

MY CANADA

Application Developed for CMPT 276 By:

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Iteration 0 in green
Iteration 1 in red
Iteration 2 in blue
Iteration 3 in black

Project Abstract

Our project allows users to quickly view important and interesting data about Canada by using resources that are provided by the government and funded by taxpayers. The application will allow users to have a customized page that will display various social media information and query some of the many open data resources that the government makes available through APIs. This software will allow users to select data that is relevant and display it in a meaningful manner but also functions as a valuable education tool in letting users learn about resources that are available to them through government initiatives that would normally go unnoticed. One of the many strengths of the application is in allowing users to select various datasets that are collected by government agencies and being able to display them in a customized view.

There are many datasets available to choose from on the Canadian Governments open data portal (<http://open.canada.ca/en/open-data>), the goal of our project is to find a few datasets that will appeal to a large audience and present the data sets using a visualization API. The API will allow for graphing of large datasets and allow the user to toggle different series of data on the chart in order to gain a more meaningful representation of the data. An example of this functionality would be to allow the user to select which provinces they would like to see displayed on a bar graph that shows population, so the data becomes more useful.

Customer

This project is designed to appeal to many different customers that wish to learn more about Canada in general but also provide the option for specific provincial and regional information. Customer will be allowed to access various social media feeds such as twitter that can be linked to the general @Canada account but also to various regional accounts for cities such as @CityofVancouver. Another resource of interest to customers will be news feed from CBC that can be customized to a regional feed while also showing the National headlines. Allowing customers to customize their official news sources in a central location will provide a cohesive destination for customers seeking up to date information that is relevant to them. The second aspect of the project will appeal to customers that want to access some of the vast data collected by the government and made available through their open data portal. There are many different datasets available through APIs to the public; our software will select a few appealing datasets and present them in a meaningful manner to our customer.

The types of customers that the software will appeal to will range from the those that are curious about Canada and wanting to learn more information to those that want specific detailed information that can be attained through our open data querying of

the government portal. Customers will respond to the customization allowed by the application and the ability to find meaningful data and resources in a central location.

The types of users that will exist in the application will include regular users and administrators. Regular users can customize their views based off a settings page that will let them determine what information is relevant to them to be displayed. There will be various options available that will let the user select various news feeds or social networking feeds in their "default view" but they can at any time go back and customize this view further. The administrator will be able to add, delete or update to the database of customizations available to regular users. Statistical data will be available to the administrator as to what feeds are popular amongst users, which will help developers make improvements in the future iterations of the website.

Competitive Analysis

There are lots of Canadian news websites available that provide a valuable resource to the public (<http://globalnews.ca/>); the difference with our application is in harnessing the governments Social Media presence along with the publically funded news feeds of the CBC to provide our customers with a useful picture of Canada. There are websites on the market that include aggregators that collect various tweets from Government sources (i.e. <http://gov.politwitter.ca/>) but the aim of our application is to create a hub of information that allows the user to select what is relevant to them but to also expand their knowledge of the open data portal that the government has created. The main differentiation that our application offers over competitors is the ability to tap into the vast open data collection that the government has alongside the many newsfeeds that the government runs. Having all this information in one place will provide a useful gateway to our users that is not offered by any competitors and will all our application to be a valuable resource.

Implementation Goals for First Iteration

Create a login system:

- allow users to create username and password
- allow users to change password
- allow users to select their region

Create a user settings page

- users should be able to change or add regions

Create a homepage and have it interact with the social media API that we have selected.

- find out what feeds are relevant to our users and have them as a selectable option

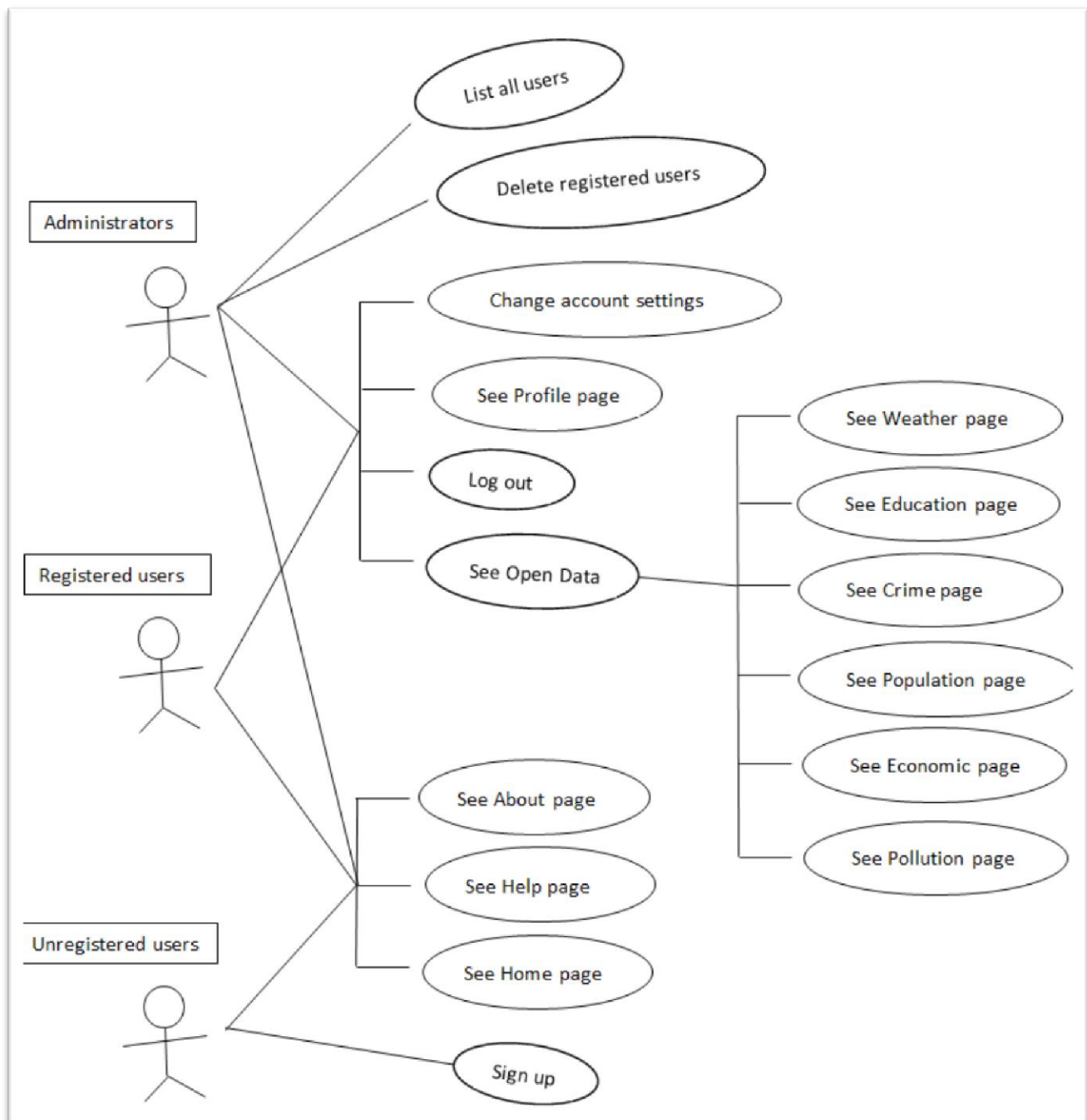
Exploring the graphing API and how we can make it interact with the open data queries that we will write.

