CPS 406 Second Iteration Report

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Group 10

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CYPRESS

City of Toronto Problem Reporting and Solution System

Requirements Document

1. Introduction

1.1 Purpose:

The Cypress system is designed to allow citizens to report problems that concern them about their city that they notice on the streets. Along with that they will be able to follow up on the status of their problem from when it is first reported and until a solution is found.

This document outlines the features of the CYPRESS system which will illustrate the guidelines of the developers and provide the client with the necessary software validation document.

1.2 Scope:

The following describes what features are in the scope of the software and what are not in the scope of the software to be developed. *In Scope:*

a. Managing reported problems from citizens, which includes maintaining information about the citizens as well as maintaining their profiles, their complaints, their suggestions and maintaining their privacy and security.
b. Computing the amount of complaints per a specific problem and elevating that problem on the list of problems that are known on a priority list.
c. Providing the unique user who first reported about a specific problem with an email outlining what the user of the Cypress system (City of Toronto Road Safety Officials) plans to do to resolve the issue and also provide a minimized version of this solution to all others who have reported a similar or the same problem.
d. Downloading the most current map of the City of Toronto from the web in order to stay precise and up-to-date for the citizens who wish to report problems they have noticed. e. User authentication. *Out of Scope:*

a. Features for allowing citizens to get involved beyond the jurisdiction of this system to solve a particular problem.
b. Any other city related issues like parking tickets, building construction issues or any other city related problems.

1.3 Definitions, Acronyms, and Abbreviations:

Acronyms and Abbreviations:

a. CYPRESS: City of Toronto Problem Reporting and Solution System
b. SRS: Software Requirements Specification.
c. WWW: World Wide Web.
d. GUI: Graphical User Interface.
e. CYTRSO: City of Toronto Road Safety Officials (Users)

Definitions:

a. Problem: A real event that involves property damage to the City of Toronto. In the context of potholes, utility failures, tree collapse, flooded streets, property vandalism, mould and spore growth, eroded streets and garbage/ road obstructions.

b. Security: A set of characteristics which must match when an entity logs in with a specified user name in order to be given access to the system.

c. Portfolio: A set of data for a particular user who is active in the system.

1.4 References:

Appendix A: User Screens.

1.5 Overview:

The following topics of the SRS are organized as follows: Section 2 gives an overall description of the software. It gives what level of proficiency is expected of the user, some general constraints while making the software and some assumptions and dependencies that are assumed. Section 3 gives specific requirements which the software is expected to deliver. Functional requirements are given by various use cases. Some performance requirements and design constraints are also given. Section 4 gives some possible future extensions of the system. Finally the appendices in Section 5 describe respectively the user screen.

2. Overall Description:

2.1 Product Perspective:

CYPRESS is tailored towards people who value their environment and want to make it a better and safer place for others. CYPRESS should be a simple piece of software that allows a citizen to report a city road or property problem to CYTRSO, the users at the Toronto City Council. CYPRESS should provide a user friendly map that allows the user to pinpoint the exact location of the problem that they are reporting, hence making it easier for the city workers to fix the problem as soon as possible. CYPRESS will also make sure to notify the user when the city has received their report and as well if steps have been taken to solve the problem. In order to ensure that no false reports are being posted, CYPRESS will check with a list of citizens that reside in Toronto, thus making the whole CYPRESS program a faster way to make the city better and safer.

2.2 Product Functions:

CYPRESS should support the following use cases:

Class of use cases	**Use cases**	**Description of use cases**	**Implemented?**
Use case related to System authorization	Login	*Login in to CYPRESS*	*Yes*
	Cancel	*Moving away from login page*	*Yes*
Use case related to the select language	English	*Move User to English page*	*Yes*
	French	*Move User to French page*	*Yes*
Use case related to Registering	Enter Information	*User enter their information to register*	*Yes*
	Create Username	*User chooses a username*	*Yes*
	Create Password	*User chooses a secure password*	*Yes*
Use case related to information change	Change Information	*User changes their information*	*Yes*

Use case related to creating report	Create Report	*User chooses to create a report about a specific location*	*Yes*
Use case related to editing report	Edit Report	*User chooses to edit the report that they have created*	*Yes*
Use case related to deleting report	Delete Report	*Use chooses to delete the report*	*Yes*
Use case related to rankings of report	Rankings	*Rank each report based on the location and how many complaints of the same report has been received*	*Yes*
Use case related to resolution	Report resolution	*System notifies city council about the report*	*Yes*
Use case related to notification	Notification	*System notifies the user if their report has been taken in to consideration*	*Yes*
Use case related to FAQ	FAQ Questioning	*System show a list of common question and answer for the user*	*Yes*
Use case related to Contacting	Contacting	*System provides a list of contact information for the user*	*Yes*
Use case related to logout	Logout	*System logs the user out and saves the last saved input*	*Yes*

2.3 User Characteristics:

a. The User should be reliable.
b. The User should know the details and location of the problem.
c. The User must have a fair bit of knowledge about the city of Toronto (current mayor, streets, laws, etc.).
d. The User must have sufficient vocabulary skills and adequate grammar.
e. The User must be competent when using a computer and the internet, and know that nothing is completely confidential but privacy from the city's side is guaranteed.

2.4 Principal Actors:

The two principal Actors in CYPRESS are "user" and "system".

2.5 General Constraints:

a. For full working CYPRESS requires Internet connection.
b. CYPRESS is single-user software that takes user input.

2.6 Assumptions and Dependencies:

a. Full working of CYPRESS is dependent on the availability of Internet connection.
b. Access to CYPRESS is found in www.toronto.ca/cypress .CYPRESS would not work on any other website.

3 Specific Requirements:

3.1 Functional Requirements:

We describe the functional requirements by giving various use cases.

Use cases related to initial visitation to CYPRESS website:

Use Case 1: Language Selection

Primary Actor: User
Precondition:None
Main Scenario:

1. User arrives at website; default language is set to English Alternative flow:

1. (a) User changes language

1. (a)1. User clicks on language option button to change language to French

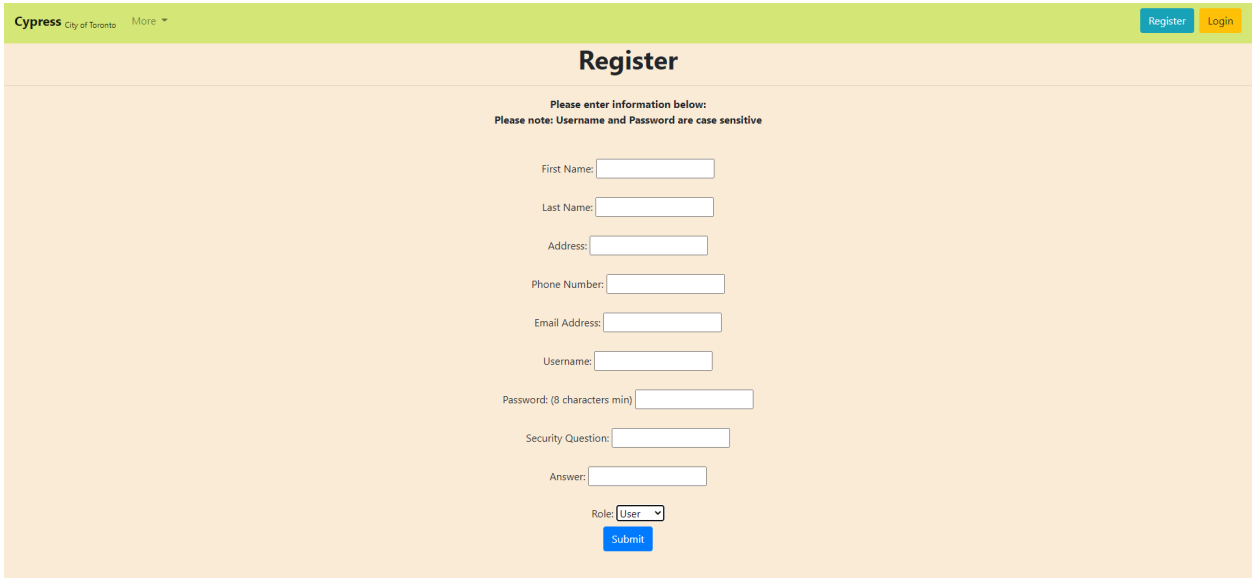
Use Case 2: Registration

Primary Actor: User
Secondary Actor: System
Precondition: None Main Scenario:

1. User goes to the website, and clicks the register option button and is redirected.
2. User must agree to terms and conditions of this site
3. User provides personal information and login name and password
4. System checks that password is secure enough and login name is free Alternative flow:

4. (a). Login name/ password is not secure

4. (a)1. User is re-prompted to enter new login name / password
5. User is taken back to main page of website



Use Case 3:
Login Primary
Actor: User
Secondary Actor: System
Precondition: User must be registered.

