time and trust. I turned to look at similar web applications that are already on the Internet for reference. For this feature, this would involve, charity sites and any kind of application where the user can donate. A good example I found is the website from CanadaHelps (Fig. 1), which reminds me that making the donation page simple and trustable is the main purpose of satisfying our donors.

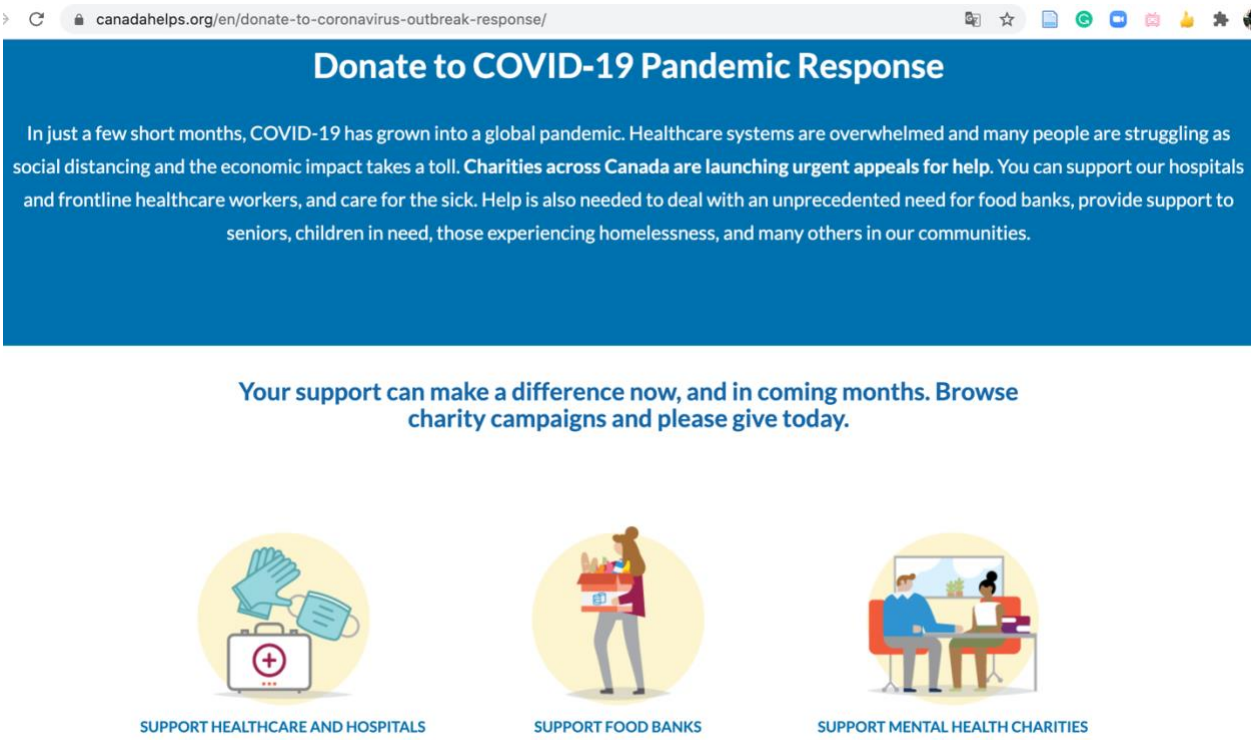

Figure 1 Sample: using icons to classify different categories (CanadaHelps) [4]

The information architecture of donate feature is shown as below (Fig. 2):

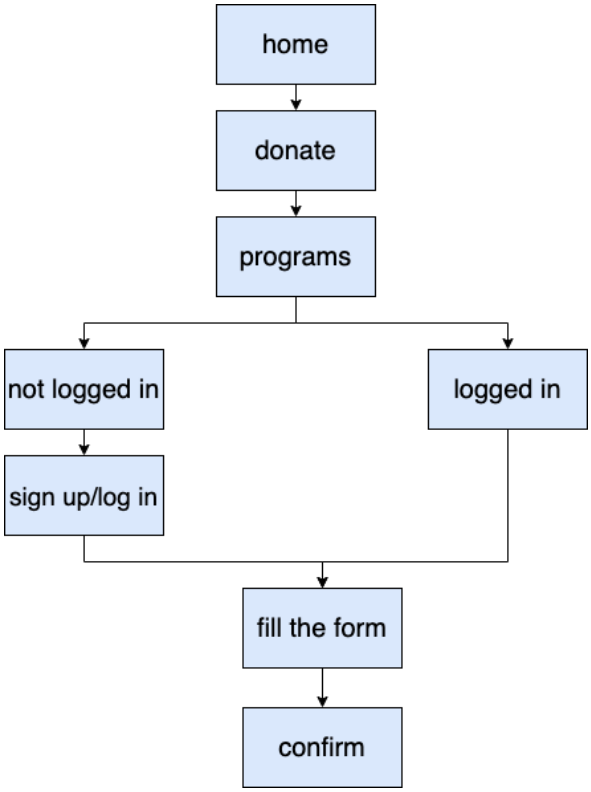

Figure 2 Donation information architecture [5]