User Stories

Description of Actors:

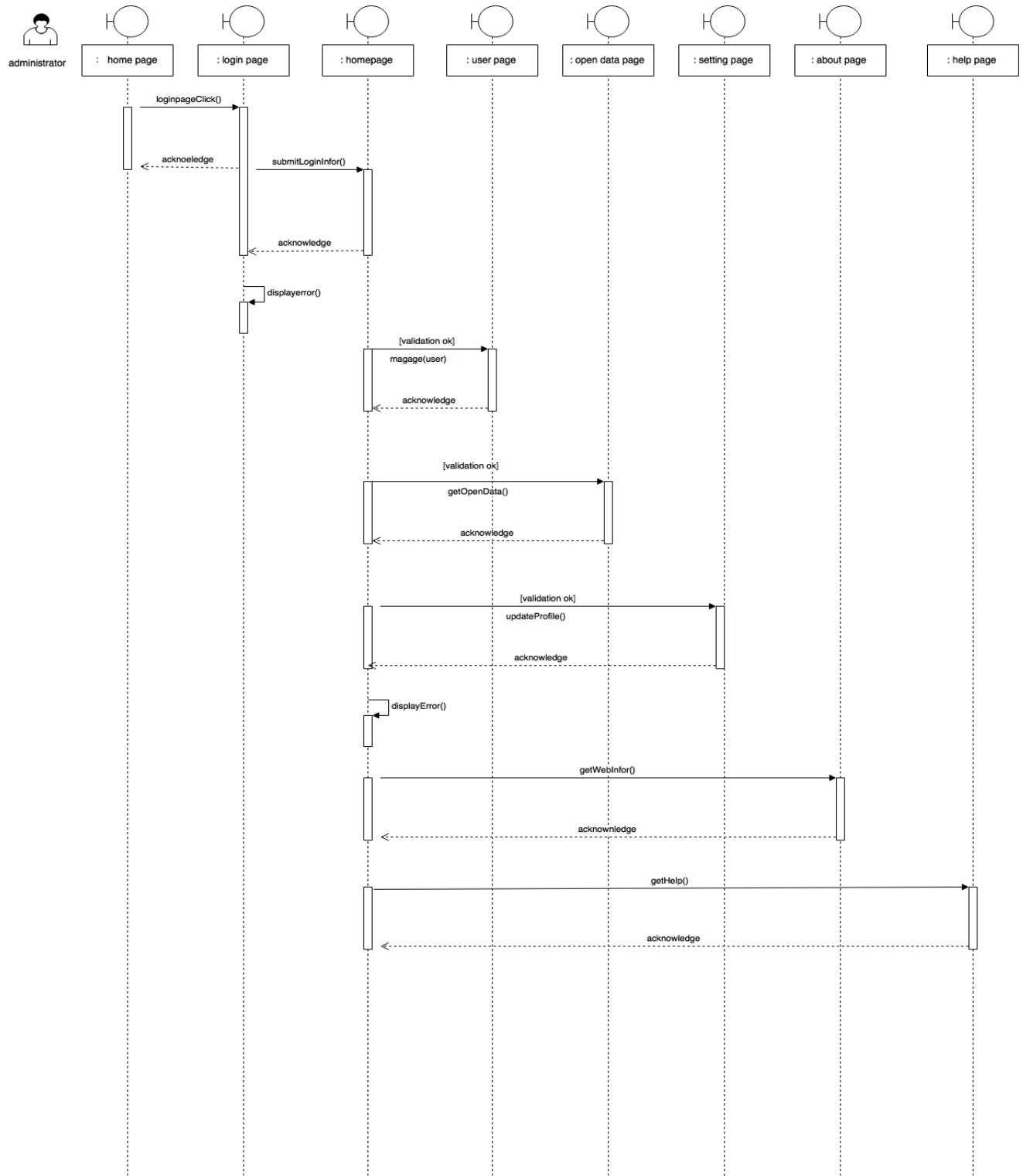
1. Administrator: The administrator's role will be to manage users by having a special login and password that will allow them to access administrative functionality. For future iterations their role may be expanded; currently planned implementation will include the ability to list//edit/delete users and to be able to add to additional feeds within the social media API.
2. Registered User: will have access to a customized homepage and be able to select various open data categories from a menu at the top of the page. The open data categories will allow the user to learn more about specific interests and select various geographic regions to be displayed by a visualization API such as HighCharts. The user's homepage will consist of news feeds and social media feeds that are available via government funded outlets such as CBC and regional twitter feeds.
3. Unregistered User: will be able to sign up from a link on the homepage that will allow them to activate a new account. Once the account is validated, the user will have access to the full homepage and open data portals.