Main Scenario:

1. Go to website and click member's area tab
2. User gives login info
3. System checks user info
4. Members area is displayed

Alternate Scenario:

4. (A) Login fails

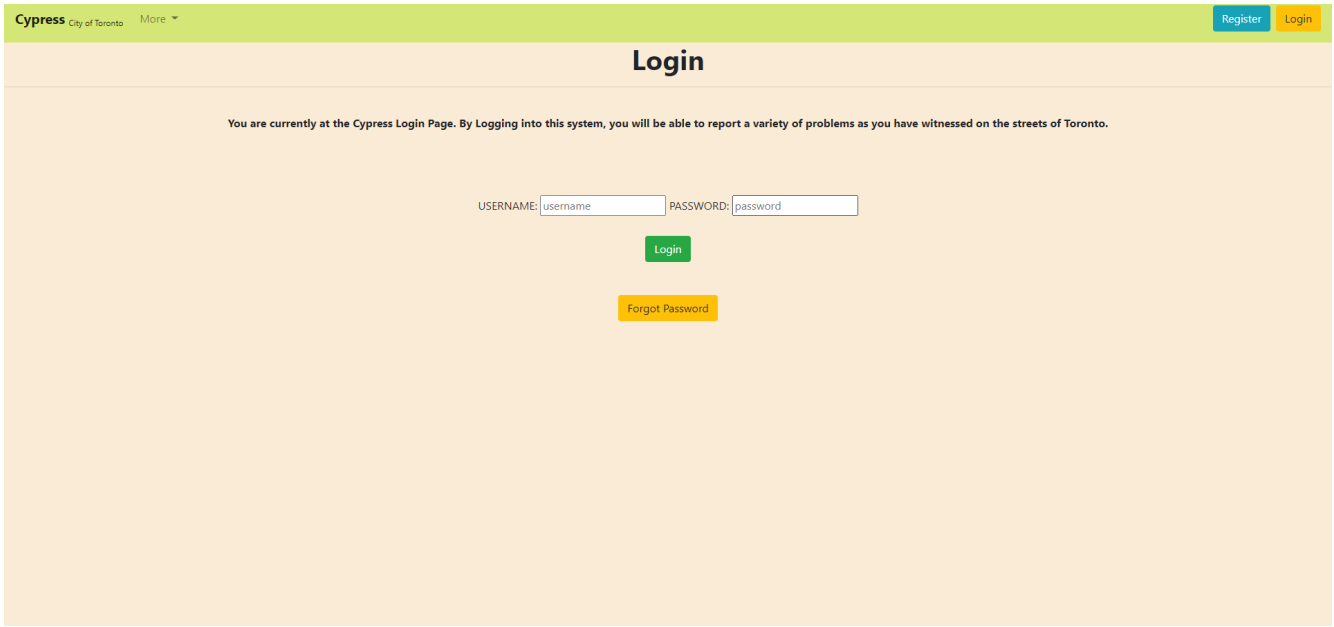
4. (A) 1. Re-prompt for login info

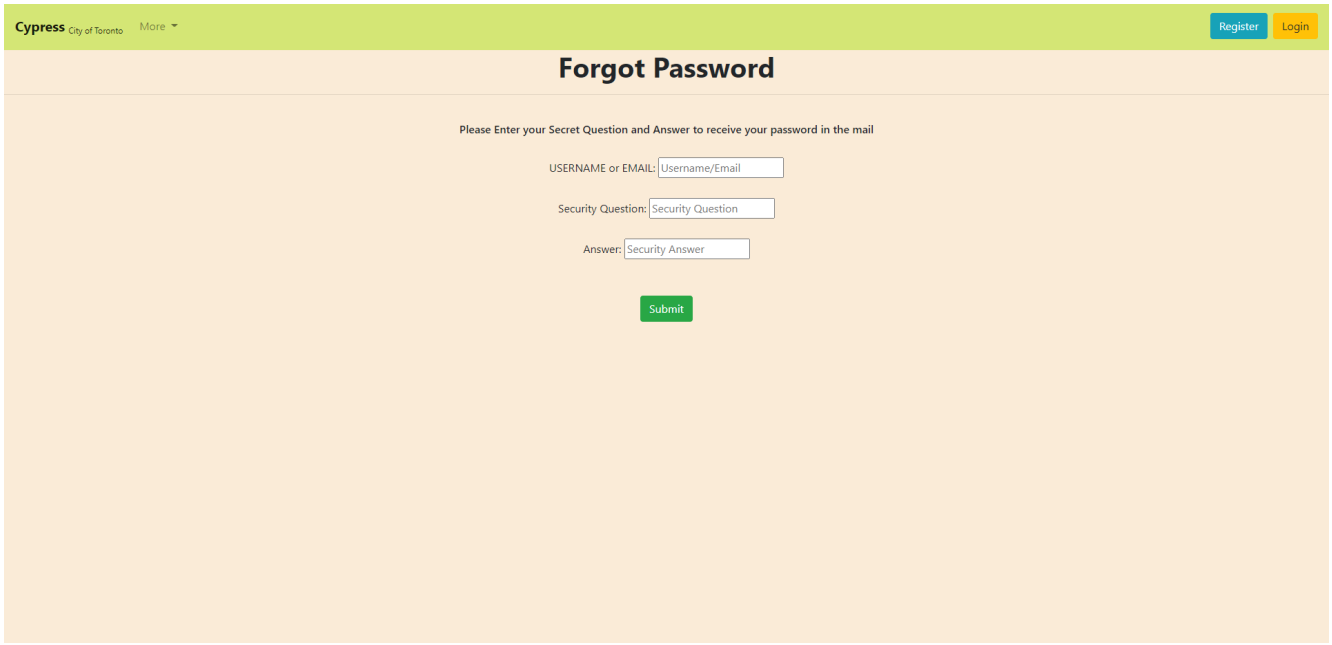
4. (A) 2. User is allowed to enter info 3 times before being banned for an hour

4. (B) User forgot password

4. (B)1. User is prompted for answer to secret question

4. (B)2. System checks to see if answer is right and if answer is right, sends password to email account


Cypress City of Toronto
More
Register
Login
Login
You are currently at the Cypress Login Page. By Logging into this system, you will be able to report a variety of problems as you have witnessed on the streets of Toronto.
USERNAME: username
PASSWORD: password
Login
Forgot Password


Cypress City of Toronto
More
Register
Login
Forgot Password
Please Enter your Secret Question and Answer to receive your password in the mail
USERNAME or EMAIL: Username/Email
Security Question: Security Question
Answer: Security Answer
Submit

Use cases related to User profiles:

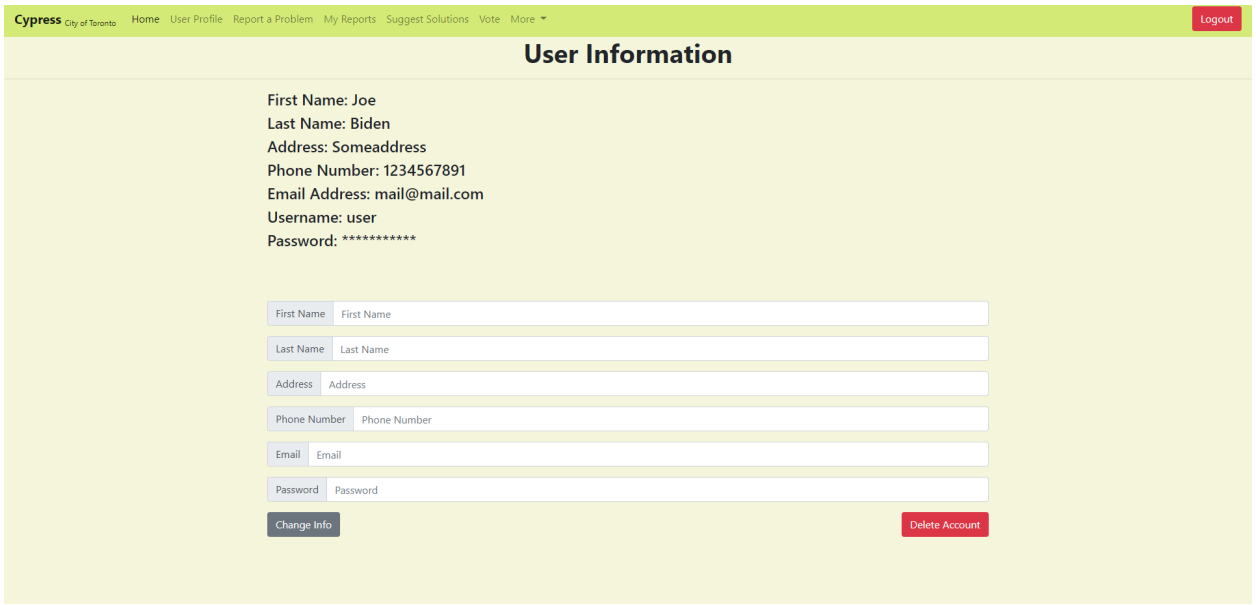
Use Case 4: Change Information

Primary Actor: User Precondition:
logged in Main Scenario:

