**Boston University**

**Software Engineering Project**

**Software Quality Assurance Plan**

**5th Feb 2013**

**Home-Opoly**

**Abstract**

This is the Software Quality Assurance Plan for the Home-opoly project. This document contains the guideline to maintain the quality of the product throughout the end. This document follows IEEE format.

**Revision History.**

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| --- | --- | --- | --- |
| Rev # | Author | Date | Change Summary |
| 1.0 | Sowmya Shri Sudarshan | 02/04/2013 | initial |
| 1.1 | Abdul Wasay | 03/18/2013 | revised |
| 1.2 | Sowmya Shri Sudarshan | 03/20/2013 | Revised Section 8, section 6 |

**1. Purpose and Scope.**

The purpose of this document is to describe the Software Quality Assurance plan of the project ‘*Home-opoly’.* SQAP provides a basic foundation for managing the ‘Home*-opoly’* software quality assurance activities. This is based on the project activities as documented in the project plan. This plan identifies the responsibility of the SQA team. This also defines project reviews and audits.

**2. Referenced Documents.**

Following Documents are generated as required through the life cycle of the project.

* Software Quality Assurance Plan (SQAP)
* Software Project Management plan (SPMP)
* Software Design Document
* Software Test Document.

**3. Management.**

**3.1: Organization:**

The project is carried out by a group of six members who are assigned various roles and responsibilities. In addition to the general organization of the members into various field leaders, to assure the quality of the project, there is a SQA team. The SQA team consists of the following members:

|  |  |
| --- | --- |
| **Name** | **Role** |
| Wang | Quality Assurance Manager |
| Sowmya | Testing Leader |
| Wasay | Documentation |

**3.2: Roles and Responsibilities:**

It is the responsibility of the SQA team to assure that the quality of the project is not affected. The SQA team will work with the implementation team as well as the management to assure that adequate planning and good testing goes into the project.

**4. Documentation.**

Quality of the product is documented. Also all the work done should be documented.

**4.1: Document requirements:**

To maintain the quality of the product certain documents are required and we will require the following documents.

* + Software Quality Assurance Plan (SQAP)
  + Software Project Management plan (SPMP)
  + Software Design Document.
  + Software Test Document.

**5. Standards, Practices, Convention and Metrics.**

As the project is web-based project, the metrics are different from the console applications. It should also be kept in mind that the coding standards and the effort put in the project is varied and is often difficult to quantify. However, due to Quality Assurance considerations, the team after various meetings and discussions has decided on the following metrics.

1. **Number of Viewable and Non-Viewable Pages:**

One of the most important metric in this regard. The HTML and PHP pages that can be viewed and interacted by the user are referred to as the viewable pages whereas those used for backend logic are known as the non-viewable pages.

These metrics can be used to quantify the amount of work done on a macroscopic level.

1. **HTML elements per page:**

One way to further quantify viewable pages is by the number of HTML element that they have. This is a standard metric as all viewable pages will include HTML elements that can be quantified. This is a more microscopic estimate.

**C**: **Errors per page**

This is a very standard S.E metric that tries to determine the amount of errors or wrong practices that occur per page. The way to go about this is to use the W3C validator service that takes in the mark up and analysis it for errors.

**d: Number of Database Tables and entities**

As the project is a CRUD backed by database, counting the number of database tables and various attributes seems to be a good approximate.

**6. Reviews and Audits**

The purpose of Reviews is to set guidelines around reviews and audits to make sure that the quality of the product is up to the mark. Reviews and audits will also help team members to know where the project stands so is the quality. Review is a formal assessment of the project which should be done quite often and Audit is an inspection.

Following are the reviews the team has done so far.

**Requirement review:**

Requirement review has been done by the team leader. He has gone through all the requirements which are mentioned in the SPMP.

**Preliminary Design Review:**

Team has also gone through this phase wherein couple of team members suggested different designs and considering the merits and demerits team members decided to hold on to the best design.

**7. Testing.**

The testing of the *Home-opoly* project including all its components will be owned by the quality assurance group. The Quality Assurance team will be responsible for functional testing, regression testing and performance oriented testing. The code level testing meaning “Unit Testing” will be owned by development team. The test team will be responsible for communicating the defects found during testing to the development team with appropriate steps to recreate the problem. The QA team will coordinate with management and development team to decide on reliability and performance tests criteria. At the end of testing the QA team will generate a report detailing the results of the testing.

**8. Problem reporting and corrective action.**

This section describes how defects are recognized, reported, corrected and correction verified. The problem might be Document problems (Non-compliant with other documents), Code Problems (Lack of functionality, wrong functionality). Defects can be detected by the team at any stage of product development. These Errors that have been detected will be tracked to completion.

In our team if the problem is detected, the person who discovered the error is responsible for reporting it to the Team Leader and the developer who wrote the code. Any issues found during review are addressed by the team. A spreadsheet is maintained on GitHub which lists the bugs that have been found. This list is visible to the entire team and updated by the development team as the defects are fixed. Once The Problem is found team approaches team leader to solve this issue. Once the problem is solved the team is asked to check whether the changes made works or not. If the problem is not solved then a meeting is set up with the entire team to take further decisions.

**9. Tools, techniques and methodologies.**

The SQA team should make sure that appropriate tools, techniques and methodologies are used. Along with this every member in the team should have access to these tools and should be knowledgeable about these tools.

**10. Code Control.**

To facilitate the code control our team uses GitHub which is a web based hosting service where in the codes are being stored. The team will also be using Google drive to store all the documentations.

# 11. Media control.

# Media control is done in order to maintain the Quality of the product. Since Home-opoly is a web based product, servers are the main media to store the website. Maintenance is owned by the development team. The SQA team shall be responsible in verifying the production environment.

# 12. Supplier Control.

# Apache HTTP server is selected as the webserver to host the website. Apache is Open Community software. The ‘Licensing’ aspects for using the webserver are owned by the project lead. Any issues and customization requests to apache are to be dealt with by the project lead and communicated to the team as required.

# 13. Records collection, maintenance & retention.

# Minutes of meetings are added and also the reviews are added to the project library. Task reports, Audit reports and Inspection reports are also maintained. These records will be kept throughout the duration of the project.

# 14. Training.

# Situations may arise where project expects special skills. Also developers are given some formal training regarding the Quality maintenance throughout the project. We make sure that people in our team are specialized in the work they are doing. If the Team leader and the QA team feels some extra skills is to be provided to team members, those will be mentioned in the future.

# 15. Risk Management.

# Team should identify the Project risks initially and continue to track the progress of these risks and perform continual mitigation as necessary.