Use case diagram that shows the interaction of different types of users with the various components of the system. Administrators have special privileges that allow them to delete user access while still being able to access functionality as a regular user. Registered users can interact with the open data statistical pages as well as modify their profiles. Unregistered users can sign up or learn more about the site.

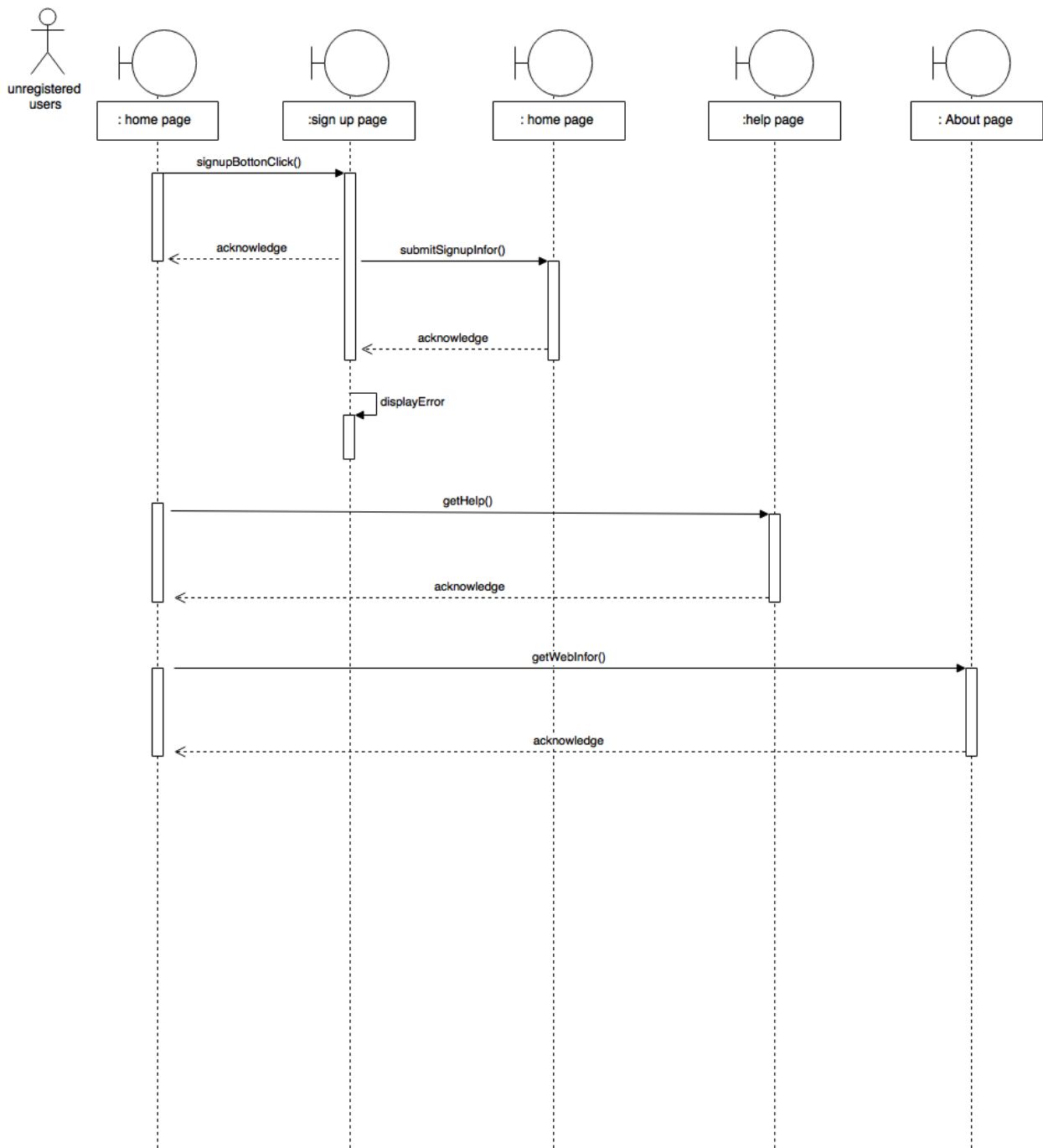


Sequence Diagrams (Added for Iteration 3)

