CO421 SOFTWARE TESTING

A REPORT ON THE PROJECT ENTITLED
GOOGLE PERSON FINDER

SUBMITTED BY

HARDIK RANA - 16CO138
HARSHAL SHINDE - 16CO223
VII SEMESTER B.Tech (CSE)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

SURATHKAL

2019-2020

Table of Contents

Google Person Finder: Testing Report

Website and Repository:

https://google.org/personfinder/test

https://github.com/pockemon/Person-Finder-Testing

November 25,2019

Overview

Google Person Finder is an open-source web application that provides a registry and message board for survivors, family, and loved ones affected by a natural disaster to post and search for information about each other's status and whereabouts. It was created by volunteer Google engineers in response to the 2010 Haiti earthquake. Google Person Finder is typically embedded in a multilingual Crisis Response page on Google's site, which also contains various other disaster tools such as satellite photographs, shelter locations, road conditions, and power outage information. Google also set up a Picasa account to allow people to submit photos of the name lists posted in emergency shelters, to be manually transcribed and entered into Google Person Finder.

Google Person Finder is written in **Python** and hosted on **Google App Engine**. Its database and API are based on the People Finder Interchange Format (**PFIF**) developed in 2005 for the Katrina PeopleFinder Project.

Non-Functional Tests

1.Performance Testing:

It is a type of software testing that intends to determine how a system performs in terms of responsiveness and stability under a certain load. Performance testing measures the quality attributes of the system, such as scalability, reliability and resource usage.

We made use of the Apache Jmeter tool to spawn users which would hit the website with http requests and then we analysed the collected data related to load time, latency, bytes, errors in connection.

2.Compatibility Testing:

It is a type of testing in which we check if the software is capable of running on different hardware, operating systems, applications, network environments or Mobile devices.

We have done cross browser testing of unit tests written in selenium on chrome,firefox and internet explorer browsers.

Functional Tests

1.Unit Testing:

Unit testing is a level of software testing where individual units/ components of a software are tested. The purpose is to validate that each unit of the software performs as designed. A unit is the smallest testable part of any software. It usually has one or a few inputs and usually a single output.

We have written unit tests to validate different functions which are there in the source code of person finder website.

2.Server Testing:

Server-side testing is a form of experimentation where the variations of a test are rendered directly on the web server, before it is delivered to the client. The server testing is done to ensure that the services you need to develop your apps are working as intended. A testing suite includes a number of test cases that demonstrate not only what is working correctly,

but what works when it shouldn't, for example logging in without a password or requesting another user's secure data. The server should handle every one of the test cases properly.

We have written some test cases like uploading an empty image and checking that no img tag will be there in the view page etc.

Test Summary

Functional and non functional testing is done on Google Person Finder.The functional testing performed are the unit testing and server testing. The non function testing performed are compatibility testing and performance testing. For compatibility testing Selenium webdriver is used and the script for the automation testing are written in python. The performance testing of Person Finder is done with Jmeter and chrome developer tools.

The unit tests are written for testing the source code of Google person finder website.The unit tests are written by using the unit testing framework in python. A total of 40 unit tests are written for testing the functionality of the Google person Finder.

The server testing is done to ensure that the services you need to develop your apps are working as intended. It is a form of testing in which the variations of a test are rendered directly on the web server, before it is delivered to the client. This is done to ensure whether it is feasible to test the software in subsequent steps or not. Total of 15 server tests are done in Google person Finder.

Compatibility testing is done to check whether the Google person Finder website can run on different browsers or not. The compatibility testing is done on browsers such as chrome, firefox and internet explorer. The unit tests are used with Firefox and Internet explorer to check the compatibility. It is seen the for chrome and firefox the website-person finder is working properly where for the internet explorer, it is showing some abnormal behaviour. Total of 30 compatibility tests are done in Google person Finder.

The performance testing is done on Google person Finder. A software application's performance like its response time, reliability, resource usage and scalability do matter. So, it checks the speed, response time, reliability, cpu usage, memory usage, throughput time, number of users i.e. threads, etc. For performance testing, Jmeter is used. It is seen that for some test cases it is showing abnormal behaviour. Total of 15 performance tests are done in Google person Finder.

Tools

Selenium

Selenium is a popular open-source web-based test automation tool. The primary new feature in Selenium 2.0 is the integration of the WebDriver API. It enables us to use a programming language to write test scripts in different programming languages like Java, .NET, Perl, and Ruby. Selenium-WebDriver was developed to better support dynamic web pages where elements of a page may change without the page itself being reloaded.

For testing the Google person finder, we have used the python with selenium WebDriver. WebDriver implemented on Layered Design, the idea behind this implementation is more and more usage of WebDriver for automation and this could be possible by fitting best fit languages. Web Driver is a compact Object Oriented API that can directly interact with the Application under tests. WebDriver utilizes the browser native compatibility for automation without using any peripheral entity.

Jmeter

Apache JMeter is an Apache project that can be used as a load testing tool for analyzing and measuring the performance of a variety of services. It was originally built to test web applications. Jmeter can test static and dynamic resources. It can simulate various levels of load on the network, servers, etc to test its strength. Jmeter also provides graphical reports of the performance of the object being tested under heavy load.

Performance Testing is crucial to determine that the web application under test will satisfy high load requirements. It can be used to analyze overall server performance under heavy load. Apache JMeter testing tool offers following benefits in performance testing:

- JMeter can be used to test the performance of both static resources such as javaScript and HTML, as well as dynamic resources, such as JSP, Servlets, and AJAX.
- JMeter can discover maximum number of concurrent users that your website can handle

WebDriver

WebDriver is a web automation framework that allows you to execute the tests against different browsers, such as Mozilla Firefox, Chrome, Opera etc. Selenium WebDriver is a web framework that permits you to execute cross-browser tests. This tool is used for automating web-based application testing to verify that it performs expectedly.

- WebDriver is designed in a simpler and more concise programming interface along with addressing some limitations in the Selenium-RC API.
- WebDriver is a compact Object Oriented API when compared to Selenium1.0
- It drives the browser much more effectively and overcomes the limitations of Selenium 1.x which affected our functional test coverage, like the file upload or download, pop-ups and dialogs barrier
- WebDriver overcomes the limitation of Selenium RC's Single Host origin policy

Sublime text

It is a cross platform source code editor. It has a Python API. It supports many programming and markup languages and functions can be added using plugins. It allows us to simultaneously make changes to multiple areas.

Results

Total test cases: 100

Passed: 92

Failed/Unexpected behaviour: 8

Testing	No. Of cases	Passed	Failed/ Unexpected Behaviour	Reason
Unit	40	40	0	
Server	15	15	0	
Performance	15	12	3	1.It is expected that as the load increased the time to load the site will also increase but this is not seen in all cases.
Compatibility	30	25	5	1.The security feature of Captcha prevents any automation tool from clicking on it and so we couldn't automate the test-case. 2. IE is slow so it is not able to find the web element quickly. 3. Some test cases on firefox showing error webelement not found. 4.The hash function used to compare images is very rigid and does not

				accommodate change in even a single pixel

Conclusion

The testing performed covered the wire range of functionality of Google person finder. The unexpected behaviour that caused can be because of the handling issue. The Google person finder has an active tracking issue on github. Using that issue tracking one can rectify the flaws that are there in Google person finder. This test provides a base coverage of different tests and will be a benchmark for future tests to be carried out.