CSSE 374 – Software Architecture and Design I

Project Milestone 5

Milestone 5 is the final deliverable for your junior project this term.

Your team will need to update your analysis and design models from the previous milestones. The updated models should respond to previous feedback from your instructor. The models should also reflect additional analysis and design work that you will do as you extend your system for iteration 3. As in Milestone 4, you will discuss your design in terms of the nine GRASP principles. You will also discuss how you applied any applicable GoF patterns in your design.

Your team will also build on the code that you developed for Milestones 3 and 4. For this milestone, you will need to complete the domain layer and develop the user interface. You will provide your source code and demonstrate your system to your instructor. We also want to see that your implemented system matches the design described in your final document. To demonstrate this, you will lead a "code walkthrough" with your instructor to show how the system described in your design documents is realized by your code.

Objective

There are four main objectives for Milestone 5. First, we want to see that you can apply the GoF and GRASP principles effectively to your projects. Second, we want to see that you can make the transition from design to code, implementing the final iteration of your system for this term. Third, we want to see that you can complete Iteration 3 of your system, which entails both the domain layer functionality and requisite user interface and technical services layer capabilities. Having completed your code, your final objective is to demonstrate your Iteration 3 capabilities to your instructor, including walking through the mapping from your design model to the code.

Due Date

Preliminary document (tasks 1-5 below): review during regular 9th week meeting with instructor

Final document and code (tasks 1-6 below): 11:59 p.m., Friday, Week 10 (February 19th, 2010)

Demonstration (task 7 below): as scheduled, but before 5:00 p.m., Wednesday, Finals Week (Feb. 24th, 2010)

Tasks

Using the techniques discussed in Larman's *Applying UML and Patterns*, extend your work from Milestone 4 by completing the tasks listed below. We will use a grading rubric (see link from schedule) to assess your work. Please refer to the rubric, and ask questions, for additional details on our expectations. *Please note that any graphical representations* must *have accompanying text briefly stating the rationale and assumptions for the organization you have chosen.*

1. Update your analysis and design models (i.e., Domain Model, System Sequence Diagrams, Operation Contracts, Interaction Diagrams, Logical Architecture, and Design Class Diagrams) from Milestone 4 based on the feedback from your instructor.

2. Building on task 1, finalize your analysis and design models. Add any relevant conceptual classes and associations. Recognize that you have moved beyond the logical design, and physical design is quite relevant in this assignment. That is, you should expect to find a number of classes and interactions that are Pure Fabrications or utility classes (e.g., database mappers, webpage observers, device drivers). You may find it useful to do some analysis and design on functionality that will be implemented in the future. If you do that, please carefully note what parts of your models are left for future implementation.

3. Extend your discussion of GRASP principles from Milestone 4 to incorporate GoF patterns. Discuss any GoF patterns (i.e., Adapter, Factory, Abstract Factory, Template Method, Strategy, Façade, Composite, Proxy, and Command) that you applied to arrive at your design. To succeed at this task, you will need to compare your given design to alternatives. After all, the GRASP principles and GoF patterns are all about making decisions.

4. Update your acceptance test plan from CSSE 371 as necessary based on changes to your analysis and design this term.

5. Organize your Milestone 5 Analysis and Design document into the following structure:

    I. Cover Page with Title, Date, Team # (Name), and Names of Team members.

    II. Table of Contents for the Document

    III. Introduction—brief description of the problem space and the customer. If you are under any particular design constraints (e.g., you are restricted to a particular hardware or software platform), you should mention that as well.

IV. Analysis Models

V. Logical Architecture

VI. Logical Design including your discussion of design principles and patterns

VII. Acceptance Test Plan

6. Continue developing the code for your system. Extend your work from Milestone 4 by implementing classes for your user interface, domain, and technical services layers (and any other layers that are relevant to your architecture). You will need a set of relevant test cases that demonstrate the capabilities of your system. Again, we recognize the each project is unique. Work with your instructor to clarify what code you should develop for this milestone. Please ensure that your instructor has access to the code so that he can review it prior to and after the demonstration meeting. Note that you'll need to finish your design diagrams well ahead of the code deadline!

You must provide your code to your instructor as a single zip or rar file that can be shared with your client. Think of this as an interim software deliverable.

7. Arrange to demonstrate your software for this iteration by 5:00 p.m., Wednesday, Finals Week. At that demonstration, you will also need to discuss the mapping between your design and code.

Submitting Your Work

Please submit your Milestone 5 document as described above as a single PDF document to your team SVN repository. Make sure you have neatly formatted your document, so we can print it.

Name your document *FinalProjectDesign.pdf*.

Submit your code to your instructor as a single zip or rar file in the root of your team SVN repository. Name your file *FinalProjectCode.zip* or *FinalProjectCode.rar* as appropriate.