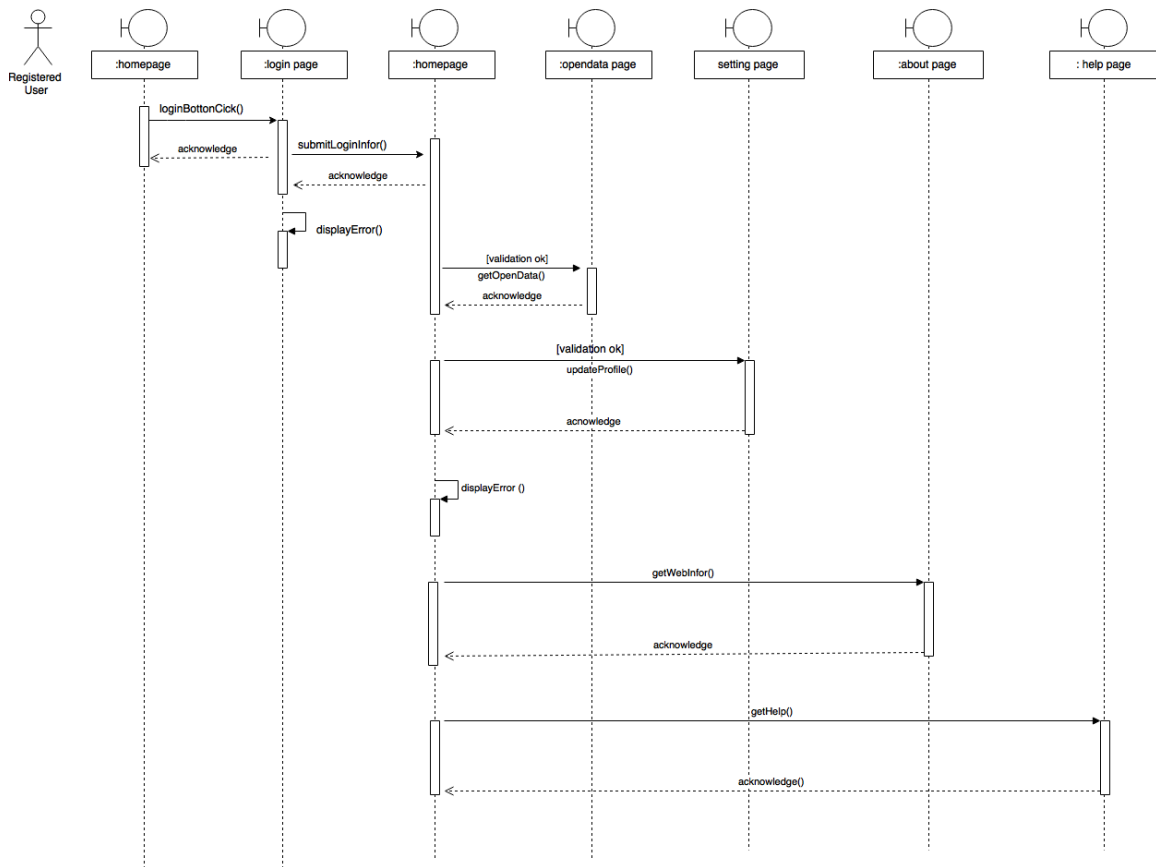
1. Administrator:



2. Unregistered User



2. Registered User



Name: Homepage - Newsfeed
Actors: Registered User, Admin User
Iteration: 3
Triggers/preconditions: user logs into the website and navigates to the homepage.
Actions/post conditions: User will see a list of news headlines scrolling in the left pane. They can select any of the headlines and be directed to full story. The news articles are pulled in from Google news aggregator and sent to a wrapper that takes the feed and presents it in a customized view
Acceptance Tests: <ul style="list-style-type: none">• The user is registered and logged into the system

Name: Homepage – Twitter Feed
Actors: Registered User, Admin User
Iteration: 3
Triggers/preconditions: user logs into the website and navigates to the homepage.
Actions/post conditions: User will see the most recent twitter postings from the official Government of Canada twitter feed.
Acceptance Tests: <ul style="list-style-type: none">• The user is registered and logged into the system

Name: Homepage – Weather Feed
Actors: Registered User, Admin User
Iteration: 3
Triggers/preconditions: user logs into the website and navigates to the homepage.
Actions/post conditions: User will see the most current weather forecast using the Weather Underground API to get a local two day forecast.
Acceptance Tests: <ul style="list-style-type: none">• The user is registered and logged into the system

Name: Homepage – Facebook Feed
Actors: Registered User, Admin User
Iteration: 3
Triggers/preconditions: user logs into the website and navigates to the homepage.
Actions/post conditions: User will see the most recent Facebook posts from the official Government of Canada Facebook page.
Acceptance Tests: <ul style="list-style-type: none">• The user is registered and logged into the system

Name: Help Page
Actors: All Users
Iteration: 3
Triggers/preconditions: user selects the help button from the top menu.
Actions/post conditions: This page provides details on how to navigate the site and information to change any user settings. If further assistance is required, the user is asked to contact an admin.
Acceptance Tests: <ul style="list-style-type: none">• The user navigates to the page by selecting it from the menu.

Name: About Page
Actors: All Users
Iteration: 3
Triggers/preconditions: user selects the about button from the bottom footer on any page.
Actions/post conditions: This page provides details on the project and its development.
Acceptance Tests: <ul style="list-style-type: none">• The user navigates to the about page by selecting it from footer.

Name: New User Sign-up
Actors: Unregistered user
Iteration: 1
Triggers/preconditions: user clicks on signup from the homepage of the website.
Actions/post conditions: User will input their name, unique email address, password and confirmation password. If everything is correctly inputted, the user will receive a confirmation message and can then login to their homepage.
Acceptance Tests: <ul style="list-style-type: none">• If the email address is an invalid format, the user is prompted with an error message and they will be asked to input a valid email (i.e. me@domain.com)• If the email address is not unique the user is prompted with an error message and they will be asked to input a valid email again.• If the user clicked on the submit button without completing any of the fields then they are prompted with an error message and they will be asked to fill in the empty field(s) again.• If the passwords do not match they will receive an error message and they will be asked to confirm password again.• If the password length is too short (minimum 6 characters) then the user will receive an error message and they will be asked to fill in a longer password.• Any fields that are incorrectly inputted will be highlighted in red with an error message explaining the problem

Name: Login Page
Actors: registered user
Iteration: 1
Triggers/preconditions: user clicks on login button from the homepage of the website.
Actions/post conditions: User will input their registered email and the corresponding password and then click on the login button. If the email and password are correctly inputted, the user will be directed to their homepage
Acceptance Tests: <ul style="list-style-type: none"> • If the email address and password combination is incorrect, the user is prompted with an error message and they will be asked to input their email and password again. • The user can also click on the "sign up now" link if they are not registered. • The email address and password is checked against the database of existing users for validity.