3.2 Travel Advisory Feature

3.2.1 Target User Insight

The intended users of this feature will be those who are concerned about travel restrictions, including international students, people traveling abroad, people who plan to go somewhere and their family and friends.

3.2.2 User-Centered Design Approach

I looked at similar web applications that are already on the Internet as a reference. For this feature, it involves government sites and any kind of application where the user can search for travel advice during the COVID-19 pandemic. A good example I found is the Government of Canada [2], seen as Fig. 3. It reminds me that making this page simple and provide the destination-specific travel information is the main purpose of satisfying our users. However, we will make it more user-friendly by using more visual elements.

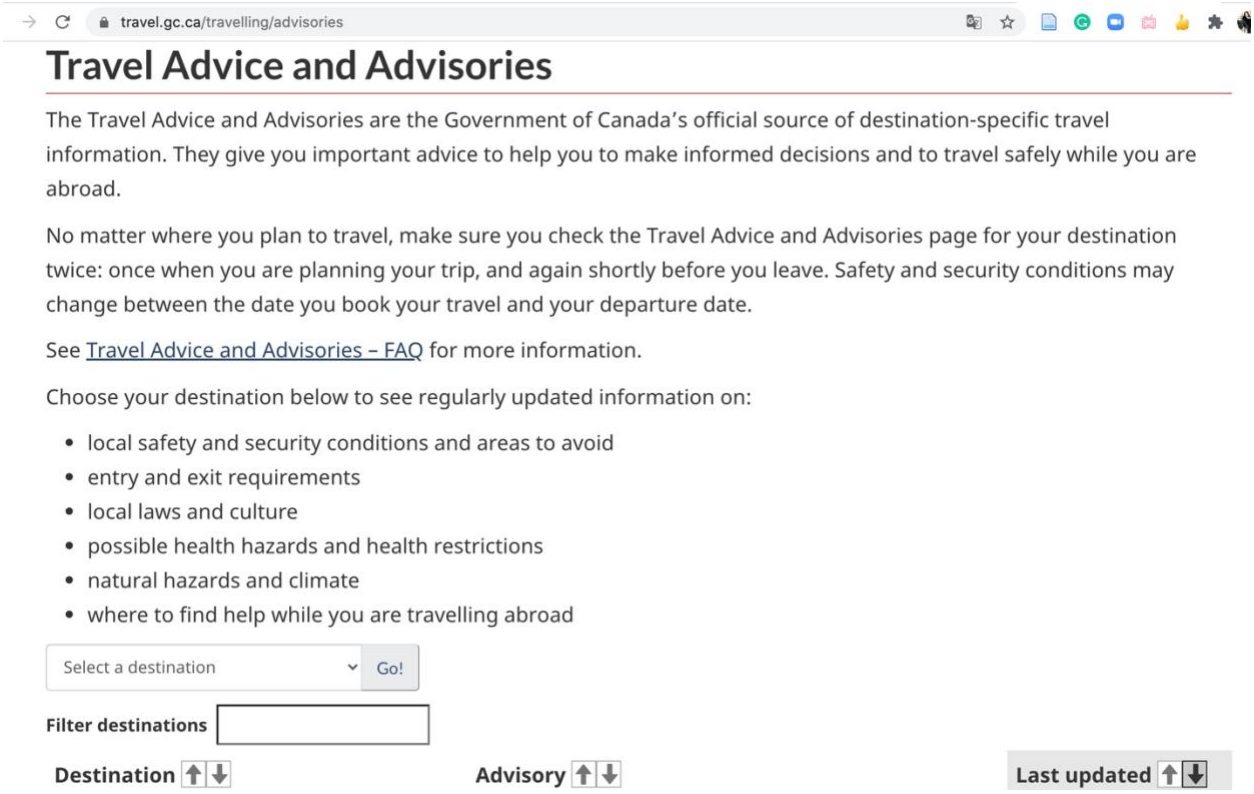

Figure 3 Sample: Travel Advisories from Government of Canada [2]

The information architecture of donate feature is shown as below (Fig. 4):