1. User clicks on profile info tab
2. All the profile info is displayed (password, address, number, etc.)
3. User clicks save and exit when done changing profile Alternate Scenario:

3. (b) If not all required fields are filled out

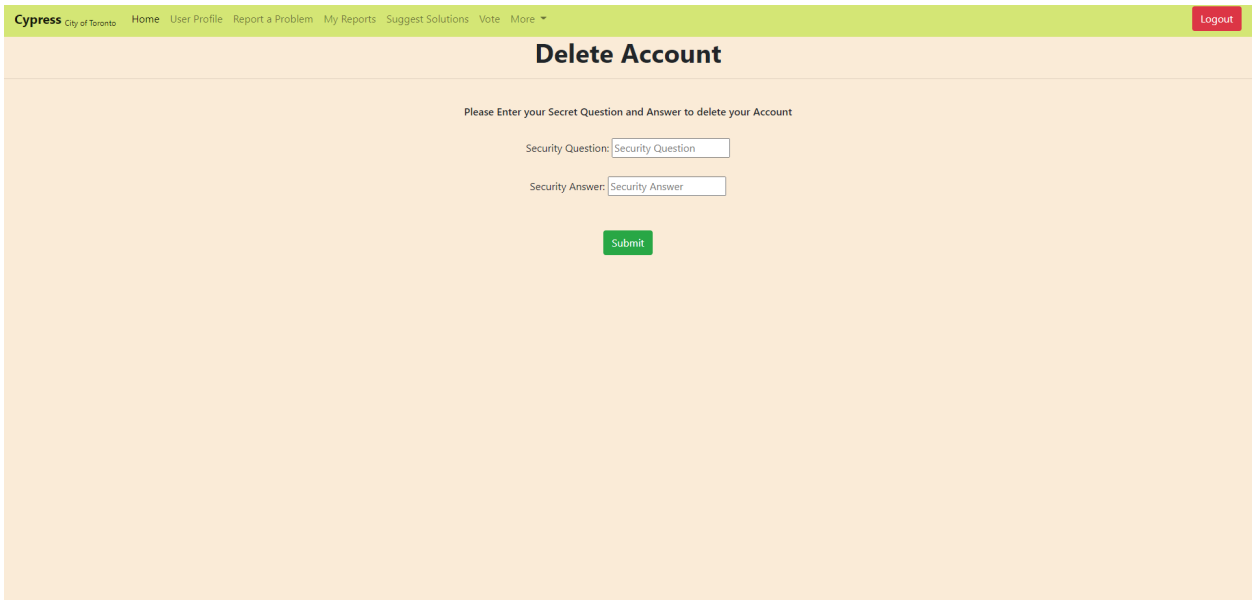
3. (b) 1. User has to fill in the required fields before exiting



Use Case 5: Delete Profile

Primary Actor: User
Precondition: User is logged in Main
Scenario:

1. User clicks delete profile tab
2. User is prompted for answer to secret question (to make sure it is the correct person)
3. User is prompted if he or she is sure they want to delete profile
4. User is prompted for reason for leaving (to better improve our customer service)
5. User information is erased from system along with reports



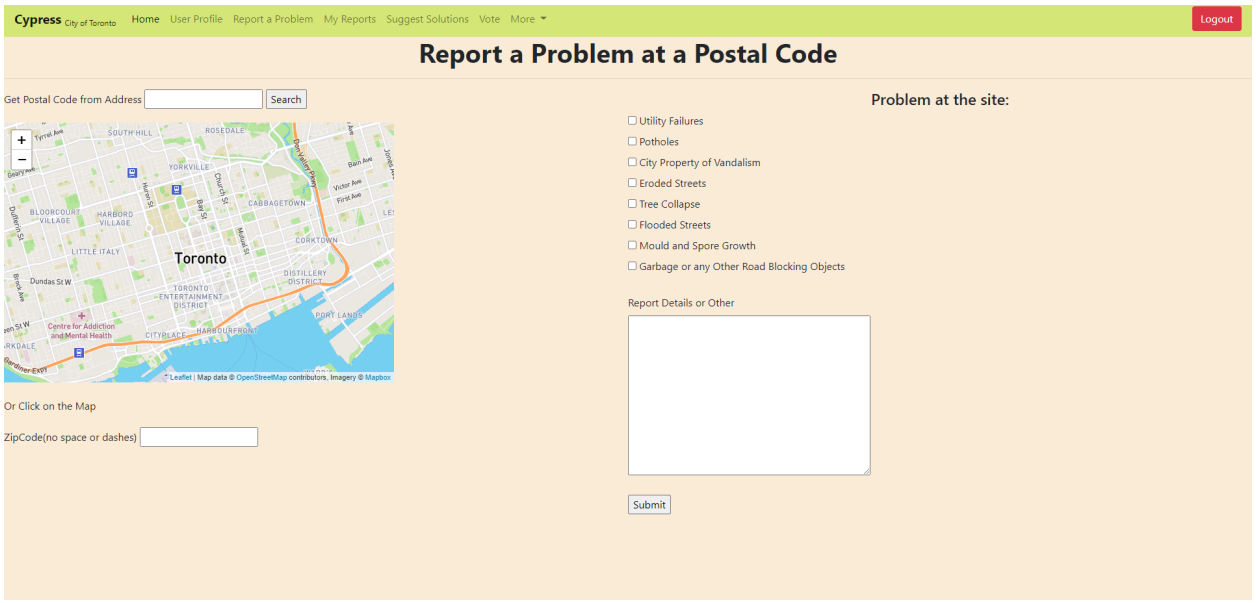
Use cases related to reporting problems:

Use Case 6: Create Report/ Report a Problem

Primary Actor: User
Precondition: User is logged in Main
Scenario:

1. User clicks on create a report tab
2. User is prompted for a location on the city map
3. User is prompted for a complaint about the selected area 4. User then saves report and exits Alternative flow:
4. (a) a required field is missing and user cannot save and exit

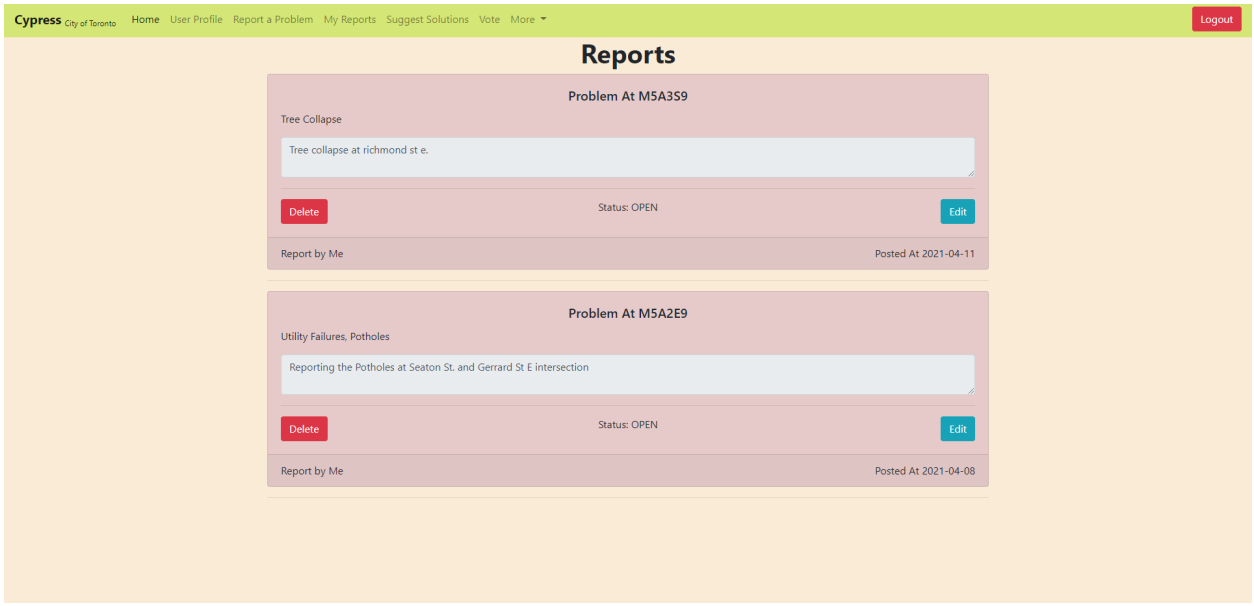
4. (a)1. User is prompted for information the required field