Name: Logout
Actors: registered user or administrators
Iteration: 1
Triggers/preconditions: user is logged in. and selects the account -> logout option.
Actions/post conditions: The user is logged out of the session and is directed back to the homepage.
Acceptance Tests: <ul style="list-style-type: none"> • The user must be logged in before the log out button appears in the account menu

Name: Change Navigation Menu
Actors: registered user
Iteration: 1
Triggers/preconditions: user is logged in. Actions/post conditions: Once the user is logged in, they will see a new menu in the top navigation bar that allows them to access the site as a registered user.
Acceptance Tests: <ul style="list-style-type: none">• The user must be logged in before the navigation bar changes.• The site creates a session for a registered user that has logged in order to maintain security and allow for a user's custom preferences to be displayed on their homepage.

Name: Administrator Login
Actors: Administrator
Iteration: 2
Triggers/preconditions: On the login page, user enters administrator credentials which for testing purposes are: Email: example@mycanada.com Password: admintest
Actions/post conditions: Users with administrator privileges can login and access administrator functionality that will let the admin list all users registered with the system and the option to delete any user. When an administrator logs in they will be given an additional menu item at the top of the page called "users" – when they click on this link they will be presented with a list of all users registered with the website. If an administrator selects a particular user, then they will be given the relevant profile information associated with that user.
Acceptance Tests: the page is protected from access from any user that is not an administrator with proper admin credentials that are set by the developer in the database. <ul style="list-style-type: none">• If a user tries to access the page directly by manually entering the URL, they will be redirected to the home screen• If the login is not of the "administrator type" but is a valid registered user, then the regular user access exists• The only method by which administrator access is granted is by setting the boolean value in the database to yes, that indicates that a user is an administrator.

Name: Delete User
Actors: Administrator
Iteration: 2
Triggers/preconditions: The user logged in has been given administrator privileges by the developer.
Actions/post conditions: From the listing of users accessed from the “users” menu, the administrator will click “delete” beside the name of a user. A confirmation dialog will appear that asks the admin user if they are sure they want to delete the user, if no is selected they will be taken back to the users listing page, if yes is selected then the user is deleted from the list and they will not be able to log in to the website.
Acceptance Tests: <ul style="list-style-type: none"> • Admin user cannot delete themselves – they will appear in the listing as a user but there will be no delete option • Confirmation dialog to ensure that the desired action was not the result of a mistake • Only the admin can access this page – it is protected from access by any other user that has not been given admin rights by the developer • Upon delete, the record for the user is deleted from the database

Name: Change Email
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: User is a registered or admin user that is currently logged into a session and they select the settings menu option from the “Account” drop down
Actions/post conditions: User types in a valid email address into the “email” field and selects “save changes. If the email is verified and the changes have been made, then the users is given a conformation message and directed to their “profile page.”
Acceptance Tests: email address is verified to be a of a correct email format i.e. <u>something@where.com</u> <ul style="list-style-type: none"> • If the format of the address is incorrect then the user is prompted with an error message asking that the email address needs to be reentered • If the email address is already in use by another user, then the user is prompted with an error message so that they should type in another address • If the field is left blank and the “save changes” button is pressed then the field is not update in the database but any fields that are changed will be verified and saved.

Name: Change Username
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: User is a registered or admin user that is currently logged into a session and they select the settings menu option form the "Account" drop down
Actions/post conditions: User types in a new username into the "Name" field and selects the "Save Changes" button. There are not many restrictions on the usernames format and it does not require case sensitivity or uniqueness since the main identifier for a user on the system is a unique email address and a valid password.
Acceptance Tests: <ul style="list-style-type: none"> • Maximum length of a user name is 50 characters • Usernames do not have to be unique • Usernames are not case sensitive • If the field is left blank and the "save changes" button is pressed then the field is not update but any fields that are changed will be verified and saved

Name: Change Password
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: User is a registered or admin user that is currently logged into a session and they select the settings menu option form the "Account" drop down
Actions/post conditions: User types in a new password into the "Password" field and reenters the same password into the "confirmation" field. If the password is successfully changed, the user is given a confirmation message and is directed to their profile page.
Acceptance Tests: The password is verified to be of a particular format. <ul style="list-style-type: none"> • Both password and confirmation fields must match • The password must be at least 6 characters long • If the two fields do not match, an error explanation is displayed at the top of the screen along with highlighting of the fields that caused an error.