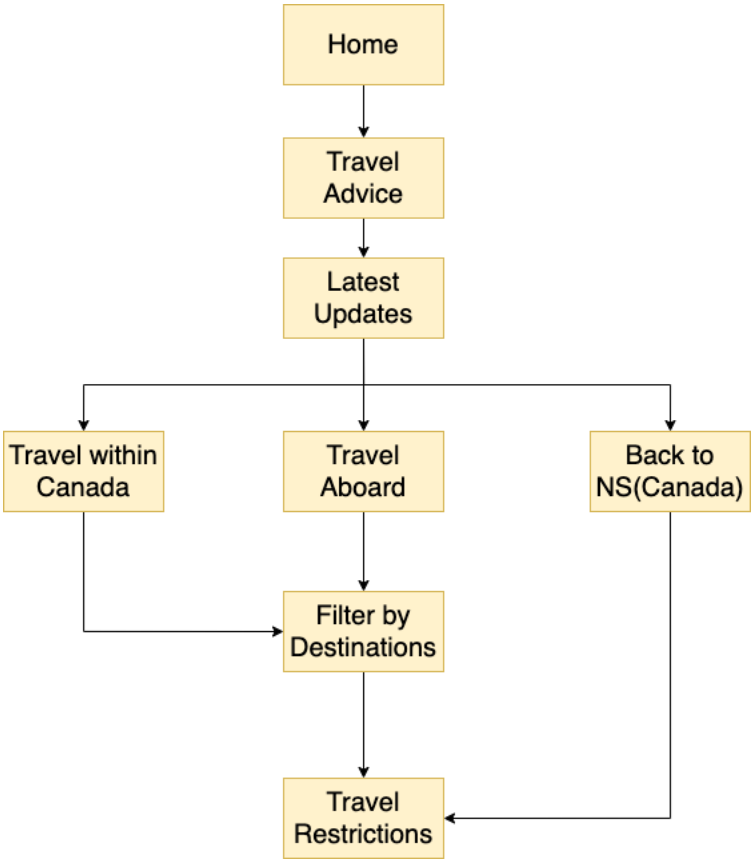

Figure 4 Travel Advisories Information Architecture [5]

4. Application Architecture

We will use the classic MVC software design pattern to construct the application architecture. As discussed before, we still use ReactJS for frontend development, NodeJS for backend and MySQL used as database (Fig. 5).

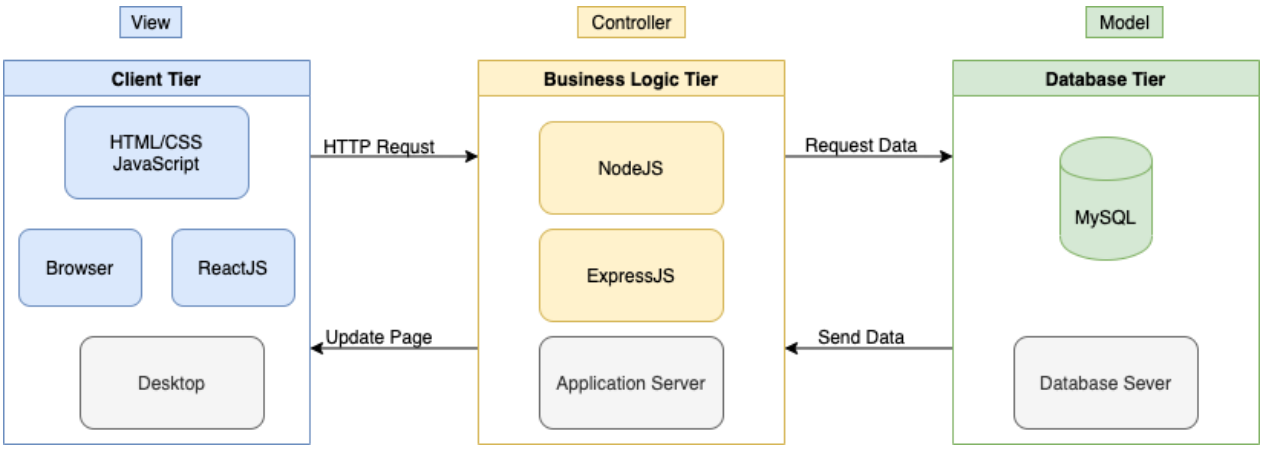

Figure 5 Software architecture [5]

5. Application Workflow

5.1 Donation

5.1.1 Interaction Design

The donation feature involves users providing their bank accounts and personal information, which will lead to certain risks of information leakage and online fraud. It is vital that the application requires users to log in first, promising that we will not leak any information to third-party individuals or companies, as well as providing users with a function to track their donations. This use case diagram (Fig. 6) shows the main functions that a user can select a charity program and make a donation to the organization.