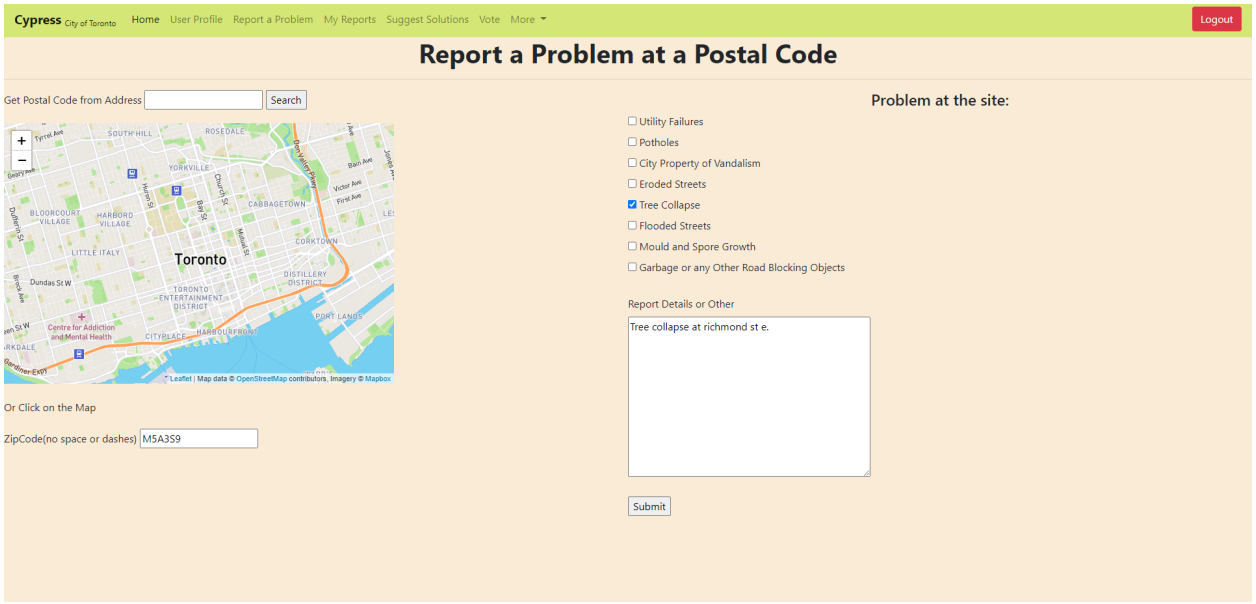


Use Case 7: Edit Report

Primary Actor: User
Secondary Actor: System
Precondition: User is logged in Main
Scenario:

1. User clicks edit report tab
2. System displays a list of all the Users reports are displayed
3. User clicks on a report to change
4. User is prompted for city area via a map
5. User is prompted for a problem. User then saves report and exits
   Alternative flow:
6. (a) A required field is missing and the User cannot save and exit 6.
   (a)1. User is prompted for information the required field

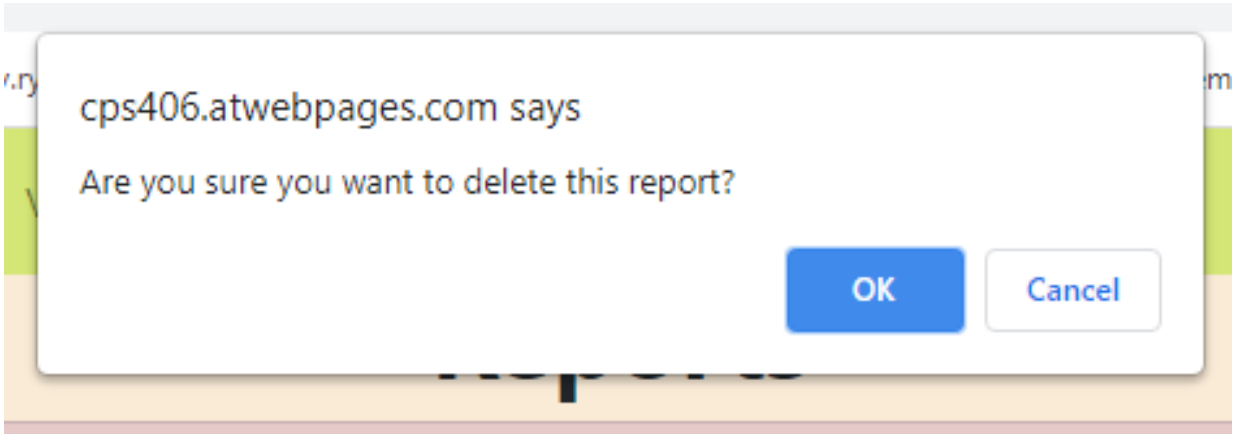




Use Case 8: Delete Report

Primary Actor: User
Secondary Actor: System
Precondition: User is logged in Main
Scenario:

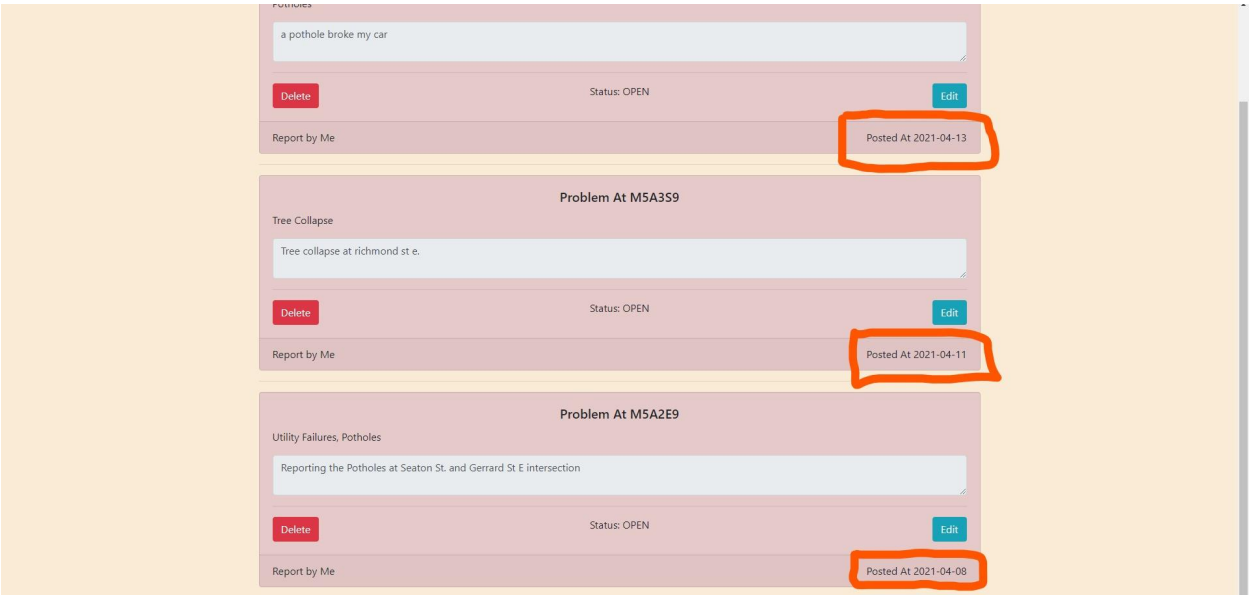
1. User clicks delete report tab
2. System displays a list of all the Users reports are shown
3. User clicks on a desired report to delete
4. System prompts the User if he/she is sure before deletion of report



Use cases related to Report Resolution and User Notifications:

Use Case 9: Ranking
Primary Actor: System Precondition:
None Main Scenario:

1. System sorts all the reports and checks for patterns
2. System checks where the most problems are coming from
3. System checks which problem is most frequent
4. System then ranks the type of problem and part of town from good to bad



The system ranks each report from most recent to oldest.