Name: Open Data Page - Population
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Population".
Actions/post conditions: The population page contains a breakdown of population among many different metropolitan areas around Canada between the years 2011 and 2014. The charts allow the user to select which data series to use, giving the user control over their experience and how much information is presented to them at once. Below the main graph there are four smaller graphs, splitting up the metropolitan areas based on geography. These allow for an easier view of how each city has grown over the time frame given.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

Name: Open Data Page - Pollution
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Pollution".
Actions/post conditions: The pollution page contains a breakdown of pollutants emitted in Canada from 1990 to 2011 in comparison with the levels from 1990. The graph allows the user to select specific pollutants, giving them control over which pollutants they want to see compared.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

Name: Open Data Page - Economic
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Economic".
Actions/post conditions: The economic page provides an overview of earnings for different kinds of families in the years 2007 to 2011. It contains many graphs of this data, with the averages of certain kinds of families' earnings compared in each graph. It also gives the exact average earning in a year when the user places their cursor over a data point.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

Name: Open Data Page - Weather
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Weather".
Actions/post conditions: The weather page has graphs showing information about the precipitation in different locations throughout Canada. The graphs are based on information about the averages between the years 1971 and 2000. There is a graph showing the total average precipitation, a graph showing the average snowfall, and a graph showing the average number of wet days in a year. These graphs can be modified to show information only about specific cities at the user's discretion.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

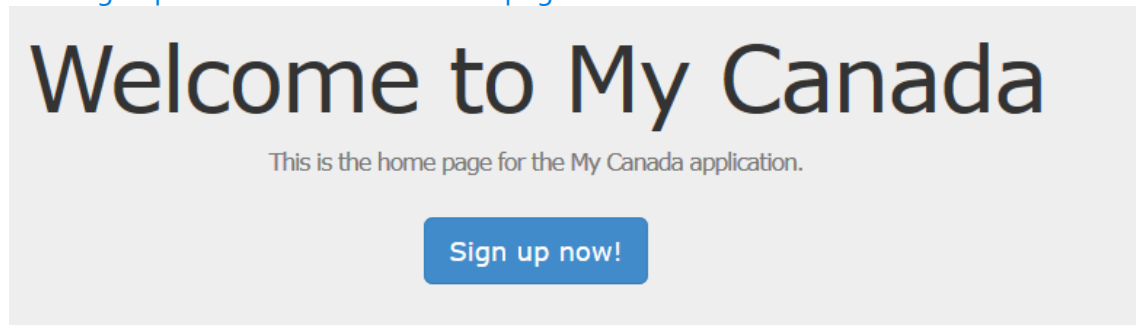
Name: Open Data Page - Education
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Education".
Actions/post conditions: The education page provides graphs for the money spent on educating students. The information is about education trends from 1998 to 2014. There is a graph for the average education assistance payments per year, and a graph for average post-secondary withdrawals per year. The graphs give a visual representation of the data, as well as allowing the user to see the average when the cursor is placed over a data point.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

Name: Open Data Page - Crime
Actors: Regular User, Administrator
Iteration: 2
Triggers/preconditions: The user needs to be logged in to the system and their current session is active. They have clicked on the Open Data navigation menu and clicked on "Crime".
Actions/post conditions: The crime page contains graphs giving information related to crime in Canada. There is a graph showing the total number of crimes in each province in 2000, a graph displaying the types of offences and their proportions in 2000, and a graph showing the strength of police forces from 1986 to 2014. These graphs can be manipulated to pick out specific pieces of data, and allow the actual numbers to be shown when the cursor is placed over a data point.
Acceptance Tests: <ul style="list-style-type: none"> • The page is not navigable to anyone not logged in to the system. • The user's current session must be active.

User Interface Requirements

Unregistered Users:

These users can sign up to become part of the “registered users” class, by clicking on the “Sign up now” link from the homepage:



By clicking on the “Sign up now” button, the user is directed to the sign up page, where they can enter a username, a (unique) email address and a password in order to register as a user of the system:

Sign Up

Name

Email

Password

Confirmation

[Create my account](#)

If there any errors in the sign up information, the user is notified with an informative error message to help them correct any problems:

Sign Up

The form contains 3 errors.

- Name can't be blank
- Email has already been taken
- Password confirmation doesn't match Password

Name

Email

sunny4@canada.com

Password

••••••••

Confirmation

Create my account

If the user is already registered then from the home page they can select the "login" option from the top menu:

Home

Help

Log in

This will direct them to the log in page where they may enter their credentials:

Log in

Email

sunny4@canada.com

Password

••••••••

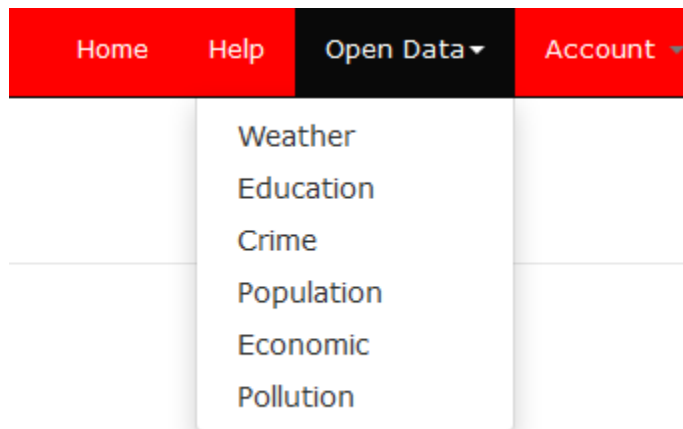
☐ Remember me on this computer

Log in

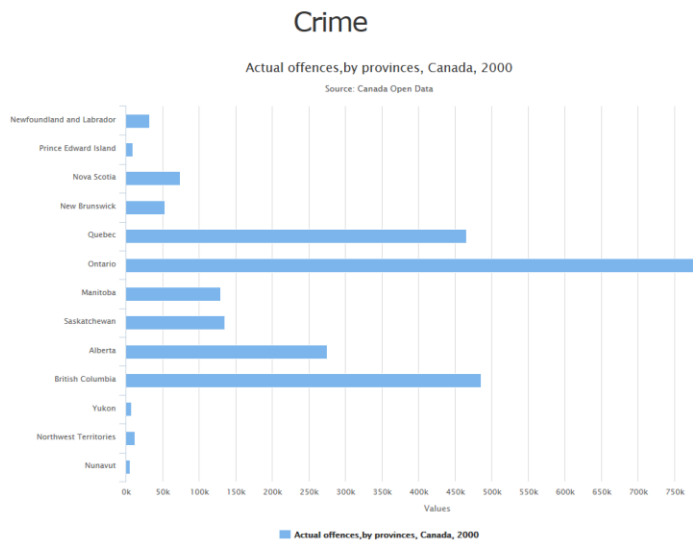
New user? Sign up now!