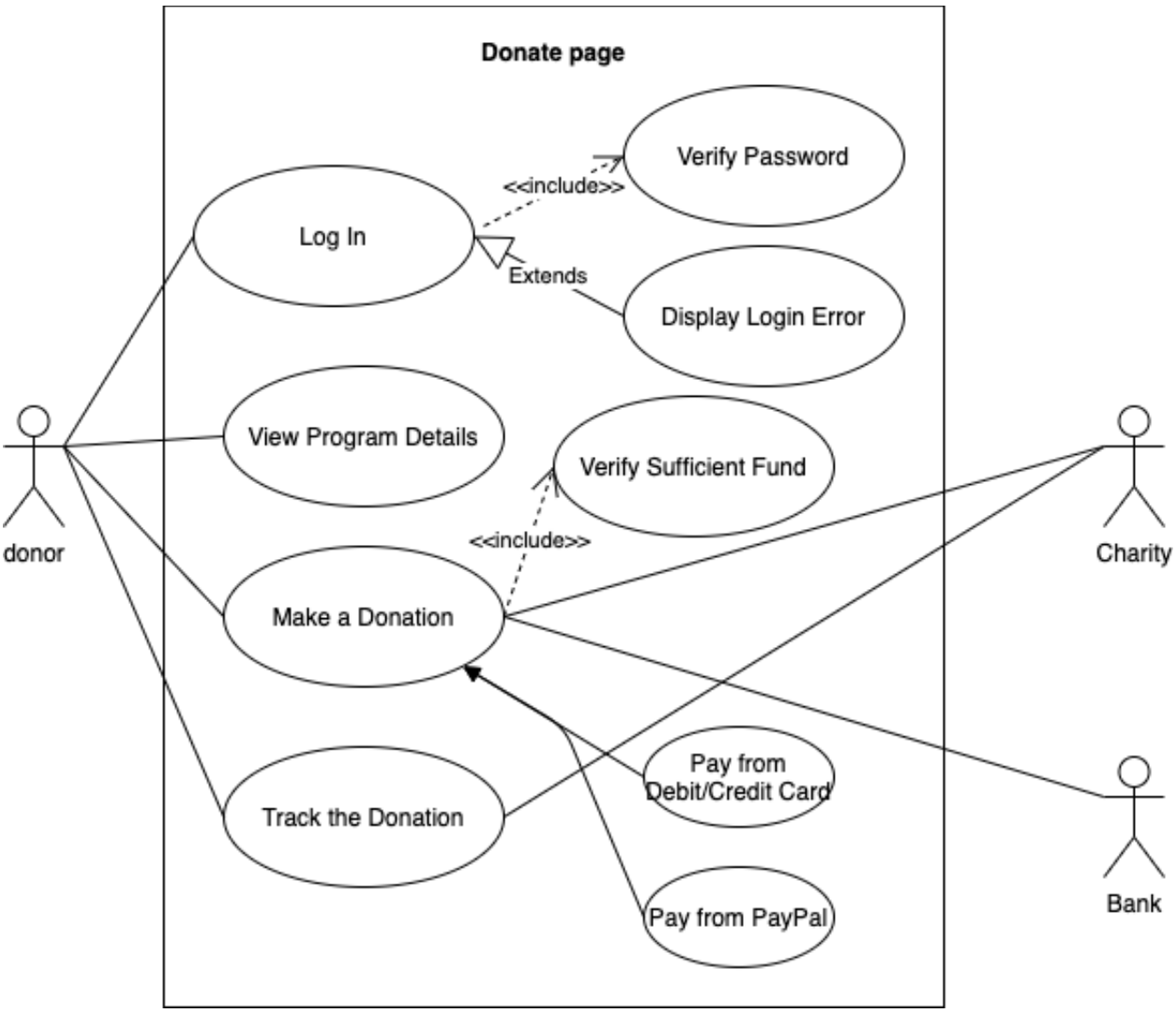

Figure 6 Use case diagram of donating [5]

As the use case diagram shows, besides the ‘log in’ section, we will have three functions for this part: view program details, make a donation and track the donation.

