Quality Management Plan

Data Mining of Digital Library Usage Data

Team 07

Clients

Jewel Ward

Team Members

Project Manager: Maxim Krivokon
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Version control

Date	Author	Version	Changes made
2/4/05	Bo Lee	0.1	Initial Draft
2/9/05	Bo Lee	0.2	Revised Reference

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1 Introduction

1.1 Overview

The primary purpose of this plan is to provide practices and standards to the development team members and the future maintainer(s) of the system developed as the result of CS577(Fall 2004-Spring 2005) project, the Data Mining of Digital Library Usage Data, in order to achieve the high quality software. With respect to these practices, the result system is developed and delivered to the clients with all capabilities met specific requirements described in the SSRD and the customer/user's operational concept defined in the OCD.

To assure the quality of the system, the project utilized several review techniques along with the MBASE guidelines and WIN-WIN spiral Model. The review techniques are:

- Internal Agile Review
- Peer Review
- Verification and Validation by the IV&Vers.

Please refer to LCP section 4 for more information.

1.2 References

MBASE Guidelines v 2.4.2:
http://sunset.usc.edu/classes/cs577b_2005/guidelines/MBASE_Guidelines_v2.4.2.pdf

Project Website:
http://seacliff.usc.edu/~team7b/

Life Cycle Plan, version 4.0
http://seacliff.usc.edu/~team7b/RLCA/ LCP_RLCA_S05b_T07_V04.0.doc

SSRD, version 2.1
http://seacliff.usc.edu/~team7b/RLCA/SSRD_RLCA_S05b_T07_V2.1.doc

OCD, version
http://seacliff.usc.edu/~team7b/RLCA/ OCD_RLCA_S05b_T07_V6.3.doc

1.3 Change Summary

[None for initial draft]

2 Quality Guidelines

2.1 Design Guidelines

- The design depicted in SSAD is based on the common agreements between all the developers in the team, so that each developer has the same concept on the system and how the design is implemented to prevent future time-consuming argues on the base design concepts in the middle of the implementation.
- The design of this system is documented in SSAD using UML diagrams created with Rational Rose.
- All changes occurred in the design phase will be modified in Rose model. Afterward, this model will be used to modify the code.
- The design of all classifiers, classes, and objects associated with this project should be simply mapped to classes and objects in the code.

2.2 Coding Guidelines

- For better communication among team members and better maintainability, we take the C++ coding guideline stated in http://www.nfra.nl/~seg/cppStdDoc.html. (The link is provided by MBASE guidelines) But we don't take all of them but selected ones which are decided by team members.
- We are also taking coding conventions among team members.
- The header of each source code file should contain: version control and history, implementation consideration, unit verification, integration, and additional information that help understanding of the source code.

2.3 Quality Assessment

The quality assessment will be conducted among team members, the IV&V members, and the clients. Also, the quality assessment will help to improve the quality of software. The reviews will be done on each iteration artifacts to capture problems as soon as possible. Iteration Assessments are also performed at the end of each iteration in Construction Phase.

Please refer to LCP section 4.1.2 and section 4.4 for more information.

2.3.1 Peer Reviews

Please refer to the Peer Review Plan for more specific details

2.3.1.1 Types of peer reviews

Please refer to the Peer Review Plan for more specific details.

2.3.1.2 Degree of data gathering

Severity

- **Major**
  - Condition that causes operational failure, malfunctioning, or prevents attainment of an expected result.
    - This can be a case where the design of the architecture is such that it doesn't satisfy the requirements of the client.
  - Information that would lead to an incorrect response or misinterpretation of the information by the user.
    - Wrong UML Diagrams
  - Deviates from the requirements.
    - Assumptions by the development team and not clarifying it with the client
- **Minor**
  - Is a violation of standards, guidelines, or rules, but would not lead to a discrepancy report.
    - If MBASE Guidelines followed is not the one prescribed for the coursework
  - Information that is undesirable but would not cause a malfunction or unexpected results.
  - Information that if left uncorrected may decrease maintainability
    - Spelling mistakes and grammatical errors

Avoidable/ Unavoidable

- **Avoidable**
  - Changes in analysis, design, code or documentation arising from human error, and which could be avoided through better analysis, design, training, etc.

