Software Quality Assurance Plan 1.0
Airline Reservation System

Submitted in partial fulfillment of the requirements of the degree of Master of Software Engineering

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TABLE OF CONTENTS

1. Purpose ............................................................................................................. 3
2. Reference Documents ........................................................................................ 3
3. Management ....................................................................................................... 3
   3.1 Organization .................................................................................................. 3
   3.2 Responsibilities ............................................................................................. 4
   3.3 Tasks .............................................................................................................. 5
4. Documentation ..................................................................................................... 5
5. Standards, Practices, Conventions and Metrics .................................................... 5
6. Reviews and Audits ............................................................................................. 6
7. Test and Problem Reporting ................................................................................ 6
8. Tools, Techniques and Methodologies .................................................................. 6
9. Records collection, Maintenance and Retention ................................................... 7
10. Deliverables ........................................................................................................ 7
1. PURPOSE
The main purpose of the Software Quality Assurance plan is to ensure production of high quality end software product according to the specific requirements stated. The Software Quality Assurance plan of the Airline Reservation System establishes the goals, processes and responsibilities required to ensure high quality and on-time delivery of the project. The results of the reviews and audits conducted in the Software Quality Assurance plan would be provided to the appropriate management of the project, so that they can track and assess the progress being made on the project.

2. REFERENCE DOCUMENTS
- IEEE standard for Software Quality Assurance Planning
- IEEE guide for Software Quality Assurance Planning
- Project Plan document for the Airline Reservation System

3. MANAGEMENT

3.1 ORGANIZATION
The organization consists of the supervisory committee, major professor, developer and two formal technical inspectors.

Supervisory Committee
The supervisory committee consists of:
- Dr. Daniel Andresen
- Dr. Torben Amtoft
- Dr. Mitchell L. Nielsen

Major Professor
- Dr. Daniel Andresen

Developer
The developer for this project is Kaavya Kuppa.
Formal Technical Inspectors
The formal technical inspectors of the Airline Reservation Project are:

- Sandhya Bathini
- Srunokshi Neelakantan

3.2 RESPONSIBILITIES

Supervisory Committee
The supervisory committee will be responsible for attending the presentations and submitting their reviews at the end of each phase. After each presentation, the committee will provide feedback and suggestions pertaining to each phase.

Major Professor
The major professor of the project will supervise and evaluate the work of the developer on a regular timely basis. Along with the other supervisory committee activities, he will also measure the progress being made by the developer at each meeting.

Developer
The developer of the project will be responsible for all the documentation and software development tasks of the Airline Reservation System project. The developer will also meet the major professor on a timely basis to report the progress of the project.

Formal Technical Inspectors
The formal technical inspectors are necessary to ensure good quality of the software design of the project. They will be responsible for a technical review of the architecture design artifacts and the formal requirements specifications and will also be required to submit a formal report based on their observations.

These formal technical inspectors will be provided with a formal technical inspection checklist, which will contain all the items that need to be inspected. After inspecting the project against all the items in the checklist, the two technical inspectors will provide their report, which will be included in the documentation for the project.
3.3 TASKS
All the tasks performed during the Airline Reservation System project are documented in the project plan. The project plan along with the software quality assurance plan will be reviewed at the end of phase 1 by the supervisory committee and all the changes necessary will be incorporated in the documents and will be submitted at the end of phase 2.

4. DOCUMENTATION
The documentation for the Airline Reservation System project consists of documents submitted at the end of each phase of the project. They consist of the vision document, project plan, software quality assurance plan, architecture design, test plan, formal technical inspection, prototype, user manual, component design, source code, assessment evaluation, project evaluation, references and finally the formal technical inspection letters. The supervisory committee will review all the documentation submitted at the end of each phase for final approval. All the documentation prepared for the Airline Reservation System project will be uploaded at the developer’s website at:

http://people.cis.ksu.edu/~kaavya/MSE%20PROJECTPAGE.htm

5. STANDARDS, PRACTICES, CONVENTIONS AND METRICS

Documentation Standard
The IEEE standards are used as a guideline for all the documentation of the project.

Coding Standard
The project follows the guidelines in the C# coding standards and style guide.

Commentary Standard
Comments are used in the project to give a brief description of the code, which mainly focuses on the functionality and purpose of the commented areas. Each block of statements will be well-commented. Each routine will also have a comment which will be placed above the specific routine.
Testing Standard
The IEEE standard for software test documentation will be used for the Airline Reservation System project.

Metrics
The basic COCOMO model will be used to estimate the project time and effort.

6. REVIEWS AND AUDITS
The main purpose of the reviews and audits is to check the quality of the application as it develops. Apart from the audits and reviews conducted periodically, all the project documentation will also undergo some technical inspections which will ensure that the quality of the documentation is in compliance with the project. The developer of the project will give three formal presentations, one at the end of each phase. The supervisory committee members will conduct periodic reviews on the project code and documentation and will also evaluate the performance of the developer at the end of each phase. So, the committee members will also evaluate the software prototype at the end of each presentation and suggest changes that need to be incorporated in the project code or documentation. The two formal technical inspectors of the project, assess the architecture design artifacts and submit a formal report based on their observations.

7. TEST AND PROBLEM REPORTING
The developer of the Airline Reservation System will develop a test plan which will outline all the test activities. All the tests and their results will be evaluated and documented. These documents will also be reviewed by the supervisory committee members. All the unresolved problems will be reported to the committee members.

8. TOOLS, TECHNIQUES AND METHODOLOGIES
The following are the tools that will be used for coding, testing and documentation:

- Microsoft Visual Studio .NET 2003 – for coding
- C# - for coding
- HTML – for coding
• JavaScript for coding
• IIS – for web server
• ASP.NET – for web forms
• SQL server 2000 – for database server
• MS WORD 2003 – for documentation
• XML – for coding
• NUnit – for unit testing
• JMeter for performance testing
• User Testing

9. RECORDS COLLECTION, MAINTENANCE AND RETENTION
Three copies of the design documentation are to be produced. One will be kept in the Kansas State University Library, one with the major professor and the third with the developer himself. A softcopy of the entire source code, documentation and web pages of the Airline Reservation System project will be submitted to the major professor. A copy will also be kept with the developer.

10. DELIVERABLES
The following set of deliverables will be submitted at the end of each phase:

Phase I
Vision Document 1.0
Project Plan 1.0
Software Quality Assurance Plan

Phase II
Action items identified during phase I
Vision Document 2.0
Project Plan 2.0
Formal Requirement Specification
Architecture Design
Test Plan
Formal Technical Inspection – submitted by two individual MSE students
Executable Architecture Prototype

**Phase III**
Action items identified during phase II
User Manual
Component Design
Source Code
Assessment Evaluation
Project Evaluation
Test Results
References
Formal Technical Inspection- submitted by two individual MSE students