5.1.2 Process and Service Workflow

The process of **Making a Donation**:

1. User visits ‘Novel Life’ homepage [user action]
2. User clicks on the ‘donate’ button [user action]
3. User views the charity program descriptions [user action]
4. User clicks on ‘make a donation’ button [user action]
5. User is redirected to the ‘Login’ page [system action]
6. User logs in using username and password [user action]
6. System displays the donation information form, requesting user input the contact information and choose the way of payment [system action]
    - 6.1 User fills the form and chooses to use bank account [user action]
        - 6.1.1 User input bank account details for authorization [user action]
        - 6.1.2 System saves all the information in database [system action]
    - 6.2 User fills the form chooses to use PayPal [user action]
        - 6.2.1 User is redirected to the ‘Login’ page of PayPal [system action]
        - 6.2.2 User make the payment on PayPal and return to the application [user action]
        - 6.2.3 System save all the information in database [system action]
7. Waiting for the verifications from bank or PayPal [system action]
8. User is redirected to the ‘Thank you for donating’ page [system action]
9. System generates a receipt for this donation as a pdf file [system action]

The task flow diagram (Fig. 8) is used to explain the process of making a donation listed above, and the figure 7 below shows how these symbols represent different meanings.

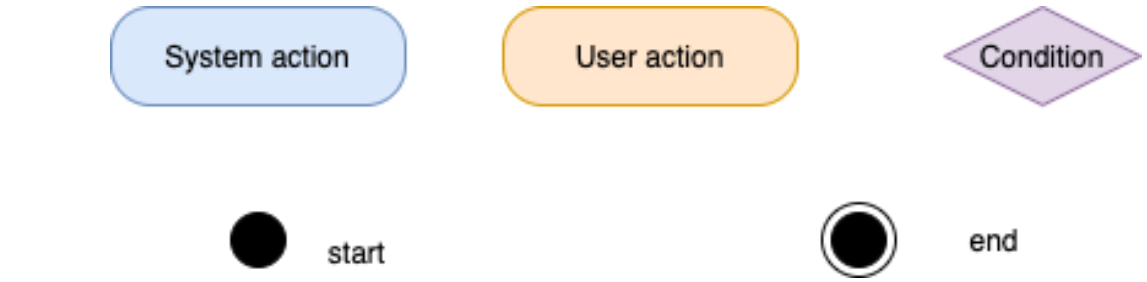

Figure 7 Meaning of symbols [5]

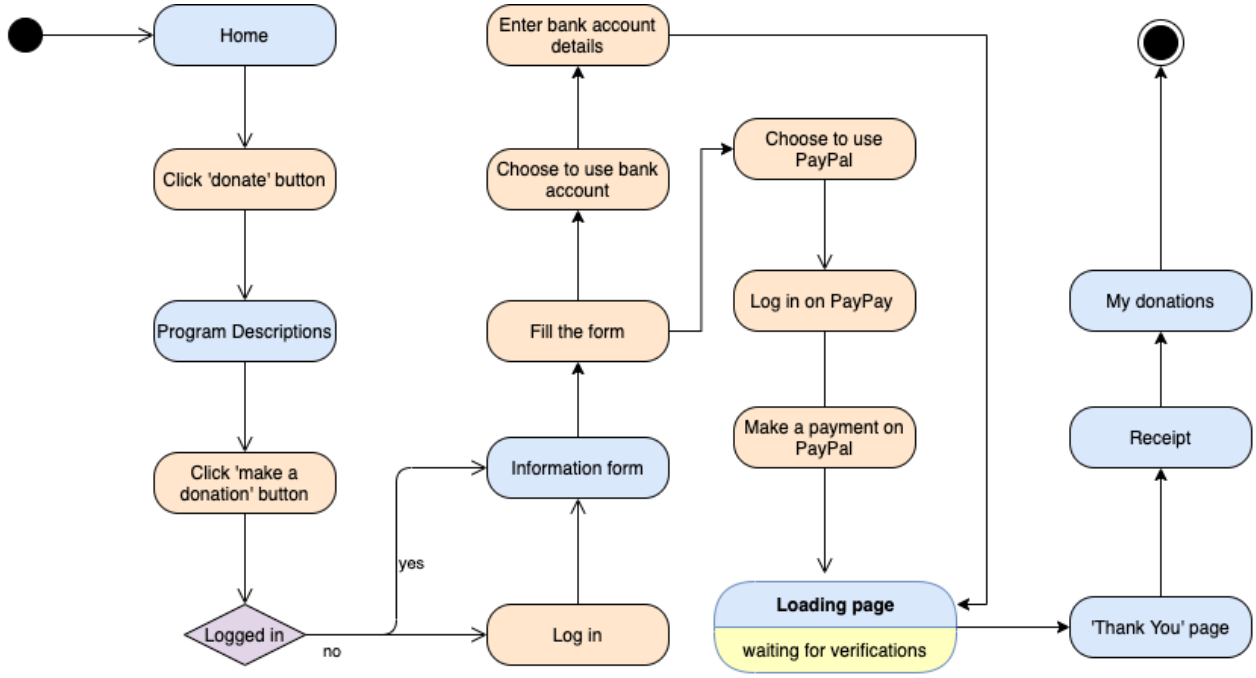

Figure 8 Task Flow of making a donation [5]

As the task flow diagram illustrates, we will have at least 6 pages displayed to our users in the feature: the program description page, the information filling form page, the payment making page, the loading page, the 'Thank You' page and the 'track my donation' page.

