

CSE 403 – Spring 2006 Assignment 3

Goals: To refine the scope and feature set of the accepted project ideas. To develop a detailed architectural design and phased product delivery plan, given the available time and resources.

Due date: Wednesday April 19, before 10PM, via “`attu>turnin -c cse403 -p lca <filelist>`”

Presentation date: Thursday and Friday April 20, 21 in class.

Overview: The purpose of this group assignment is to accomplish the detailed planning, specification, and design required before you implement your ideas in code. In addition to the deliverables described in Boehm and elsewhere, you will prepare a test plan that reflects your vision of *what* you are going to test and *how* you are going to test it. This is needed because testability is often found to be highly correlated with design quality – if you can't test it easily, there is likely some problem in the design.

Your team's results at the end of this stage will be presented as the Lifecycle Architecture (LCA) review milestone. You need to convince your audience that

- you fully understand what it is that you are building;
- you have a solid idea how to approach building it; and
- you have the resources to do so in the time available.

For more background material on the content of the LCA review, refer to the in-class discussions on the topic, including requirements gathering and specification and design techniques, as well as the cited references.

Deliverables: Much of this review elaborates on that used in the LCO review. You can draw on that as a starting point but do not feel compelled to stick too closely to it, especially if you believe that changes are necessary to improve its focus and/or scope. Your goal at this stage is to accurately define the actual product to be built. So, the result of the LCA milestone should leave fewer options and open items (as compared to the LCO review), and should contain more detail and decisions.

We will expect to see the following documents from your team:

1. Overview presentation (5 points). A set of PowerPoint slides summarizing the LCA elements for your product. This is the pitch that your team will give to the class.
2. Specification document (5 points). This will accurately and as completely as possible reflect the product you are building, from the viewpoint of both the customers (what they want to see built) and the product administrators (what service modules they will need in order to run your product correctly). The document may also reflect what is *not* in the scope of the product. Consider making a Release Feature List as part of the specification. See the lectures and the article by Joel Spolsky for suggestions on content.

3. Architecture document (5 points). This is a detailed definition of the system and software components. It will carefully and clearly identify the modules and interfaces between modules required to implement the system. The modules should be specific, not just “client,” “server,” or “GUI”. Address both the design of the system from the customer’s viewpoint, as well as that of the developer or administrator. Use the lectures and the article by Dave Parnas for content suggestions.

Hints: Good interface definitions are invaluable for shedding light on design quality. Diagrams are an important tool to understand components and their relationships.

4. Team structure, schedule, task assignments and risk assessment (5 points). Describe your team structure (how you have organized the team, what are members’ roles and responsibilities), elaborate on milestones (external and internal), define tasks, and specify the team member responsible for each task. This should reflect your *actual* plan of work, possibly including items your team has already completed (e.g., while preparing for the LCA milestone). Identify the top five high risk areas of the project along with an analysis showing why you believe they will not become “show stoppers” for the project, and what your risk mitigation paths would be.

5. Test and documentation plan (5 points). Describe what aspects you plan to test and why they are sufficient, as well as how specifically you plan to test those aspects in a disciplined way. Discuss unit test and system test strategy, along with specific test suites identified to capture the requirements. Define the documentation that you plan to deliver with the system, e.g., user guides, admin guides, man pages, help menus.

Note: Some of these issues have not been covered in class yet, so they may sound unfamiliar to you at this point. By the time the LCA milestone arrives, we expect to have discussed in class much of this material.

Mechanics: You will be working as a team for this assignment and have one deliverable package for the team. While you are not strictly limited to a fixed maximum number of pages for each document, keep in mind the virtues of clarity and conciseness.

Please have one person from your team submit your deliverables together so that all files will be stored in the same place.

This assignment is due before 10 PM, Wednesday April 19.

Grading: In evaluating your work, we will be looking to see that you have addressed all the necessary elements of an LCA review, covered well the planning material described above, and made reasonable decisions related to all project components. This assignment represents 10% of your course grade.

References (These links and more are on the class web site.)

Steve McConnell, Rapid Development

Steve McConnell, Software Project Survival Guide

Barry Boehm, Anchoring the Software Process

Joel Spolsky, Painless Functional Specifications

David Garlan, Software Architecture

James Bach, How Do You Spell Testing? – A Mnemonic to Jump-Start Testing