- **Unavoidable**
  - Unavoidable defects (AKA changes) arise because of the methods, techniques or approaches being followed necessitate changes.

Please refer to the Peer Review Plan for more specific details.

2.4 Process Assurance

Details for this section under development.

(Please refer to LCP section 4.4.1 for more information.)

2.5 Product Assurance

2.5.1 Requirement Verification

The client meetings will be conducted throughout the development life cycle in order to discuss problems and reach agreements. As a result, it could guarantee that the development progress is on schedule and that all clients' requirements are fulfilled.

Any evolution requirement changes from the clients will be documented in the SSRD and all other documents as evolutionary information to develop the future version of this software.

All the requirements in SSRD are analyzed and simulated simultaneously. When a problem occurs, we held a client meeting and demonstrate the requirement with the problem and make compromise and agreement on the requirement with the clients. During each iteration, we inspect the requirements by tracking their consistency among artifacts and make sure they were achieved as desired by testing.

2.5.2 Independent Verification and Validation

We have three IV&Vers: Shing-Cheung Chan, Marie Chi, and Kristine Guevara. They are responsible to review and test all the deliverables to ensure the completeness and correctness of each deliverable and verify and validate the project's compliance with its documentation, code standards, and feasibility of the solution. They will mainly check on the consistency among artifacts/documents according to the MBASE GL v.2.4.2, evaluate the feasibility of the solutions to each requirement, and check on the readability of the artifacts/documents.

The IV&V tasks on the project include:

- Review all deliverables and provide quality reports for each document.
- Evaluate quality reports.
- Create Test Plan
- Perform acceptance test and report results

2.6 Problem Reporting and Tracking System

As shown in LCP for QR, all of concerns and defects will be reported in the form of Agile Review Form provided by CSE. The reports from team members including IV&Vers will be collected via electronic copies. All reports are to be sent to the author and the review leader of each artifact/document. (refer to Peer Review Plan). Collecting QRs, reporting, tracking of the concerns, defects, and problems is the result of the Internal Agile Review that the team is performing throughout the development. These reports and forms must be available on the project website for the clients and TAs. The responsibility of monitoring and ensuring the availability of these reports is mainly on the project manager.

2.7 Configuration Management

Every document has its own version change history. All the major changes to the document should be stated in the change history with its modifier, version, and date.

Source code files should follow the coding standard and coding conventions.

2.7.1 Configuration Item and Rationale

The Configuration Management Items (CIs) and the rationale to select them as CIs are depicted in the Table 1 in the next page.

CI name	Category	Volatility	Impact of Change
OCD, SSRD, SSAD, LCP, FRD, Iteration Plan, Transition Plan, PRP, QMP	Documents	Low to None There will be no change in these documents during construction phase, unless the clients request.	Severe Since those documents are the blueprint of how this system will be developed, even a small change can affect the software development a lot.
Code	Source Code	Medium to High The code is changed all the time during the construction phase. The change rate is high at first part of construction phase. After the program gets mature, the system becomes stable, the change rate will be slowed down.	High Coding is the process that consumes the most of time in CS 577b, so any change in coding may cause schedule slippage.
Test plan, Test case	Tests	Medium Test Plan will not be changed unless the client requires. Test report may change during the construction phase.	Medium The result of test cases will be used to verify functions and modifying codes.
User Manual	Object	Medium to High The user manual will be developed along with coding.	None The user manual has no impact to the delivered system.
Rose Model	Object	Low to None There will be no change in the Rose Model during construction phase, unless the clients request.	Severe Since Rose Model is the part of other documents which play as the blueprint of how this system to be developed, even a small change can affect the software development a lot.

Table 1: Configuration Item and Rationale

2.7.2 Identification System

Refer to LCP Section 4.3.1 Product Element Identification

2.7.3 Storage and Configuration Items

All documents will be made available to view at
http://seacliff.usc.edu/~team7/

The team is using Rational Corporation's ClearCase.