Use Case 10: Report Resolution

Primary Actor: System
Secondary Actor: City Officials
Precondition:
None Main Scenario:

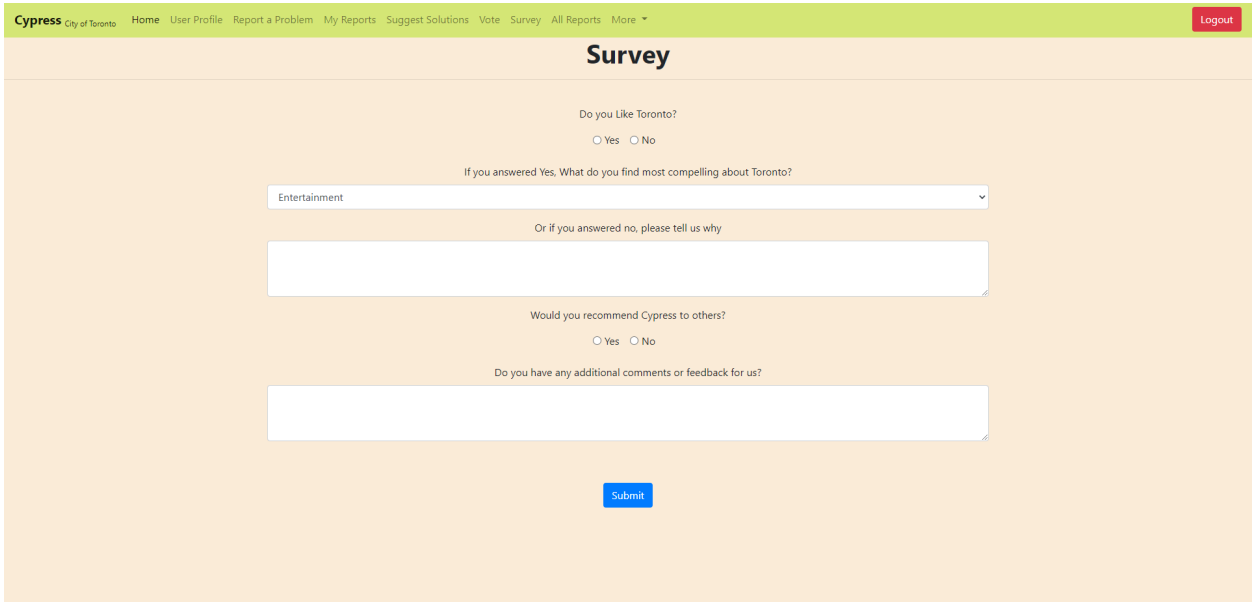
1. System notifies city officials about the problem
2. City Officials try their best to resolve conflict and the gets back to the system tech with the course of action being taken
3. System notifies the User that the problem has been resolved and thanks them for their contribution to society.

Use Case 11: Notify
Primary Actor: User Precondition:
None Main Scenario:

1. User is prompted to part-take in a survey about the city
2. User accepts and answers all the questions in the survey and submits

Alternative flow: 2. (a) User declines request and continues to site

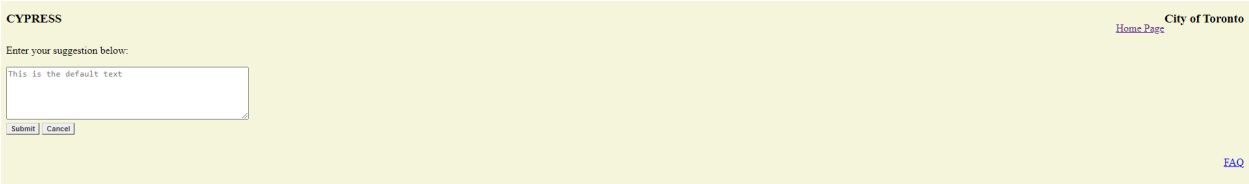
3. Results for survey are stored and tallied up



Use cases related to other features of the CYPRESS website:

Use Case 12: Suggest
Primary Actor: User
Secondary Actor: System
Precondition: None Main Scenario:

1. User clicks suggest tab
2. System displays a list of reports to the User
3. User clicks on the report and options are shown Alternative flow
   3. (a) User clicks like button
   3. (b) User suggests a possible solution for the problem and submits it

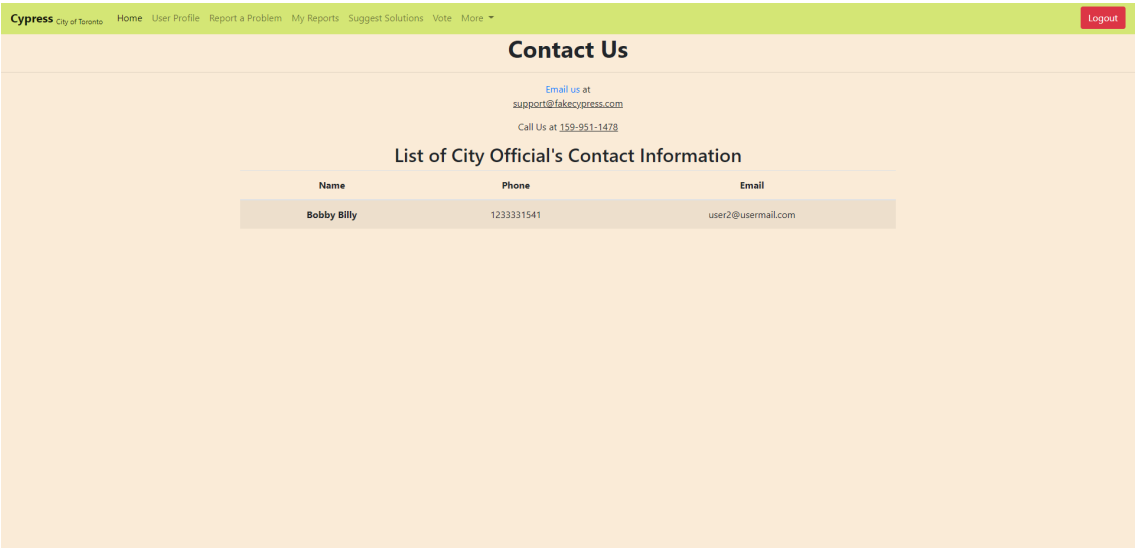


Use Case 13: Contacting

Primary Actor: User
Secondary Actor: System
Precondition: User needs to speak to someone from the CYTRSO.

Main Scenario:

1. User clicks on contact us tab
2. System displays a list of city officials to choose from
3. User picks city official and contact information and office hours are displayed.



Use Case 14: FAQ Questioning

Primary Actor: User
Precondition: User is unsure about a specific matter.

Main Scenario:

1. User clicks FAQ tab
2. A list possible/ most common answers is shown to the User Alternative flow

2. (a) User scrolls down and reads each problem

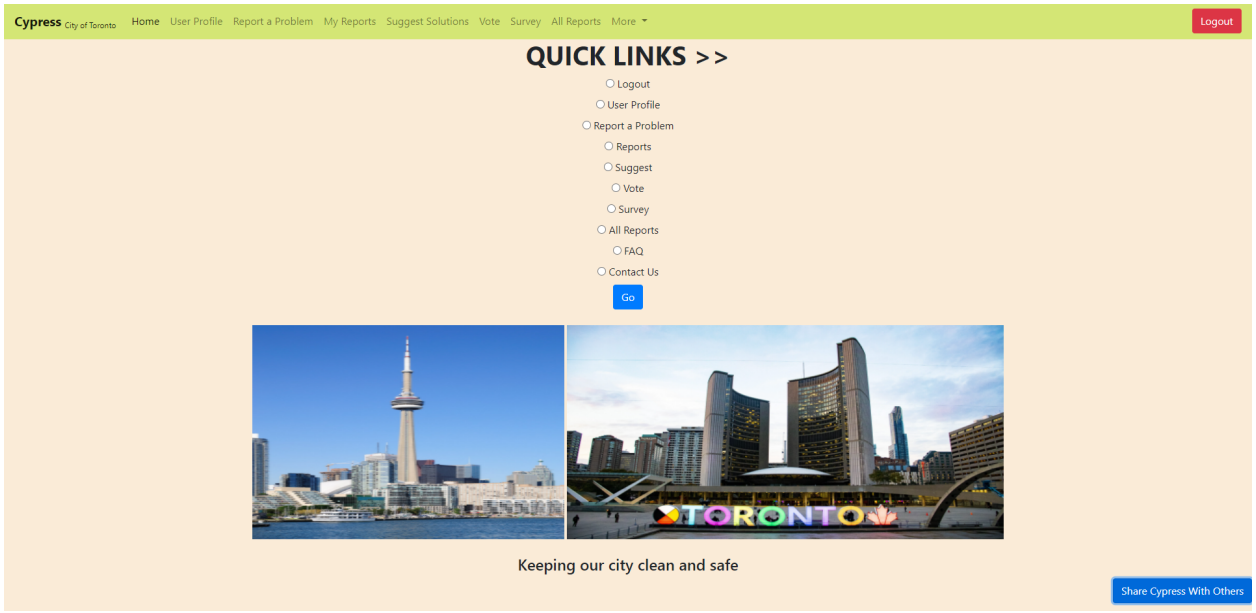
2. (b) User clicks on question category and is brought to the question and answer immediately

Use Case 15: Redirecting Primary Actor: User Precondition:None Main Scenario:

1. Go button is to finalize the decision after clicking on a tab, takes User to selected page

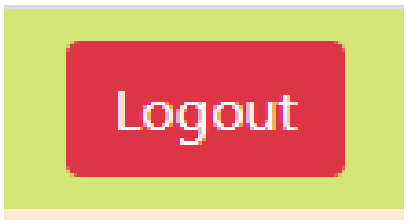
   Alternative flow

   1. (a) User has not clicked a tab. Nothing happens in this case and the User screen remains active.



