SW Engineering CSC648/848
Section 2 Spring 2018

WWW Site for Reporting and Managing Environmental Issues
"Parks Go Green"
Team 13

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Version	Date	Description	Notes
1.0	3/1/18	Initial document submission	

1. **Executive Summary**

Environmental awareness is on the rise worldwide. Nations are coming together to work on global environmental issues in ways heretofore unseen. This can sometimes be overwhelming to individuals: how can I help when the problem is so massive? We talk about reducing our carbon footprints, installing solar panels and recycling water. Most of these are at a personal scale, in our own homes. There are missing links between these personal methods and the national level efforts to clean up our environment and our lifestyles.

One of those links are the local public parks. Frequently, when many people see some sort of environmental disturbance in a public area, their base reaction is to assume someone else will take care of it. Usually, the responsibility lies with the local government, but how can the city act if the issue goes unreported? Official inspectors can help, but must be funded, trained, and they can only inspect parks so often. Citizen reporting can solve this issue, and we hope to enable them to do so more easily with our product.

We must overcome two challenges. First, the bystander effect, where citizens hope someone else will take care of the issue. The easier it is to report the issue, the more likely a person will be to do so, and they will be less willing to shift the responsibility. Secondly, repeat usage relies on feedback. If someone reports an issue, then never hears about it again or must jump through hoops to check on it, they might feel as if they have had no impact or simply frustrated. Concise, easily accessible status reports could make users feel helpful and encourage further contributions.

We will provide a straightforward web application that allows citizens to report environmental issues in their local public parks and to browse the issues already reported in these areas. City staff will be able to browse the issues and update their status, indicating whether clean-up is underway, or the issue has been resolved.

We are a student startup team at San Francisco State University. We hope to gain experience by emulating the professional development environment in a small team. This project is a learning process for us, both in utilizing the technologies to develop and deploy our application and in developing teamwork techniques.

2. **Use Cases**

1. Mark (Unregistered user)

   Mark is a future San Francisco **citizen** thinking of moving to the Bernal Heights neighborhood. Joe has children, so he wants to ensure the nearby parks are safe. He accesses *Parks Go Green* and browses the local **parks** for environmental **reports**. He opens a report and finds the information, such as the **creation date**, the **details** of the issue, and the **resolution date**. Confidant that the city handles reported issues in a timely manner, Joe decides to contact a realtor.

2. Janet (Unregistered user)

   Janet is a San Francisco **citizen** who notices a barrel of toxic waste at Precita Park on Folsom Avenue during her morning jog. She decides to act, and when she returns home she accesses *Parks Go Green* and opens a **report**. Janet indicates the **park** of interest and fills out the **details** of the incident. Janet is required to provide a valid **email address** and **phone number**, should a **city manager** wish to contact her with further questions. Janet can then submit her report by solving a **captcha**.

3. Luke (Registered user)

   Luke is a San Francisco **citizen** and a frequent user of *Parks Go Green*. Luke decides to **register**, creating a **username** and **password**. After making several **reports** as a **registered user**, Luke browses a list of just his **reports**, instead of browsing the general list. He makes a new report more quickly, no longer having to fill in his **phone number** and **email** with each report.

4. John (Administrator)

   John, an **administrator**, visits *Parks Go Green* that he supports. He scrolls through recently uploaded **environmental reports** and notices a post with questionable content. Someone has linked a picture with nudity, and a description containing offensive terms. John decides that the content is inappropriate and should be removed. He goes to the **report** and removes it from the **list**, so that **users** will be unable to view the inappropriate content.

5. Ted (City manager)

   Ted is a **city manager** who manages a team meant to clean up local **parks**. His department uses *Parks Go Green* to manage environmental issues in San Francisco. He logs-on to *Parks Go Green* and browses the new **reports**. He notices a **report** in his own zip code: broken industrial glassware with a chemical smell in the sand pit of his favorite playground. Ted sends his team of cleaners to the **park** and changes the **status** of the **report** to “in progress.” After his team reports back, Ted opens the post and changes the **status** again to “complete.”

3. **Data Definition**

1. **Unregistered user**: Can browse and read reports. Can submit reports if an email/phone number is provided. Stored as email and phone number.
2. **Registered user**: Can browse, read and submit reports. Must log in with a username and password that they create (and is stored). Can access a list of reports they submitted.
3. **Administrator**: Must log in with a username and password. Must have been given access by the institution using *Parks Go Green.* Can browse and read reports. Can remove reports that contain inappropriate content.
4. **City Manager**: Must log in with a username and password. Must have been marked as a city manager by the institution using *Parks Go Green*. Can browse, read and submit reports. Can change the status of the report and post images of the park.
5. **Park**: Street address, Google Maps Data, list of reports specific to this park
6. **Report**: Submission date, park concerned, description of issue, status, date of each change in status, photograph (before/after issue resolution), ID of report author (viewable by administrator).
7. **Email**: Email address of the user, used for ID purposes, not to send anything.
8. **Phone number:** Phone number of the user, used for ID purposes.
9. **Username**: Username created by registered users, administrators and city managers. Linked to reports submitted.
10. **Password**: Password created by registered users, administrators, and city managers.
11. **Image**: A photograph of a park. Taken by city managers to show progress at the work site.
12. **Activity logs**: A record of activity by **users**.