5.2 Travel Advisories

5.2.1 Interaction Design

This use case diagram (Fig. 6) shows the main functions that a user can view the latest updates about travel restrictions. To make users find the related information more quickly, we classify our target users into three categories: travelling with the country, travelling abroad and travelling back. In addition, they can search the destination name to get the latest detailed travel advisories about the area.

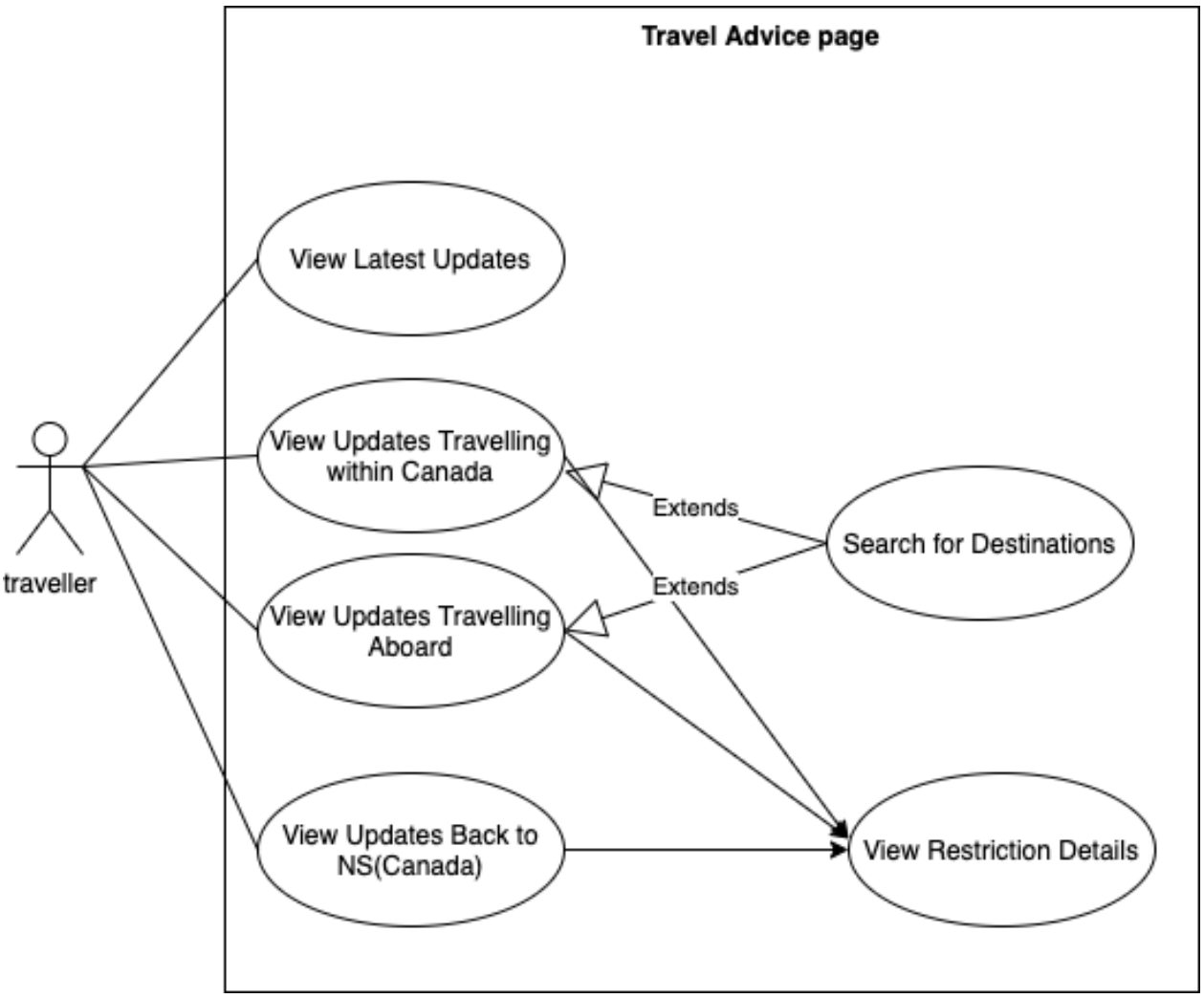

Figure 9 Use case diagram of Travel Advice [5]

As the use case diagram shows, we will only have one main function for this part: viewing the travel advice and advisories, divided into three categories: people from Nova Scotia to other provinces within Canada, from Nova Scotia to other countries outside Canada, and who are not in Nova Scotia but want to get back. The classify and search method narrow down the range of results that users really want.