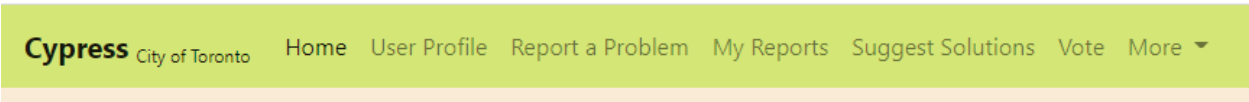
Use Case 16: Logout
Primary Actor: User
Precondition: User is logged in.
Main Scenario:

1. User clicks logout button
2. User is redirected to the main page of the site



Use Case 17: Home
Primary Actor: User Precondition:
None Main Scenario:

1. User clicks on home tab
2. User is redirected to main section of the members area



Use Case 18: Tell a friend Primary Actor: User

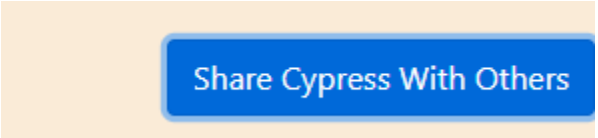
Precondition: User wishes to spread the word about the Cypress website.

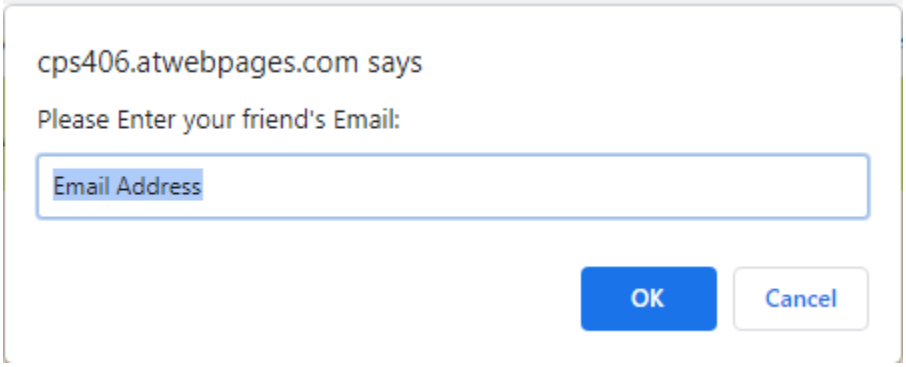
Main Scenario:

1. User clicks on tell a friend tab
2. User is prompted for friends email address
3. User is prompted to add a personal message Alternative flow

3. (a) User can decline to add a personal message

3. (a)1. A default message is sent instead





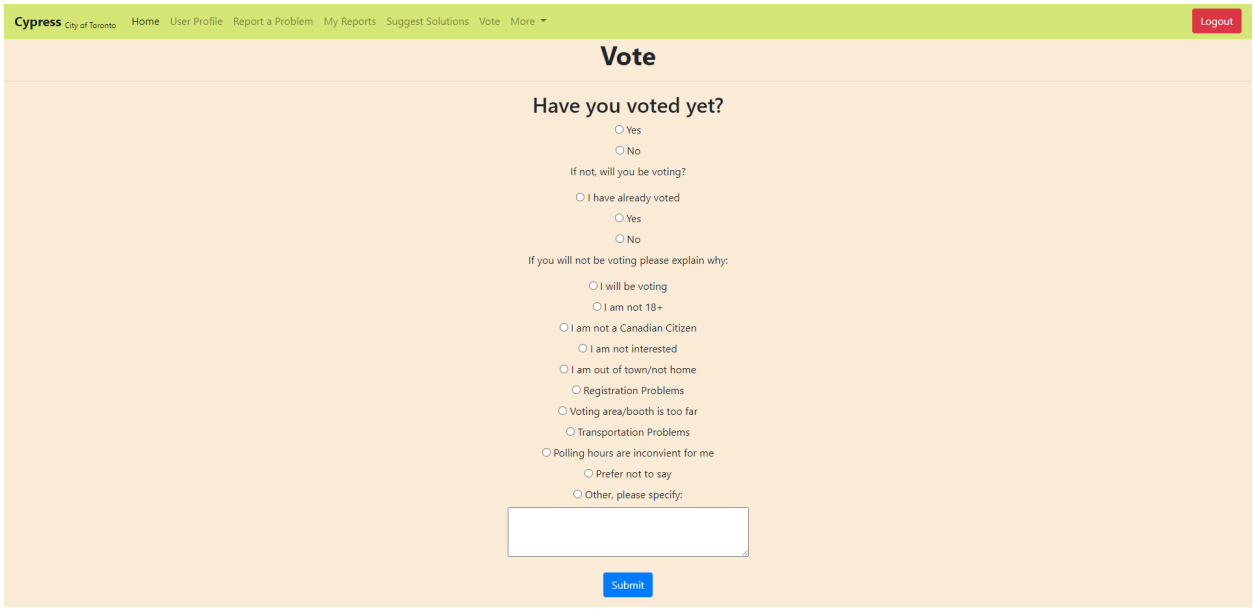
Use Case 19: Vote

Primary Actor: User

Secondary Actor: System

Precondition: None Main Scenario:

1. User clicks on the vote tab
2. Systems displays a list of options to vote from
3. System tracks the number of votes and displays the results thus far to User via an email message to Cypress account.



3.2 Performance Requirements:

(a) Should run on 500 MHz, 64 bit MB machines.

(b) Majority of responses which include buttons and page transitioning should be quick and respond within 2 seconds, except when loading the map function which will take more time.

(c)

3.3 Design Constraints:

1. *Accessibility:* Anyone should be able to understand the layout of the website and to navigate it without issue.
2. *Reliabili*ty*:* People should be able to easily login and check or submit any problems without issue and be notified as soon as possible.

3.4 External Interface Requirement

(a) The front page has the name of the site and the city of Toronto logo under it and two buttons under the logo. The two buttons are for either English or French which the user may choose.

(b) The main page is split into two panes; the right contains images of the city and the site motto under it, the left contains options the user may choose from such as Register, Login, Report a Problem, Suggestion, Vote, FAQ, Contact Us.

(c) In the register page, multiple field and text boxes are placed asking for personal information such as name, address, phone number. Under theses boxes are two buttons, register and cancel and at the bottom left corner of the page is the Frequently Asked Questions button.

(d) In the report a problem page, a field box is placed asking for the address of where the problem is and under the box are multiple check-boxes allowing the user to choose the option(s) that correspond to the problem.

(e) In the login page, a short message is placed describing what the site does. Under the message are two text boxes and field asking for the username and password and under the field are two buttons labelled login and cancel.

4. Future Extensions:

a. CYPRESS is intended to be single user software. A possible future extension would be to allow multiple users. Multiple city officials could possibly work on resolving a single problem together as opposed to a single user working a single conflict.