2.7.4 Configuration Control

- The following flowchart represents the change management process that the project applies. This process is applied to changes to the baseline artifacts.
- The Configuration Control Board(CCB) consisting of the clients, project manager, system analyst, system architect is in charge of change management process.

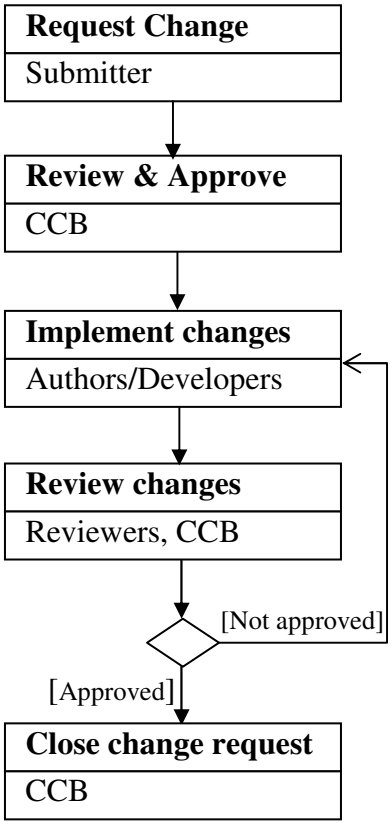

Figure 1 Change request procedure

2.7.5 Status and Accounting

All of the changes made must be reported in the change history in that respective document/artifact/code by the modifier. In addition, the status of the document must be reported in weekly progress report (PR) in order to provide other members information about that document. For the major change during the Peer Review, it will be reported in Agile Review Report as QR.

2.7.6 Baselining Events

As shown in LCP, the baseline event of this project in CS577b will be

1. RLCA
2. Construction Iteration I
3. Construction Iteration II
4. Transition Phase 1

2.7.7 Resources and Personnel

- We are using Clearcase as the tool for configuration management.
- Genesan Kim is in charge of configuration management and performs CM tasks including administrating Clearcase.
- Bo Lee is in charge of Peer Review Plan and assignment of reviewers.

2.7.8 Tools

- Clearcase is used for version controlling.
- The Agile Review Form is used to keep review results.

2.8 Testing Guidelines

Please refer to the Test Plan for specific details

2.8.1 Testing Requirements

Please refer to the Test Plan for specific details

2.8.2 Deliverables

Test report will be generated for each test session to indicate whether this test is success or not. If not, the test report will give reason and found errors.

2.8.3 Tools

TBD

2.9 Defect and Change Management

The reviewers will use the latest Agile Review Form template to report any defects and concerns with the standard described in the form. The review process will be performed during a certain period of time with certain personnel assigned to that particular review. Refer Peer Review Plan for more specific details.

2.9.1 Reporting procedures

In the Peer Review, participants will use the latest Agile Form template.

2.9.2 *Tracking*

By using version control, each document will change its version number, when the author conducts major changes. All those changes are to be logged in change summary in that document.

2.9.3 *Resolution*

- Each team member is responsible for his/her primary part.
- The team manager must have and keep track of all the artifacts.
- The assigned reviewers and IV&Vers are responsible for the completeness and correctness of the reviewing artifact.

3 Common Definition Language

Term	Definition
ARB	Architecture Review Board
FRD	Feasibility Rationale Description
LCA	Life Cycle Architecture
LCO	Life Cycle Objective
LCP	Life Cycle Plan
RLCA	Rebasedlined Life Cycle Architecture
OCD	Operational Concept Description
SSRD	Software and System Requirement Definition
SSAD	Software and System Architecture Description
PR	Progress Report
QMP	Quality Management Plan
PRP	Peer Review Plan

4 Appendix

4.1 Appendix with Agile Artifact Review Form Set and Instructions

Agile Artifact Review Form Set and Instructions can be found at:
http://sunset.usc.edu/classes/cs577a_2004/assignments/Team/AgileInternalReview.zip