Registered Users and Administrators:

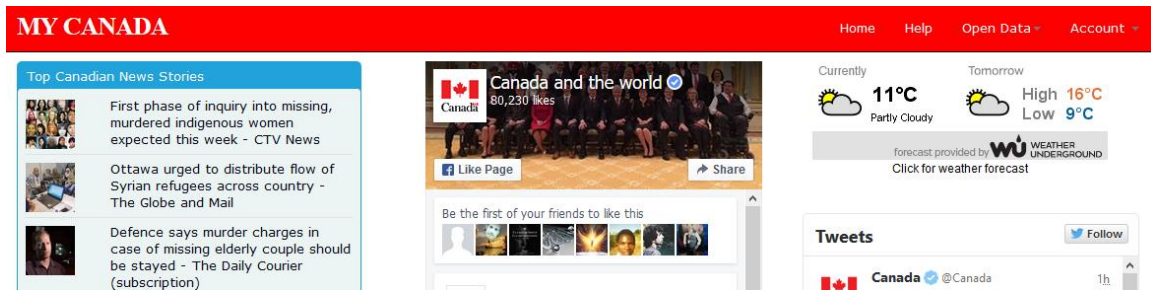
Once a user is logged in they can select any of the “Open Data” pages from the drop down menu. The menu will only appear at the top of the screen once a user is logged in and validated:



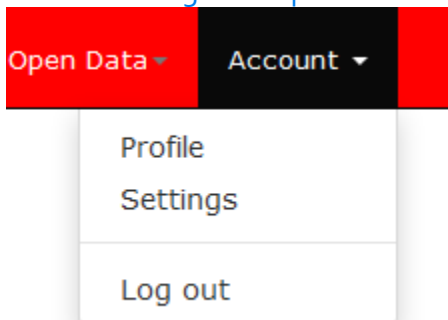
Each one of the open data pages will allow the user to explore statistical data about Canada (i.e. Crime):



The homepage implementation for iteration 3 includes access to social media (Twitter and Facebook), weather updates and a newsfeed aggregator:



Registered users can select the “settings” option from the “account” dropdown menu in order to change their personal settings:



This will direct them to the settings page, where they can fill in any relevant field they wish to change or leave a field blank if they don't want to change it (i.e. user can just change their username without entering a new password):

Update your profile

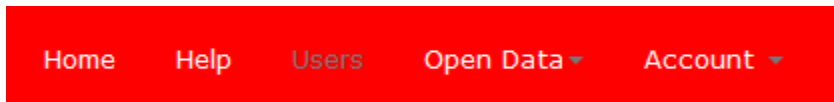
Name

Email

Password

Confirmation

Administrators can login from the regular login screen; their profile information stored in the database is flagged to allow for special privileges when they login. In the picture below, an admin user has access to a “Users” menu that can be selected to show all users on the system:



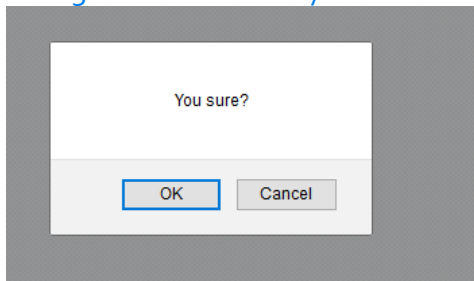
Administrators have the option to delete any users (but themselves) from a list once they select the “users” option:

All users

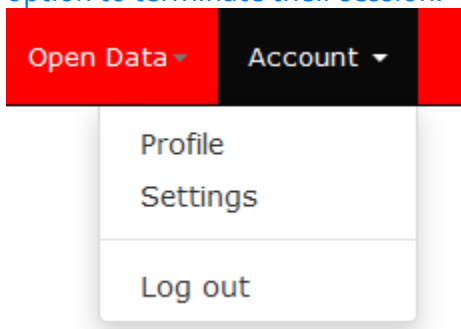
Admin User

sunny | delete


Once the admin selects the “delete” option, they are presented with a confirmation dialog that ensures they selected the right action:



When any registered user is done navigating the website, they may select the “logout” option to terminate their session:



Login page: For registered users and administrators

My Canada 


Email

Password

New User?

[Sign up](#)