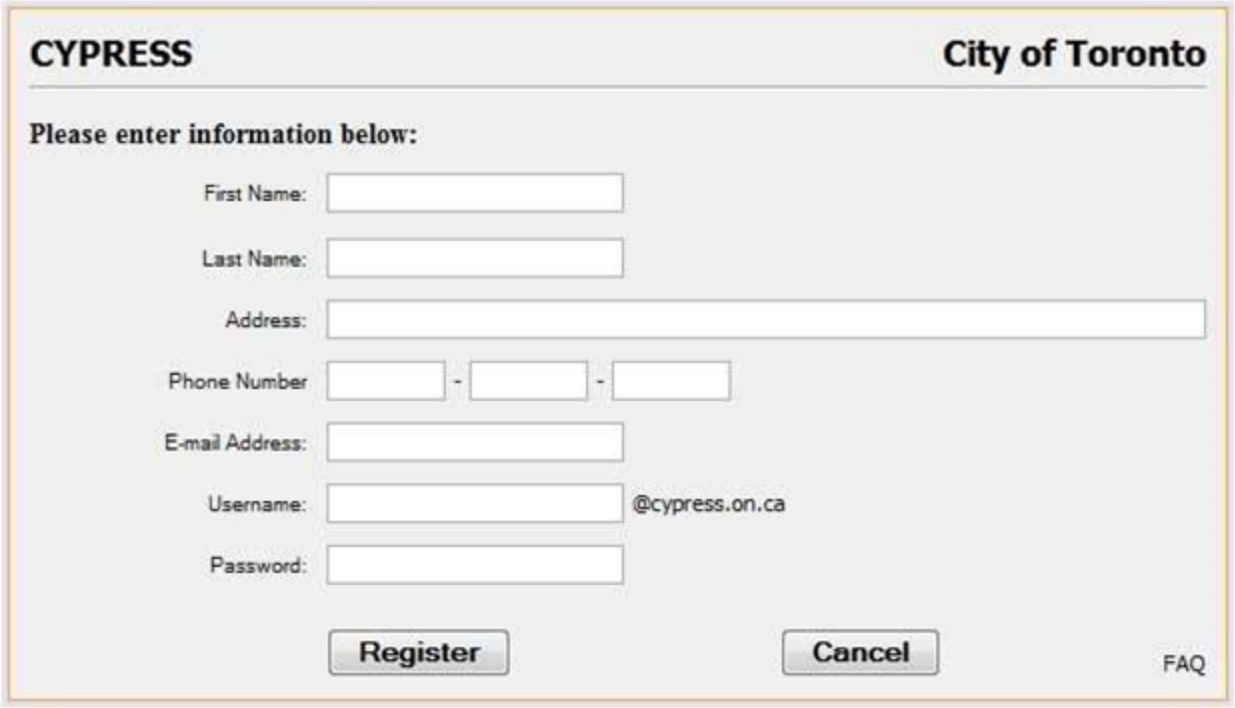
5. Appendix

5.1 Appendix A: User Screens

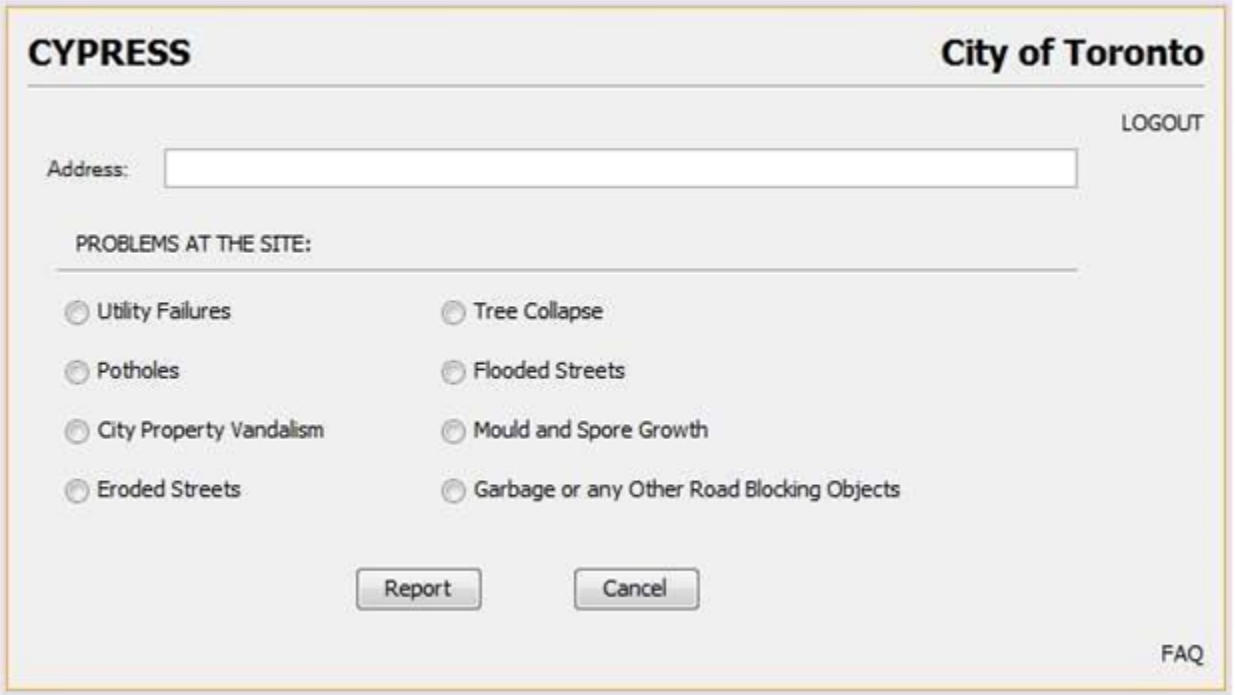
Main Screen (Language Selection)

