Out of Eden – Open Source Testing Framework

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Background

Eden is the *Emergency Development ENvironment for Rapid Deployment Humanitarian Response Management.* This open source project is supported by the **Sahana Software Foundation** a FOSS (Free and Open-Source Software) group that helps provide information management solutions to enable organizations and communities to prepare for and respond to disasters. [1]

Sahana currently is developing two projects: Eden and Vesuvius. With similar functionality, these software projects have helped grow Sahana to be recognized worldwide as a relief organization tool.

Open source projects are available for development by anyone. Source code for the programs are accessible for anyone to modify and Improve the program.

Objectives

Our team of software engineers has been working with Eden to learn and understand testing frameworks. The objectives of the project are as follows:

- Download the Eden source code repository on github.com
- Create a team repository to hold project code
- Create an automated testing framework for Eden in Linux to understand how to work in test driven environments
- Learn how to use the framework to create tests on the source code
- Inject faulty code to test the framework
- Display all tests in a web page

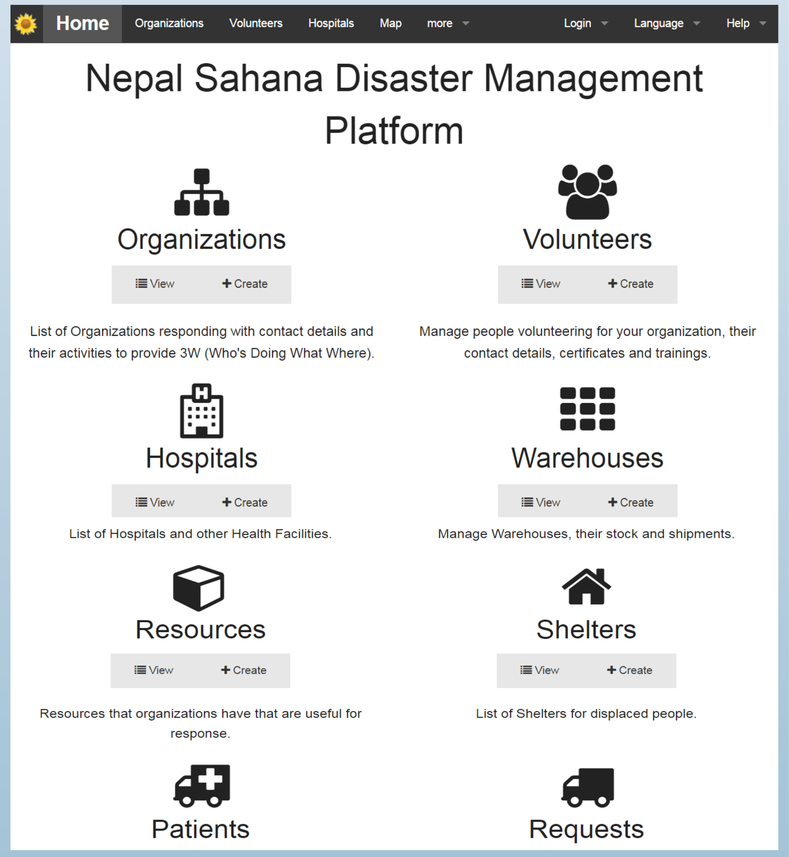
This testing framework is designed to be a developer tool which anyone can use to run tests on Eden.

Community

This disaster relief software has helped organizations around the world. Eden is the perfect tool to collate data and simplify relief efforts to provide aid more quickly to victims.

Sahana is part of Google's Summer of Code which is a global program that offers student developers stipends to write code for open source projects. Some projects involved creating a Geographic Information System module.

The picture below is a demonstration of the platform created after the earthquake in Nepal in April 2015. Each group is a database that holds data for better management of the project.



Nepal disaster platform in Eden [2]

Methods and Functionality

Testing Eden required us to learn and understand bash scripts, python, web formatting and selenium testing framework. Bash scripts are the drivers for running the python and selenium tests. In the python tests, we select a method such as "make_string()", give it an input such as "123456" and expect that it will turn the input into a string. Selenium tests are constructed to test Eden's web interface. The tests open the browser and check for certain key words, inputs and a variety of other things on the page and returns pass or fail results. The results are displayed on the web page and detail all the information about the test.

Testing in this framework is fully automated and has no dependencies. Once the test cases are build and ready to be tested, the runAllTests.sh script is run and the results are displayed. It is designed to have no dependencies so that any developer wishing to use the framework can install and run it with no problems.

Conclusion

Our team has been working diligently on this project and we have learned a lot. Most of all, we have a better understanding of how software is tested in a corporate environment. By building this framework we have honed our skills in developing in the Linux operating system. We hope to use the skills to continue working on Free and Open-Source Software.

Works Cited

1. https://en.wikipedia.org/wiki/Sahana_FOSS_Disaster_Management_System
2. http://nepal.sahana.io/eden/default/index
3. https://en.wikipedia.org/wiki/Open_source