SE-4831: Software Quality Assurance
Lab 1: Post-Mortem Retrospective Analysis

"Signal successes in engineering have tended to arise not out of a steady and incremental accumulation of successful experience, but rather in reaction to the failures of the past."
– Henry Petroski

1. Introduction

"Post-delivery reviews (some call them retrospectives) are generally acknowledged to be important, both from the point of view of determining customer satisfaction and from the point of view of process improvement. But, most organizations do not do post delivery reviews."
– Robert Glass

Post-Mortem analysis of projects is one of the methods used to improve one's software quality. It too often occurs that the lessons learned of a software project are discarded because, due to schedule constraints, before one can review the previous project, the next project has already started.

In order to prepare for the rest of this quarter and the labs associated with SQA, as well as to help with your senior design projects, today's lab will focus on being a post-mortem analysis of a project you have participated in. As Junior's, you all were exposed to software engineering through the SDL course sequence. Today's lab session will consist of a post-mortem analysis of your projects from the SDL.

2. Lab Specifics

In today's lab, you will work in groups based upon the groups you had in the SDL. Each group will analyze their own experience in the SDL, attempting to discover the major lessons learned about software development. As a team, each group will prepare a lessons learned document, addressing the things that went correctly with the process that was followed in the SDL as well as the things which did not go correctly in the SDL. These lessons should then be applied to your work on your Senior Design Project.

Retrospectives / post-mortem reviews should focus on four questions namely:
- What did we learn?
- What would we do differently (in the future)?
- What did we do well that we don't want to forget?
- What still puzzles us?

It is important to remember that the key goal of a retrospective is to understand what happened. A retrospective must not digress into a gripe session in which blame is assigned. No one should feel embarrassed nor shall judgment be applied directly towards one person. This leads to the Prime Directive for today's retrospective:

> *"Regardless of what we discover, we understand and truly believe that everyone did the best job they could, given what they knew at the time, their skills and abilities, the resources available, and the situation at hand."*

3. Post-Mortem Process

We are going to use a variant on the process described by Wiegers in Project Initiation: A Handbook with Tools In this process, a single meeting is used assess the experiences gained from a software development project. This process can be applied whenever a project completes or whenever a change in software phase has occurred. The process itself has multiple steps, namely
- Planning the Retrospective
- Identifying the Roles
- Holding the Retrospective meeting
    - Brainstorming
    - Structuring
    - Analyzing
- Reporting.

3.1. Planning the Retrospective

In essence, this is one step of the retrospective which you will not need to complete. A completed worksheet Planning the retrospective is provided in the Appendix to this document. You will not need to plan this retrospective. Rather, you will need to be familiar with the tasks at hand.

3.2. Identifying the roles and participants

During the first five minutes of the meeting, teams will need to define their roles. From each team, one person will need to volunteer to be a moderator for another review. That person will not participate in the review of the product, but instead will supervise a retrospective for another team. At the end, this person will come back and find out what was learned about their SDL project from the retrospective.

3.3. Holding the meeting

After the roles have been defined, a retrospective meeting will be held using the procedure documented in the Retrospective Procedure documentation. In essence, determining the things gone right and wrong with a project

begins with a brainstorming. We will use a management approach called an Affinity Diagram. The Affinity Diagram was devised by Jiro Kawakita in the 1960s and is sometimes referred to as the KJ Method

In this phase, each participant in the post-mortem analysis receives a set of post-it notes. On each note, one topic is to be written on the note. This can either be something that went right or something that went vastly wrong. As each participant writes the note, they will then attach the item to an appropriate white board. When doing this, they will explain to the other participants why this was important. This will continue round robin until all participants have discussed their issue.

Once brainstorming has been completed, the results will be structured. Post-it notes with similar or related topics will be placed closer to each other, and will be given a single, common name that describes the content. When structuring, each of the topics will also be prioritized so that the most important topics can be analyzed first.

