SW Engineering CSC648/848 Section 01 Spring 2018

PARSE

Pollution and Accident Reporting for a Safer Environment

Milestone 1

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Team 04

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Revisions

February 28, 2018	Initial Draft
March 5, 2018	Revision after instructor feedback, Frozen

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Executive Summary

Some of our most valued experiences take place in the natural landmarks our cities have to offer. San Francisco alone has over 220 parks that people have been enjoying for years. Maintaining these parks and our general environment has always been important step towards keeping our children and the local wildlife safe. Unfortunately, in this modern age, these natural environments can be tainted by garbage and hazardous materials.

PARSE started with the belief that technology should help clean our planet, not pollute it. With the number of environmental problems that are seen in many cities and parks today, it can be difficult for the average person to bring these issues to the attention of the public and proper authorities. The goal of PARSE is to close this communication gap by providing a web application with a quick and detailed reporting system.

PARSE is a web application that allows everyday people to report an environmental problem that they may have witnessed, such as misplaced garbage or hazardous spills. These reports can be detailed with a location, physical description, and any supplementary photos. All of this done in a quick and straightforward manner without any extensive setup on the user's end, and PARSE's makes it easy for the user to submit a report from their smartphone within minutes.

These reports can be easily viewed by anyone by simply visiting our website. The user can search for an environmental issue by location or keyword, and the results that follow will display any unresolved issues. The content itself can be managed by Content Moderators, who can use PARSE to open and close issues as they see fit.

The people at PARSE are proud to call Earth our home, and like many people, we care that our home is clean. We believe that PARSE can bring the people of any city or town together by providing them with an easy way to bring environmental issues to light, and together they can address them in a professional manner.

PARSE was started by a team of seven student developers, including five undergraduate students and two graduate students. The project's CEO is Dragutin Petkovic, Associate Chair and Professor of the Computer Science department at San Francisco State University, and the CTO is Anthony Souza, former graduate student and current lecturer at SFSU. This team has a wealth of experience in web development and software engineering. With all of the members living in the San Francisco Bay Area, we have an strong appreciation of the natural beauties this area has to offer. Our goal is to keep our oceans, parks, and cities clean of all hazardous waste and litter, and with PARSE, we believe we can make that a reality.

Use cases

1. Unregistered User
Rebecca is an activist who is passionate about caring for the environment. Looking for ways she can help around her local community in San Francisco, she begins searching online for issues currently occurring in the area. Upon examining the results returned by a search engine, she finds and visits *CSC-648 Team 04's Website*. Here she can see all of the current listings of environmental problems that have been posted by the local residents of San Francisco who are registered on the site. From here she will be able to browse by a location, keyword, or category, and find any issues she may be interested in becoming involved with. After selecting an issue, she shall be able to view more details about it, including pictures, specific location, and any other information regarding the subject.

2. Registered User
Any registered user on *CSC-648 Team 04's Website* will be able to post an environmental issue than can be viewed by the public after approval. This allows residents to report issues in the area that normally would not have been brought to public attention otherwise. An example of includes John, a father of two who enjoys biking around the city with his children. One day as he and his kids are riding around town, they decide to take a lesser known bike trail that runs by a creek that leads into a water supply for local farmers to grow crops. While on the trail, John and his children notice that someone had dumped a large amount of motor oil into the creek, threatening the water supply connection further down the stream. John then decides to take action by taking a picture of the scene and logging onto his computer at home to report the issue. After using the UI tools to add details about the issue, he is then prompted to create an account in order to post it.

3. Environmental Service Company / Content Moderator
Any company or organization that works to combat environmental issues can use *CSC-648 Team 04's Website* **as a tool to help further their work. PARSE** is a local organization that aims to educate people on environmental hazards and ways they can decrease their amount of consumption and waste. Using the website as a tool, they can survey neighborhoods and regulate the issues, being able to confirm/approve content and close open issues. They can also use this website to assign a specific issue to a unit or team to work on fixing it. Furthermore, they will be able to evaluate priority of issues and assess which issues need to be addressed first.

Data Definitions

Unregistered user: Able to view environmental issue posts. No login required.

Registered User: Same abilities as unregistered user AND is able to post about environmental problems in a specific neighborhood. Account must be created with email, username and password. Must login to access personal posts, saved posts.

Environmental Service Company/ Content Moderator: Same ability as registered user AND can update status on a post. Also has access Priority Issue Tool. Account created with email, username, password, Service company verification.

