Quality Assurance

C-TALK
Version 1.0

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Revision History

Version	Description	Date	Authors	Reviewers
1.0	Quality Assurance	10/11/2016	Kenneth tenny	sunny, Vipin Shahu

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1.Introduction

1.1.   Purpose

The main purpose of software quality assurance plan is to ensure that product meets the requirement specified by client. In a way, product should be as mentioned in software requirement specifications.

Software Quality Assurance Plan will include management of project, checking of software quality, and documentation after every phase. It will also include what standards and conventions are used for documentation and coding.

1.2. Scope

The scope of this document is to ensure the quality of product.

This document will help in ensuring following things so that quality of product is ensured:

- To know responsibility of each member of project.
- To know what will be work product.
- Documentation after every phase is maintained.
- Project to be reviewed by reviewer team.
- Documentation is to be reviewed.
- Proper management approach throughout the project.

2.Management:

1.1. Organisation:

For assurance of quality of our product:

- After a certain period of time, The documentation of our software will be reviewed by reviewers.
- The software modules will be unit-tested well along the Coding phase.
- If any kind of changes are to be made in documents, the reviewers are responsible for making changes.
- If any changes are to be made in coding during the testing phase, the tester asks the coder to make the required changes. The Tester can also indulge himself/herself in making the required changes.

1.2. Roles and Responsibility:

Project managers: Mr. Srikanth and Mr. Kiran

The project manager is responsible for ensuring the quality of product. It is project manager's responsibility to know whether product and documents come up according to specified plan.

Project team:

Every team member is assigned a particular task for quality assurance. Project team is divided into following sub-groups:

- Designers
- Developers
- Testers

All the group members work for assurance of good quality product.

3.Software Quality:

Structural Quality:

Analysis of software's inner structure and source code of inner structure is carried out. Structural quality is evaluated on basis of analysis carried out.

It will ensure how much structure of our product matches the designed structure at the time of design phase.

Functional Quality:

Testing of product is carried out for checking of functionality of product. It will ensure which functional requirements is not present in product that is mentioned in requirement specification. It will give the degree to which the product is produced correctly.

Following activities must be performed for ensuring overall quality:

- Convention for documentation must be followed.
- Every document should be completed within a given deadline and every detail must be mentioned in the documents.
- Coding convention must be followed. The code must also be properly indented so that the code is easy to understand and maintain.

- After completion of each document, Review should be carried out by other members. If there are any changes, Then the reviewer is supposed to make changes in the document. Changes are incorporated according to the configuration management plan.
- Configuration management plan is properly followed so that changes are properly known and incorporated.

4.Documentation:

It includes all the necessary documents that are needed for completing the life cycle of our product. These documents are made and maintained throughout the project. All the necessary changes are updated in the documents.

1.1.   Project plan:

Following are some purposes that are satisfied by this document:

- It provides complete description, goal and different criteria of product.
- It also provide the deadline for each phase.
- It also gives how work is divided amongst group members.
- It also gives approximation of cost of project.

We've tried to follow the project plan throughout the project and necessary changes are also updated in project plan.

1.2.   Software requirement specification(SRS):

In general, This document is of utmost importance. This document provides all types of requirements that are needed by the client.

Following things must be mentioned in the SRS:

- All the functional requirements must be clearly mentioned.
- Other non-functional requirements should also be mentioned clearly.
- Different types of assumptions made should also be mentioned.

This document is reflection of our final product. It should be revised whenever required. All the functions mentioned in SRS should be met at the end of project.

1.3.   Design – High level and Low level document:

After all the requirements are clearly specified now we move on to the Design phase.

There are two design documents: high level design and low level design. Both give the design aspects of the product. It describes the architecture followed to develop the product.

High level design depicts the main design features and module description. While low level includes detailed description of each module.

1.4. Risk mitigation, monitoring and management plan:

This document will include all the types of risks faced during the course of our project. And it will also include strategies and actions that our team will take to mitigate these risks.

Risk management is done so that we do not have to face crises. It included all the types of risks. It reduces the probability of the failure of project. This is planned in order to avoid any possible roadblocks.

1.5. User manual:

User manual is made for any user who wants to use the product. By user manual, Anyone can use the product smoothly.

This document will specify User interface, input data, output data and different options of the product. All the corrective measures shall be described. It will also mention the limitation of the product.

1.6. Software configuration management plan:

It facilitates orderly management of system information and system changes for such beneficial purposes as to revise capability, improve performance, reliability, or maintainability, extend life, reduce cost, and reduce risk and liability.

It includes following methods:

- Identifying software items.
- Implementing changes.
- Recording and Reporting change implementation status.

5. Standards & Conventions

<u>Documentation Conventions</u>

Document formats are referred to IEEE standards. Documentation reviews are carried out by strictly following the standards which will ensure overall quality of document.

Following are the standard conventions that we followed while writing documents.

- <u>Main Headings</u>:
    Font - Times New Roman
    Font Size - 16 pt
    Bold

- <u>Sub Headings</u>:
    Font - Times New Roman
    Font Size - 14 pt
    Bold, Underlined

- <u>Content</u>:
    Font - Times New Roman
    Font Size - 12 pt

<u>Coding Convention</u>

The code is properly indented to ensure the readability and understandability of the code.

6. Software Quality Assurance Activities

<u>1.1.</u> <u>Quality Control</u>

Review team is assigned for the document/software that is to be reviewed. Review team performs a quality review of the document/software. Review team checks for correctness, and completeness of the document/software. They also ensure that document is easy to understand and there is no ambiguity and software is performing functionality which it supposed to do.

<u>1.1.</u> <u>Inspection & Review</u>

When document is to be drafted, team involved will first discuss the template of the document with the rest of the group. They will make sure that the document follows the template and clearly describes the content of the document. Then the document is handed

to review team, which find flaws in the documents. Review team makes sure that each section of document contains relevant content.

To maintain the quality of document/software, We have to make sure that there are no anomalies. Flaws may be mainly found in the review phase, but may also be found in testing, compilation, analysis or at use of document or software product. It is therefore necessary to discuss, deliberate and incorporate the required changes to ensure that the quality of the software is maintained.

1.1. <u>Verification</u>:
It is the process of determining whether or not the products of a given stage of the software development cycle fulfil the requirements established during the previous stage.

Different phases have different things to be verified. As a part of Design phase verification, The correctness, completeness and accuracy of High level design is verified. HLD is the overall system design - covering the system architecture and database design. Low level design is also verified in the design phase.

1.2. <u>Testing</u>:
Testing is activity carried out at end of coding phase of the project. Testing evaluates the capability of the project and it also ensures that it meets its required specification. Testing follows a highly destructive approach as opposed to the rest of the project since the main function of testing is to subject the system to adverse situations.

Following things are ensured by carrying out testing:

- It ensures that product meets all the functionalities mentioned in SRS.
- It also verifies and validates the product and assures the quality.
- All the testing activities that are mentioned in test plan are made such that we can find maximum flaws in our product.
- Individual modules are tested and after that all the modules are tested together

In general the quality of product is known at the end of testing phase. After testing phase we can know to what percentage our product meets the actual requirements.

If our product has more requirements satisfied which are not even mentioned in requirement specifications then it is not a problem but it if our product meets less requirement than that are mentioned in requirement specifications then we need to ensure that those requirements are satisfied.