4. Reporting

To document the results of the Post-Mortem analysis, you will write a report. The report shall follow the template available on the course website. In addition to the template, an appendix shall follow the report providing the raw notes recorded by the scribe during discussion.

5. Lab Agenda

Part	Duration	Purpose
1	10	Lab Introduction by Professor / Team Assignments
2	5	Facilitator Opening the meeting
3	15	Issue Brainstorming and discussion
4	15	Things gone right brainstorming and discussion
5	5	Break
6	15	Issue Clustering and prioritization
7	15	Root cause analysis
8	15	Improvement Idea development
9	10	Final Individual Questions
10	5	Wrap-up of meeting and report writing delegation

6. Lab Deliverables

By 23:59 on December 10, 2013, each SDL group should submit a retrospective on their experience in the SDL. Materials should be submitted using the course website submission system and be in PDF format.

If you have any questions, consult your instructor.

Retrospective Planning Worksheet

Project: _Software Development Lab Projects__   **Planning Date:** _December 4, 2013_

Item	*Considerations*	*Plan*
Sponsor	Who is the management sponsor for the retrospective?	Dr. Schilling Dr. Hornick Dr. Sebern
Objectives	What does the sponsor want to accomplish as a result of the retrospective?	The objective is to identify practices that worked well and should be encouraged for future SDL development teams as well as identify the failures that should be used to discourage future development teams.
Beneficiaries	Who are the target beneficiaries of the retrospective?	SDL Instructors Future SDL students
Scope	Single project or multiple projects? Exactly what is being reviewed? What functional areas are included? Are specific issues of particular interest for exploration?	Project(s): Your SDL Project as completed Functional Areas: Issues:
Participants	Who will participate in the retrospective?	All SDL team members will participate excepting one student who will be facilitating another project review.
Deliverables	What documentation will result from the retrospective?	Final Documentation: Due December 10, 2013 at 23:59.
Issue Generation	Will issue generation take place prior or during the review meeting? Using what methods?	Prior or During: Affinity Diagram
Number of Meetings	How many meetings should be planned, based on the scope of the retrospective?	One meeting for the retrospective. Additional meetings may be required to complete the report.
Techniques	What methods will be used for the major retrospective activities?	See previous description
Roles	Who is the facilitator? Who is the scribe? What are their responsibilities?	Facilitator: The facilitator will be a person from another team. Responsibilities: Keep the meeting on track and focused. Ensure that meeting is progressing appropriately. Scribe: To be selected from the team members

Item	Considerations	Plan
		Responsibilities: Record the discussions and capture the content.
Management Role	What is management's role in the context of the retrospective?	Management will not be present for the retrospective. Management, however, is interested in finding out as many root causes of problems from the SDL experience.
Metrics	What project metrics will be collected and archived?	Any relevant development metrics from the project should be used in support of the retrospective. Key metrics would be time logs showing effort devoted to specific problems, time logs devoted to defect fixes and or other unplanned activities.
Project Artifacts	What project artifacts will be collected and examined during the retrospective?	You may use any artifact that you have access to from your SDL experience.
Communicating Plans	How and by whom will the planning details be communicated to the participants?	
Individual Preparation	What individual preparation is necessary prior to the retrospective meeting?	Individual preparation should occur in advance of lab. Specific individual tasks involve thinking about the things that went well, the things that caused problems, and the areas which could be improved. Furthermore, individuals should bring any relevant quantitative data associated with their statements.
Logistics	What items does the facilitator need to take to the retrospective meeting (pens, markers, sticky notes, tape, paper, laptop)? Is the room properly equipped (projectors, flipcharts, space)?	You will be provided with sticky notes for the retrospective.
Communicating Results	How will the meeting results be communicated? Who will receive the communication? Consider objectives, scope, deliverables.	The results of the retrospective will be submitted to Dr. Schilling via electronic submission.
Action Plan Owner	Who will be responsible for follow-up on action plans and process improvements following the retrospective?	