QUALITY ASSURANCE PLAN

CS GROUP NO -02

UNRAVEL

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Quality Assurance Plan

1. Overview

Quality assurance is "a planned and systematic means for assuring management that the defined standards, practices, procedures, and methods of the process are applied." "The purpose of [quality] measurement and analysis (MA) is to develop and sustain a measurement capability used to support management information needs

1.1 Scope

The primary audience for this document is the projectile project team. The team members are responsible for following the quality standards laid out while developing the application, documenting the results, monitoring the project progress, and testing the project quality. This SQAP (Software Quality Assurance Plan) covers all important aspects of software development; i.e. requirements analysis, architecture and design, implementation, testing and verification, and user acceptance

2. References

- http://users.csc.calpoly.edu/~jdalbey/308/Resources/IEEE7301989.pdf
- http://www.fsa.usda.gov/Internet/FSA_File/sdlc_pmo_quality_assur_plan.doc
- http://www.cs.ccsu.edu/~stan/classes/cs530/slides/se-22.pdf

3. Definitions and Acronyms

3.1 Definitions

Software Quality Assurance: A set of activities that dene and assess the adequacy of software processes to provide evidence that establishes condence that the software processes are appropriate for and produce software products of suitable quality for their intended purposes.

A key attribute of SQA is the objectivity of the SQA function with respect to the project. The SQA function may also be organizationally independent of the project.

Work product:
An artifact resulting from the execution of a process

Conformance :
Conformance is how well something, such as a product or system, meets a specified standard and may refer more specifically to: **Conformance** testing, testing to determine whether a product or system meets some specified standard.

3.2 Acronyms

Acronyms	Abbreviations
SQAP	Software quality Assurance Plan
QAT	Quality Assurance Team
QA	Quality Assurance
UI	User Interface
HTML	Hyper Text Markup Language
CSS	Cascade Style Sheet

4. Software Quality Assurance Plan

4.1 Purpose

This document represents the Software Quality Assurance Plan (SQAP) for software development.This document outlines the quality standards for the projectile project of our team's project. SQAP is a formal process for evaluating each stage of the SDLC. The primary objective of the SQA process is to ensure the production of high quality work products according to stated requirements and established standards.These standards are primarily derived from software requirements, software architecture documents and conform to the requirement of the stakeholders.

4.2 Reference Documents

- Project Plan
- System Test Plan
- Software Documentation Plan
- Configuration Management Plan
- Risk Management Plan
- System Requirements Specification

4.3 Management

Quality Assurance Team (QAT) provides objective evaluation of processes and associated work products. Project QA activities ensure that:

- Products built meet the appropriate standards and requirements
- Processes are performed as documented
- Nonconformances found are identified and the appropriate corrective action is taken
- QA effectiveness is measured.

The QAT will review the product in every aspects at very frequent times. The QAT will always keep on evaluating the software at every stage of development.

4.4 Documentation

The documents to be delivered in the specific phases of the project are listed and outlined in this section. It will identify the documentation governing the development, verification, validation, use and maintenance of the software.

The following software documents will be developed:

- Feasibility Report
- Project Plan
- Software Development Life Cycle
- System Requirement Specification
- System Test plan
- System Design Docs
- Configuration Management

- Risk monitoring, management and mitigation plan
- Test report
- Test cases
- Software Quality Assurance Plan
- Deployment Plan
- User manual

4.5 Standards, Practices and conventions

4.5.1 Document standards and convention

All the documents have been made with a reference to high standards, most of the documents follow IEEE standards. The definitions have been taken from google and some reference documents. All the documentation reviews have strictly followed the developed standard to ensure technical and editorial clarity and accuracy of the documents.

4.6 Tools, Techniques and Methodologies

The following tools are to be used for the development of documentation and code:

- The coding will be done in HTML, CSS, Python, Django, Sqlite, JavaScript ,Java,XML.
- Documentation will be done using ShareLaTeX and Google Docs.
- Website and android application will serve as repository for the deliverables.
- *Slack and whatsapp group* will be used for discussions and communication between team member

4.7 Software Quality Assurance Activities

4.7.1 Quality control

Every member of the team is assigned the responsibility of reviewing each document very carefully, except the documents authored by himself.Along with that they also ensure the correctness and completeness of the document and ensure that document that is created meet all the requirement specifications and there is no ambiguity in the document.
The QAT will ensure that all the functionalities of the software system are working in a effective and efficient manner.

4.7.2 Review

Every document will be made with the IEEE standard reference, and for the documents for which we would not find the IEEE standard, a reference template of some samples would be followed. The content to be written in the documents would be discussed among the team members, so that it would be easy to minimise as much as errors possible. The QAT will review the documents and would ensure that it has followed Standard Conventions. In case of any changes it will be informed to concerned person and necessary changes will be carried out. In order to do required changes deadline will be set to upload the modified document. Also the review of the codes will be carried out to ensure minimal flaws in it.

4.7.3 Audit

The aim of a conducting software audit is to provide an independent evaluation of the software products and processes to applicable standards, guidelines, plans, and procedures against compliance.

Roles and Responsibilities of Formal Audit:

- **Manager:** Here the team leader will act as the manager who decides on what needs to be reviewed and ensures that there is sufficient time allocated in the project plan for all of the required review activities.
- **Moderator:** The Moderator, also known as lead reviewer, reviews the set of documents. The moderator will make the final decision as whether or NOT to release an updated document.

- **Author:** The author is the writer, who develops the document(s) to be reviewed. The author also takes responsibility for fixing any agreed defects.

In case of any major changes it must be conveyed to the entire team first. These changes are made only after review of the respective team members. After the approval of the reviewer necessary changes are made and there changes are recorded carefully which also be reflected by the work distribution document

4.7.4 Validation and Verification

Validation :
It is the process of evaluating the software product at the end which deals with the assessment of the accuracy which must be represented by the product means if the product being created is right or not. It checks whether product it has compliance with the specified requirements.

Verification :
This keeps track whether product in the current stage fulfills the requirements stated in the previous stages or not. It checks whether product being made in the current stage is right considering the entire project.

Verification and Validation will be applied at each stage of the software development. It will be useful in discovery of the defects in the system. It will also ensure the assessment of whether or not the system is useful and usable in an operational situation. This will ensure that the software is qualified in its Purpose.

4.7.5 Testing

The test plan will ensure that the software is well tested in every aspects and it functions well.
This will be done to ensure that standards of quality, verification and validation are met.
The testing process will be run parallely with the software development. Before jumping to the next stage, a stage will be tested, validated and verified. The process of testing will help in identifying the major errors and risks in the software system that might occur due to various reasons. The testing will be carried out as functionality testing as well as implementation testing.