Software Engineering (CS301)
Quality Assurance Plan(Version 1)
Travel Diaries

Group 5

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Project Members

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Contents

1 Purpose

The purpose of this Quality Assurance Plan (QAP) is to define the techniques, procedures, and methodologies that will be used and thereby control and monitor the quality aspects of the software product, and meets all the specified requirements in the SRS. Any practices or conducts that appear to be in conflict this document are notified to the specified here. The "IEEE Std 730-1998", IEEE Standard for Software Quality Assurance Plans has been as standard for making this document.

2 Scope

The scope of this document is to outline all procedures, techniques and tools to be used for quality assurance of this project. Doing so will include:

- Develop an approach towards quality management.
- Identify quality assurance work procedures.
- Ensuring that the development is properly and timely documented.
- Any changes to the procedures or documents after reviews are to be recorded in a log and should be reflected respectively

3 Policy

To ensure that work products are being developed with the stated quality, every stage of the Software Development Life Cycle(SDLC) is properly mentioned in the group meetings which also included the discussions on the documents and standard procedures that was supposed to be used in order to deliver desired results. Each meeting's MOM is maintained which includes all the major decisions taken along with attendance of the team members and other significant detail if applicable.

To keep a track of the development progress and versions of documents, Github is used as the Version Control System(VCS). Each user is supposed to work in a separate branch and submit the task assigned on Github. The user is then supposed to create a pull request. The pull request will only be merged once the document has been reviewed.

4 Document Convention

There is a well defined format for each type of document. The types include MOMs, Review Logs and other phase wise documents. Author is supposed to adhere to these defined document format. Each document Except the MOMs is supposed to clearly state the version of the document along with the author of the document and the person reviewing that particular document. The front

page of every such document should be a cover page which also states the group members and the date when the document was authored. Each document is supposed to be typeset in LaTeX.

5 Quality Assurance Management

5.1 Task Management

Each team member is designated to supervise a different aspect of engineering the software product. The role of such a supervisor is to designate the task to other team members and ensure that the timely delivery of the work product and it meets the desired quality in terms of desired format(for documents) and passes the unit tests(for software products). Each document has a set of authors and a set of reviewers(both exclusive of each-other).Job of the reviewer is to critically review the document for its ambiguity, understand-ability, correctness and degree of completeness.He is also supposed to ensure that the document is well-suited for the target audience, fulfills expectation and provide edits, additions and feedback to the authors.

5.2 Team Work

The team members should work in synchronization be given distinct tasks to perform. Every member needs to contribute their best for better quality of the whole system.

5.3 Audit

Documents and codes are audited periodically to ensure that they are following the prescribed quality assurance methods. they determine if there are any places where the quality is undermined and what changes in practices will help raising the bar of quality. Every assigned member is required to report back on any changes, developments and updates in his/her work every week. They are required to show that the work they have done does fit well with the quality assurance standards and meets all requirements.

6 Documentation

To ensure that the implementation of the software satisfies requirements, the following documentation is required as a minimum:

- Feasibility Report
- Project Proposal
- Project Plan
- System Requirement Specification

- User Manual
- SDLC model
- Traceability Matrix
- Design Document
- Configuration Management Plan
- Quality Assurance Plan
- Risk Management Plan
- System Test Plan
- Gantt Chart
- Cost Estimation Document
- Test Report
- Code convention
- Deployment Plan
- Termination Analysis

7 Validation and Verification

7.1 Verification

Verification means to ensure that all the work products of a phase do meet up the requirements of termination of that phase. The termination conditions are laid down at the start of the phase. Only after these conditions are verified can the phase be termed as completed and next phase can be started.

- Maintain a traceability matrix that matches work products against requirements. If all the requirements are matched with a feature/ work product, the phase has been verified.
- All the requirements are to be referred from the SRS. Any deviation or failure to meet a will result in negative verification and the phase will be termed as incomplete yet.

7.2 Validation

After it is verified that all the work products have been made for the requirements, validation means to check if they correctly and completely meet the requirement. To make a work product for a requirements is one thing, but also needs to be validated that the work product completely satisfies it.

- Each document produced must be reviewed and changes incorporated.
- Exhaustive testing of all codes is important. No code should go untested.
- A work product will be accepted if:
  - It correctly and completely meets the specified requirement.
  - It is well supplemented with proper documentations
  - It has been tested exhaustively and all the errors have been rectified.

8 Testing

There is a possibility of human mistakes and error associated with every piece of software. Software Testing aims at discovering and rectifying all these errors in the code in such a way that they meet the requirements specified. Testing is done for all phases in software development life cycle. For our project, we run testing side by side with development. Before moving on to the next stage, current stage is tested, validated and verified.

Testing checks that the outputs to correct inputs are in accordance with the specified requirements, and also how the product reacts to incorrect inputs.

This entire process helps in identifying the potential risks and issues regarding the product that might occur and to find appropriate ways in which they can be dealt. In case of any kind of change in any phase due to the faults occurred will be documented with appropriate changes conveyed by the respective team members, with the assurance of high levels of quality and considering the ability and efficiency of the team in dealing with particular change.