4. **Functional Requirements**
    1. **Users** shall be able to post **reports** on environmental issues at local **parks** to *Parks Go Green*, either by registering or by providing an **email** and **phone number**.
    2. **Users** shall be able to read **reports** on environmental issues at local parks posted by other **users**.
    3. **Users** shall be able to find **reports** related to **parks** they are interested in researching.
    4. **Users** shall be able to register an account with a **username** and a **password**.
    5. **City managers** shall be able to read **reports** and to change their **status** to indicate the progress made on fixing the reported issue.
    6. **City managers** shall be able to upload **images** of the park.
    7. **Administrators** shall be able to review **reports** and delete those they deem to contain inappropriate content.
    8. **Administrators** shall be able to review **activity logs**.

5. **Non-functional requirements**
    1. *Parks Go Green* shall be developed, tested and deployed using tools and servers approved by Class CTO.
    2. *Parks Go Green* shall be optimized for standard desktop/laptop browser environments, e.g. shall render correctly on the two latest version of Chrome, Mozilla Firefox, Safari and Internet Explorer.
    3. *Parks Go Green* shall have responsive UI code so that it can be rendered on mobile device browsers.
    4. Data shall be stored in a MySQL database running on the Google Cloud Compute Engine.
    5. Application shall be media rich (at minimum contain images and Google Maps integrated)
    6. No more than 50 concurrent users shall be accessing the application at any time
    7. Privacy of users shall be protected, and all privacy polies shall be appropriately communicated to users.
    8. The language on the website shall be English.
    9. Google analytics shall be used to track website traffic.
    10. No email clients shall be allowed.
    11. Pay functionality shall not be implemented nor simulated.
    12. Best practices for site security shall be applied.
    13. Modern software engineering process and practices shall be applied as specified in the class, including collaborative and continuous software development.
    14. The website shall display the following text on all pages “SFSU Software Engineering Project, Spring 2018. For Demonstration Only.” at the top of the WWW page.
    15. Application server shall be maintained and re-organized weekly during the semester.
    16. Application server costs on the Google Server shall not exceed the $300 free credits.
    17. Any changes made to the web server’s html directory shall be approved by the back-end team.
    18. The website shall be curated every other day for any malicious content that may have been uploaded by users.

6. **Competitive Analysis**

1. https://www.epa.gov/enforcement/report-environmental-violations
2. https://lema.epa.ie/complaints
3. http://www.broward.org/Environment/Resources/Pages/EnviroComplaint.aspx

Feature	US EPA	Ireland EPA	Broward County	Our Product
Text Search	++	+	+	+
Soft Registration	+	+	+	+
Issue Tracking	-	-	-	+
Browse	+	+	+	+
Google Analytics	+	-	-	+
Google Maps	-	+	-	+

Advantages summary:

For our product, our main advantage over the competition is going to be issue tracking. After completing a competitive analysis, it seems like many other services do not allow the user to see the status of environmental reports. For *Parks Go Green*, we plan to have a status for posted environmental problems, allowing users to check whether the issues are open, in-progress, or have been resolved. Another advantage will be our browsing feature. Competitors generally allow users to browse, but not through a list of current issues. The US EPA website, for example, has a "Data and Results" section that will give you information about past cleanup and enforcement cases. For *Parks Go Green*, we plan to allow users to see more specific information in the form of individual reports and their status.

7. **High-level system architecture**:

Frameworks:

1. Django 2.0.2 Web framework

APIs:

1. Google Maps API
2. BigQuery
3. Admin Directory
4. Admin Reports
5. Google Analytics
6. Street View

Tools:

1. IDE: Pycharm 2017.3.3
2. Git (2.14.1)
3. Apache (2.4.29)
4. MariaDB (10.2.13)
5. Python (3.6.4)
6. Subversion (1.9.7)
7. Bootstrap

Operating System:

1. Debian GNU/Linux 8 (Jessie)

Supported Browsers:

1. Internet Explorer (Version 11.x and above)
2. Mozilla Firefox (Version 58.x and above)
3. Google Chrome (Version 64.x and above)
4. Safari (Version 11.x and above)

Deployment platform:

1. Google Cloud Platform

Server:

1. Google Cloud Compute: N1-Standard-1 (1 vCPU, 3.75 GB mem)

Server Database:

1. Mariadb 10.2, 30 GBs space

8. **Team**:
    1. Damico Shields – Team Lead
    2. Jaimes Subroto – Back-end Lead
    3. Andrew Hutzel – Back-end
    4. Justice Chase – Front-end Lead
    5. Kimyou By – Front-end
    6. Leo Wang – Front-end

9. **Checklist**:
    - Team found a time slot to meet outside of class: **DONE**
    - Github master chosen: **DONE**
    - Team decided and agreed on using the listed SW tools and deployment server: **DONE**
    - Team ready and able to use the chosen back and front-end frameworks and those who need to learn are working on it: **DONE**
    - Team lead ensure that all team members read the final M1 and agree/understand it before submission: **DONE**