5.2.2 Process and Service Workflow

The process of **Viewing travel restrictions**:

1. User visits ‘Novel Life’ homepage [user action]
2. User clicks on the ‘Travel Advisories’ button [user action]
3. User views the latest updates of travel advice [user action]
4. System offer three types for user to choose [system action]

4.1 User clicks on the ‘Traveling within Canada’ button [user action]

4.1.1 User search a province as the destination [user action]

4.2 User clicks on the ‘Traveling abroad’ button [user action]

4.2.1 User search a country or region as the destination [user action]

4.3 User clicks on the ‘Traveling back to NS(Canada)’ button [user action]

5. System filter the related information [system action]

6. User views the restriction details [user action]

The task flow diagram (Fig. 10) is used to explain the process of making a donation listed above.

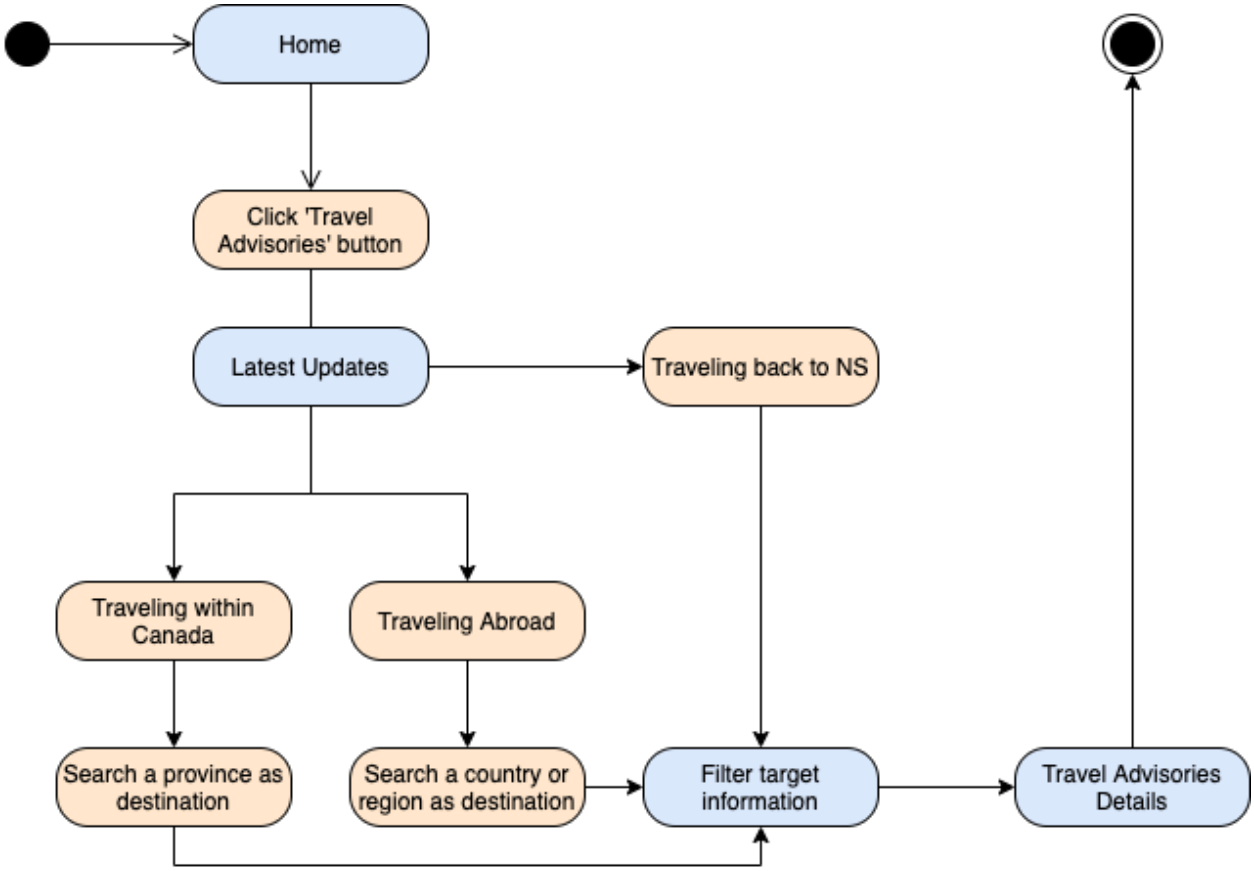

Figure 10 Task Flow of viewing travel advice [5]