Administrator: Same ability as registered user AND can manage user accounts and delete inappropriate content. Ensures the proper user and content policies are followed.

Environmental Issues Posts (Visible to all):
- Images of issue/exact location
- Section to add keywords for other users searching
- Maps/location/address
- Description of problem
- Search tool
- Option for user to save a post

Priority Issue Tool (Environmental Service Company use only):
- Analytics for service company to evaluate priority of issues

Bookmarks: Registered users may save viewed listings for later viewing. Registration will require email, username, and password.

High-Level Functional Requirements

Unregistered Users (guests):

1. Application shall display location of posted environmental issues on Google Maps
2. Application shall provide a search functionality filtering by city, state, or zip code
3. Application shall allow guests to register for a <u>User</u> or <u>Service Company</u> account.
4. Application shall display new and pending environmental incident listings.

Registered Users (in addition to unregistered user functions):

5. Users shall be required to register with full name, email, and password.
6. Users shall be able to provide a photo and a description of the environmental issue.
7. Users shall have permission to create postings of environmental issues to the database.
8. Users shall have a log of reported, pending, and resolved issues saved to their account.

Administrator:

9. Administrators shall have permission and power to remove postings
10. Administrators shall have the permission and power to remove any type of account or listing.

Service Company:

11. Service company accounts shall have access to a dashboard to choose which issues to resolve.
12. Listings can only be resolved by Service Company accounts or Administrators.

High-Level Non-Functional requirements

1) Application shall be developed and deployed using SW stack approved by class CTO Anthony Souza.
2) Application shall be hosted and deployed on Heroku as approved by Anthony.
3) Application shall be optimized for standard desktop/laptop browsers, i.e., must render correctly on the latest versions of all major browsers: Chrome, Safari, Mozilla
4) Application shall have responsive UI code so it can be adequately rendered on mobile devices but no mobile app is to be developed.
5) Data shall be stored in the MySQL database on the server in the team's Heroku account.
6) Maps showing location of the environmental issue shall be provided.
7) No more than 50 concurrent users shall be accessing the application at any time.
8) Privacy of users shall be protected and all privacy policies will be appropriately communicated to the users.
9) The language used shall be English.
10) Application shall be very easy to use and intuitive. No prior training shall be required to use the website.
11) Google analytics shall be added.
12) Site security: basic best practices shall be applied (as covered in the class).
13) Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development.
14) Paid site features shall not be implemented.
15) The website shall prominently display the following text on all pages "SFSU Software Engineering Project, Spring 2018. For Demonstration Only."

Competitive Analysis

Feature	Epa	Lema	Broward	PARSE
Text Search	+	+	+	+
Search Filtering	++	-	-	++
Mobile End	-	+	++	++
User Login	-	-	-	+
Report Violation	++	-	++	++
Browse	+	+	+	++

+ feature exits
++ superior feature
- feature does not exist

As the table was showed above, our product provides a great user experience by comparing to other competitive products exit on the market right now. Our product has a better search design and user interface design which can provide an easier access for our user. And it may bring more potential users. And our users can report environment issues easily by using our product and protect our environment better.

System Architecture

Development Stack
- Server Host: Heroku 1x CPU 512 MB RAM
- Operating System: Ubuntu 16.04 Server (We're using Heroku which is a PaaS but it uses ubuntu internally)
- Database: MySQL 5.7
- Web Server: Node JS Server with Express
- Server-Side Language: Javascript

Frameworks & APIs
- Express - Minimal and flexible Node.js framework for serving web content
- Bootstrap - Front-end web development framework for responsive interfaces
- Google Analytics - Google API offering accurate website statistics

Version Control: Git (v 2.16.2)

Development Team

Rodrigo Bell, *Team Lead*
Charlie Tuttle, *Front-End Lead*
Rohan Patel, *Back-End Lead*
Michael Schwiebs, *Front-End Dev*
Kamran Khadivi-Dimbali, *Front-End Dev*
Dion Matthew Lagos, *Back-End Dev*
Zhenru Huang, *Back-End Dev*

Checklist

- Team decided on basic means of communications - DONE
- Team found a time slot to meet outside of class - DONE
- Front and back end team leads chosen - DONE
- Github master chosen - DONE
- Team ready and able to use the chosen back and front end frameworks - DONE
- Skills of each team member defined and known to all - DONE
- Team lead ensured that all team members read and understand the final M1 - DONE