Signup Page: Allows for new users to signup

My Canada 

Sign up

Email

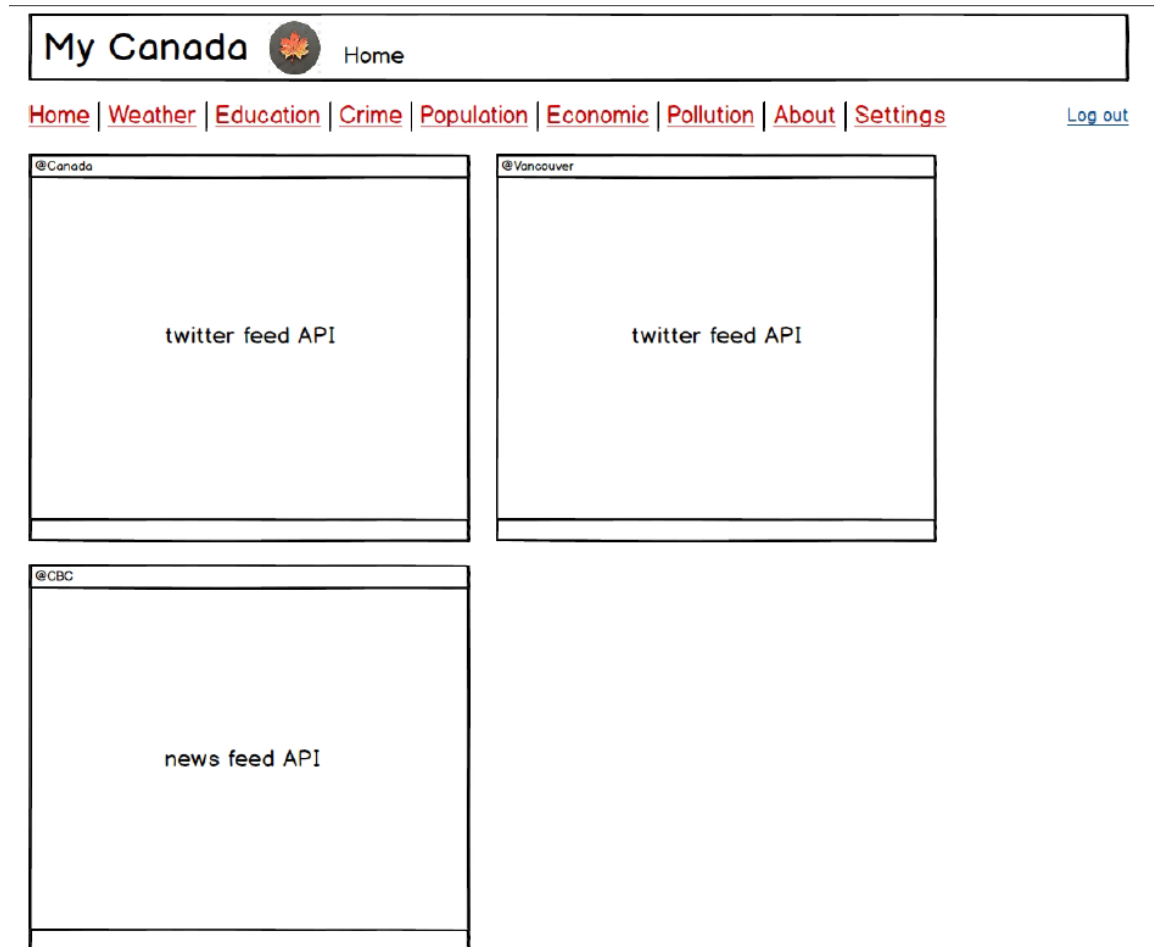
Password

Confirm Password

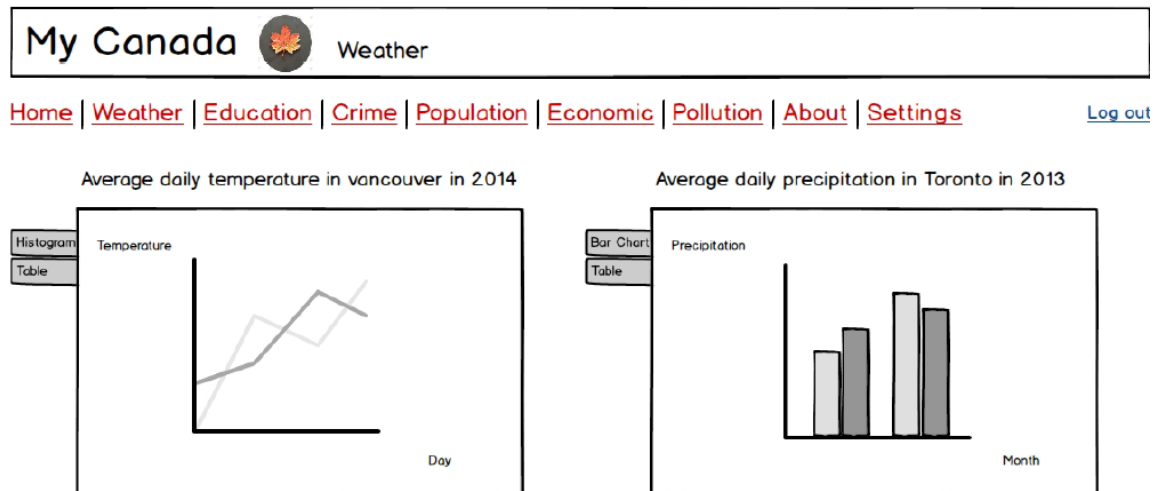
Province

City

Custom User Homepage: Homepage that will be displayed for a logged in user that will show them twitter and news feeds for different Canadian regions and allow them to access the open data portal through the links at the top of the page.



Open Data Navigation: there will be an individual page for each open data option that shows different customization for presenting the variables in the dataset that are displayed in a chart. Different charts will be used to depending on the data set chosen such as pie charts, line graphs or bar graphs.



Users Settings Page: allows for users to select which feed from the social media API they would like displayed (i.e. @CityofVancouver from Twitter)

The screenshot shows the 'My Canada Settings' page. The header includes the 'My Canada' logo and a 'Settings' title. The navigation bar lists: Home, Weather, Education, Crime, Population, Economic, Pollution, About, Settings, and a Log out link. The main content area has a sidebar with 'Home', 'Weather', 'Education', 'Crime', 'Population', 'Economic', and 'Pollution' filters. The main content area displays a list of social media feeds with 'delete' and 'add' buttons.

Home	
@Canada	delete
@Vancouver	delete
@CBC	delete
add	

Weather
Education
Crime
Population
Economic
Pollution

Github Repo URL:

<https://github.com/travelln/CMPT-276-Group-9>

Deployed Project URL on Heroku:

<https://secret-garden-3861.herokuapp.com/>