Login Screen

Portal Screen



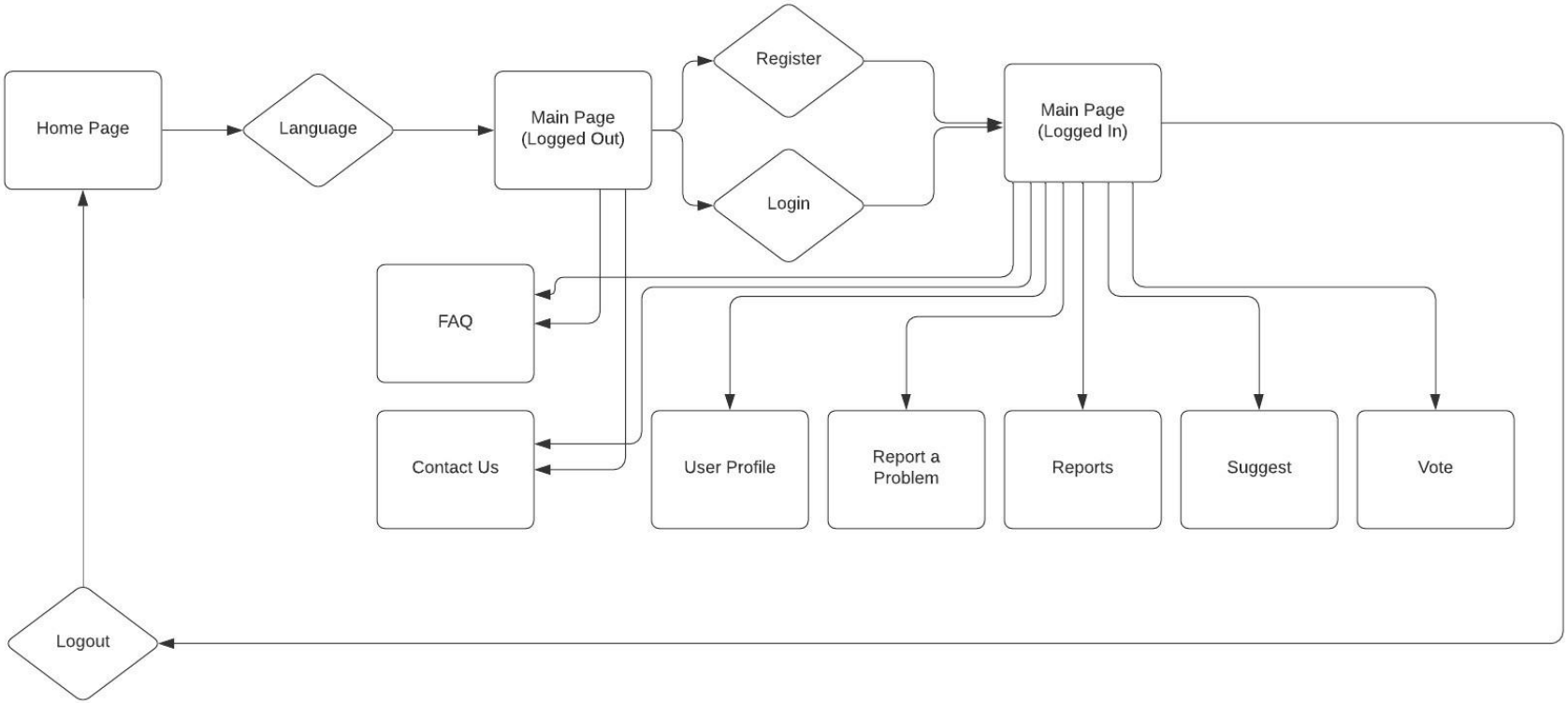
Registration Screen



Reporting Screen

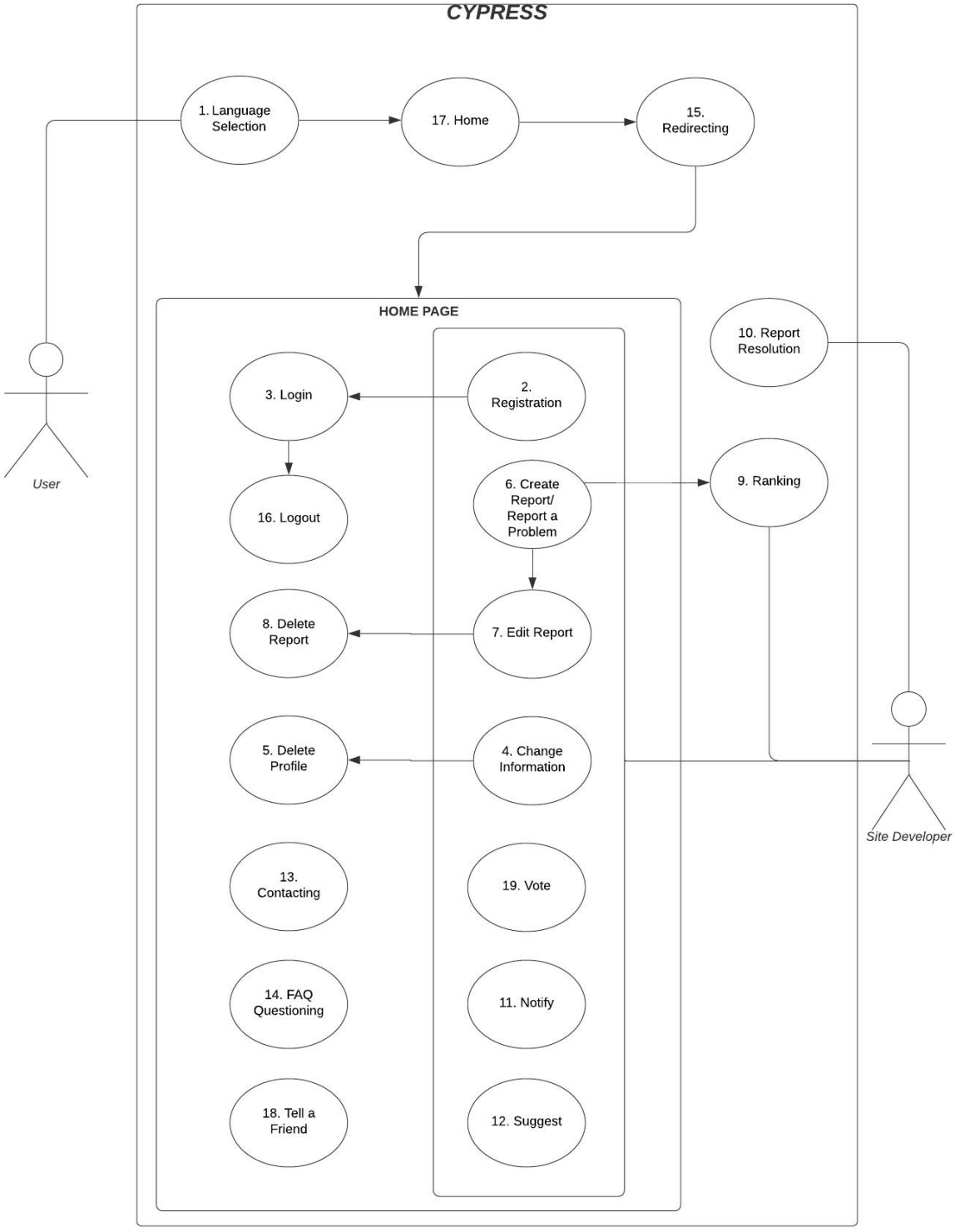
Test Plan/Report

Feature	Test Case	Input	Expected	Result
Home Screen (language)	English French	Boolean Boolean	True True	True True
Main Page (logged out)	Register Login FAQ Contact Us	Boolean Boolean Boolean Boolean	True True True True	True True True True
Register	First Name Last Name Address Phone Number Username Email Password Security Question Answer	String String String Int String String String String String	True True True True True True True True True	True True True True True True True True True
Login	Username Password	String String	True True	True True
Main Page (logged in)	Logout User Profile Report a Problem Reports Suggest Vote FAQ Contact Us	Boolean Boolean Boolean Boolean Boolean Boolean Boolean Boolean	True True True True True True True True	True True True True True True True True



FLOW CHART DIAGRAM

UML Use Case Diagram



MYSQL Tables

Userinfo

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(11)			No	None		AUTO_INCREMENT	Change Drop Primary Unique Index Spatial Fulltext Distinct values
2	fname	varchar(32)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
3	lname	varchar(32)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
4	address	varchar(500)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
5	phone	int(11)			No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
6	email	varchar(256)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
7	username	varchar(32)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
8	password	varchar(256)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
9	secQ	varchar(256)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
10	ans	varchar(256)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
11	role	varchar(32)	utf8_general_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values

	id	fname	lname	address	phone	email	username	password	secQ	ans	role
Edit Copy Delete	1	Joe	Biden	someaddress	1234567891	mail@mail.com	user	$2y$10$XEHZIgm0nt/vmWZOBjLZae39t0Q48Cs8wDkE1jJI9BK...	q	a	user
Edit Copy Delete	2	Bobby	Billy	453 Street Road	1233331541	user2@usermail.com	user2	$2y$10$lqenUn1XpVcaqiPru6wF8uyv4/ccTB.2Q2AOlWguzUU...	question	answer	official
Edit Copy Delete	3	Roman	Popadiuk	1818 Beechknoll Ave	2147483647	romanpopadiuk@gmail.com	rpop	$2y$10$ZaIEF0DC5XBy/Is3Mf6Cp.IBuDcvrfWt37G2PPjD50f...	what is my name	name	user
Edit Copy Delete	5	example	example	vndsklnkl	2147483647	RFNEWKLJ@VFNWKLJ.COM	example	$2y$10$OSbjll6lPjwuezw3XxWd3OxEwwVMGUHxtqslBoMFbdZ...	what is my name	example	official
Edit Copy Delete	6	Leonard	Mcdonald	31 Fhwio Ave	1234567777	fdsbnjl@fdsnkjl.com	dave	$2y$10$SMyt6C0apV4.eTMdRx9dBuw3hkUHps6zRdBo/djzOXF...	what is my name	dave	user
Edit Copy Delete	8	Sarah	Mcdonald	12 Fnkl Ave	1234567777	rnewjon@vdsnjlon.com	chris	$2y$10$/C7avEk7OZfgCwiVmVZ.a.fHZOvvu4osparTWhLLWLj...	what is my name	chris	user

Reports

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(11)			No	None		AUTO_INCREMENT	Change Drop Primary Unique Index Spatial Fulltext Distinct values
2	zipcode	varchar(6)	latin1_swedish_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
3	message	text	latin1_swedish_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
4	date	date			No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
5	problems	text	latin1_swedish_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
6	open	tinyint(1)			No	1			Change Drop Primary Unique Index Spatial Fulltext Distinct values
7	userid	int(11)			No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values

	id	zipcode	message	date	problems	open	userid
Edit Copy Delete	1	M5A2E9	Reporting the Potholes at Seaton St. and Gerrard S...	2021-04-08	a:2:{i:0;s:16:"Utility Failures";i:1;s:8:"Potholes...	0	1
Edit Copy Delete	2	M5A3S9	Tree collapse at richmond st e.	2021-04-11	a:1:{i:0;s:13:"Tree Collapse";}	1	1
Edit Copy Delete	6	M5A3A3	Vandalisme de propriÃ©tÃ© s'est produit ici Ã cet...	2021-04-13	a:1:{i:0;s:37:"PropriÃ©tÃ© de la ville du vandalis...	1	2
Edit Copy Delete	7	M5A2E9	a pothole broke my car	2021-04-13	a:1:{i:0;s:8:"Potholes";}	0	1
Edit Copy Delete	12	M5B1W7	my dog ran away	2021-04-14	a:2:{i:0;s:16:"Utility Failures";i:1;s:14:"Eroded ...	1	2
Edit Copy Delete	9	M5B2B7	water failures	2021-04-13	a:1:{i:0;s:16:"Utility Failures";}	1	1
Edit Copy Delete	13	M5E1W7	my head hurts	2021-04-14	a:2:{i:0;s:16:"Utility Failures";i:1;s:14:"Eroded ...	1	6
Edit Copy Delete	15	M5B1W7	there are not enough bikers	2021-04-14	a:3:{i:0;s:16:"Utility Failures";i:1;s:26:"City Pr...	0	8

Suggestions

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	suggestid	int(11)			No	None		AUTO_INCREMENT	Change Drop Primary Unique Index Spatial Fulltext Distinct values
2	suggestion	text	latin1_swedish_ci		No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
3	reportid	int(11)			No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values
4	userid	int(11)			No	None			Change Drop Primary Unique Index Spatial Fulltext Distinct values

	suggestid	suggestion	reportid	userid
Edit Copy Delete	1	Call local services	1	1
Edit Copy Delete	2	get a new engine	8	2
Edit Copy Delete	3	drink more water	9	6
Edit Copy Delete	4	drink some water	9	2
Edit Copy Delete	5	get a cat	12	6
Edit Copy Delete	6	get a cat	12	2
Edit Copy Delete	7	buy a bike and start biking	15	8

Technologies used in the Project

HTML/CSS/JS for Interactive Front-End Development.

PHP for server side Back-End Development.

Mysql for database and handling user data & reports.

Bootstrap 4.6 Css Framework used for Front-End Development.
https://getbootstrap.com/

Leaflet API used for the interactive map and finding longitude and latitude.
https://leafletjs.com/

Geocoder API used for finding Canadian zip code from longitude and latitude values.
https://geocoder.ca/