

Introduction to Homework 4

The purpose of homework 4 is to complete the first Life Cycle Objectives milestone (LCO1) for the products you proposed in homework 3, and build a simple risk reduction servlet prototype.

You will do this homework with the same partner as for homework 3. Some of the documentation will be presented to the class as the LCO1 review, and then we will reorganize into larger teams to actually build those products that you feel are the strongest and most interesting candidates.

Outline

We are following a spiral life cycle model in the activities of this class. Much of what we have done so far is aimed at basic risk reduction (providing a chance to learn the tools and calibrate our sense of what is possible). You can think of our work to date as an early and informal turn around the center of the spiral.

The next turn around the spiral is this homework 4. The milestone at the end of this turn is the Life Cycle Objectives Review #1. This review is a tool to help you and the other designers and developers in the class decide which projects are interesting and practical. Some projects will not go beyond this stage, and the others will be staffed up and implemented.

Your grade on this homework is not determined by whether or not the project goes beyond this step. A good LCO review that clearly identifies the benefits, risks and costs is valuable in either case. We will be looking to see that you have addressed the identified elements and have made reasonable judgements concerning them.

The generic elements of the Life Cycle Objectives review are:

1. Operational Concepts - What is it?
Top level system objectives and scope
2. System Requirements - What does it do for us?
Essential system features at an appropriate level
3. System and software architecture - How?
Support analysis of feasibility at this level
4. Lifecycle plan - Who wants it? Who'll support it?
Identification of the major stakeholders now, future
5. Feasibility Rationale - Is this really true?
Evaluate conceptual integrity and compatibility

More information about these elements is given in lectures 4-Life Cycle, 5-Project Concepts, and 6-Functional Specs, and the Boehm paper *Anchoring the Software Process*.

Deliverables

There are two parts to this homework:

1. Documentation deliverables for LCO1
2. Risk reduction prototype servlet

Documentation Deliverables

1. An overview presentation. A set of computer-viewable presentation slides (html, powerpoint, pdf, whatever) that summarizes the LCO elements for your product. If there are several files in this overview presentation, please zip them into one file for the turnin.
2. A written analysis of the LCO elements. This should address each of the five LCO elements listed above, as appropriate for your product. This should be about 2 to 5 pages long, no longer. Note that the System Requirements element is primarily satisfied by the next deliverable which is the preliminary specification document.
3. A preliminary specification document. Lecture 6, slides 10 and 11 give an outline of the expected contents. This is a preliminary document. It should be about 2 to 5 pages long, no longer. I highly recommend Joel Spolsky's *Painless Functional Specifications*, at <http://www.joelonsoftware.com/printerFriendly/articles/fog0000000036.html> for more ideas about writing specification documents.

Risk Reduction Prototype Servlet

One of the key elements of the LCO review is a feasibility analysis of the system architecture, as it is currently understood.

A major risk in this project is that you will not be able to actually retrieve the data that your application needs. Therefore we should verify that we can in fact get the data we need.

1. Write a simple servlet that can respond to a URL entered into a web browser and send back a rough example of the data that your application will need. This does not have to be "production quality" by any means. Its purpose is to show that the data you need is available. You do not have to parse and isolate the individual data item of interest in this rough prototype, but you should at least evaluate whether or not you are going to be able to do that.
2. Base the directory structure and build files for your servlet on those in homework 3. Copy directory s3, rename it, and start over. You will need to update the file web/WEB-INF/web.xml to reflect the new servlet, including changing this entry: `<display-name>Homework 4</display-name>`. Slice and dice the java code to create a class that can provide the desired data.

3. The java.net package provides the tools you need to connect to other web sites and read their data. See the *Working with URLs* section of the java networking tutorial for help. Start at <http://java.sun.com/docs/books/tutorial/networking/index.html>.
4. Install your servlet on cubist using the same group name path that you used for hw3 (eg, /cse403z).
5. Update the release-notes.txt file in the doc/ directory to describe your servlet. Be sure to include clear examples of the URLs that your servlet responds to, and the data that you expect it to return. Describe the open issues and problems that you see ahead with this data source. This information should be fed back into the feasibility analysis step in the LCO review.
6. Build an archive file for the servlet as you did in hw3 using Ant. A command like
 >ant -Dusername=cse403z archive
will build the archive zip file for you.

References

Lectures

- 4 – Life Cycle
- 5 – Project Concepts
- 6 – Functional Specs

Papers

Anchoring the Software Process, Barry Boehm, USC
<http://citeseer.nj.nec.com/boehm95anchoring.html>

Painless Functional Specifications, Joel Spolsky
<http://www.joelonsoftware.com/printerFriendly/articles/fog0000000036.html>

Turnin

One of the partners should turn in the three documentation deliverables and the servlet archive. Please have one person do the turnin so that all the files from your group are in the same place. Make sure that your servlet is installed on cubist and can respond to the URLs you provided in the release-notes.txt file.

This homework is due before midnight, Tuesday February 4.