5.3 The Expected File Structure

The application will be developed using NodeJS and ReactJS, and the folder structure can be divided into two parts: frontend and backend. ReactJS has been used for the user interface of the websites in last assignment. The backend will be developed in another folder, containing NodeJS code to trigger REST APIs and make the MySQL connection for the database. The following Figures 11 depicts the expected folder structure for both frontend and backend.

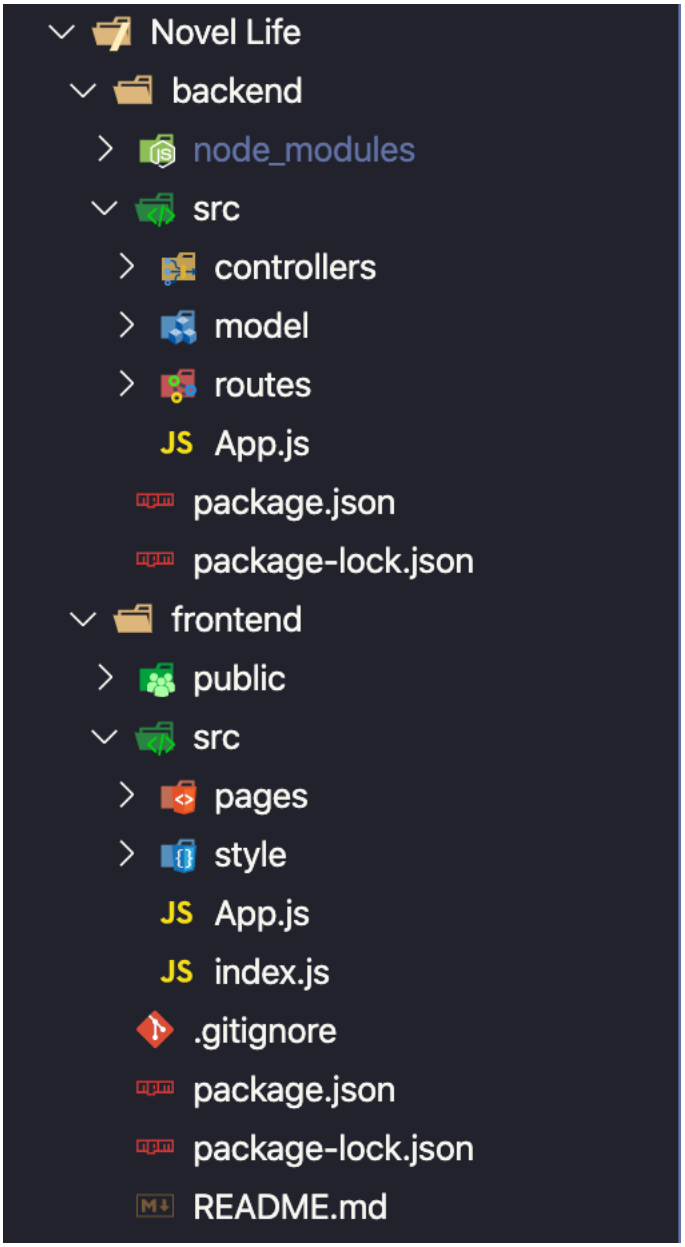

Figure 11 The expected folder structure

References

[1] A. Chen, N. Bhatt, R. Baheti, S. Ashutosh, S. Gupta, "CSCI5709_Project_Proposal_Group25," Dalhousie University, Jun. 23, 2020. (accessed Jul. 03, 2020).

[2] G. A. C. Government of Canada, "Travel Advice and Advisories," *Travel.gc.ca*, Nov. 16, 2012. https://travel.gc.ca/travelling/advisories (accessed Jul. 03, 2020).

[3] "Web Application for Charity Donations." https://ukdiss.com/examples/web-application-charity-donations.php (accessed Jul. 03, 2020).

[4] "Donate to COVID-19 Pandemic Response," *CanadaHelps - Donate to any charity in Canada*. https://www.canadahelps.org/en/donate-to-coronavirus-outbreak-response/ (accessed Jul. 03, 2020).

[5] draw.io, "draw.io - Diagrams for Everyone, Everywhere," *draw.io*. https://drawio-app.com/ (accessed Jul. 03, 2020).