SE 3K04 Lab 5: (Fall 2009)
Software Design Specification – ABM System
Instructor: Dr. Kamran Sartipi

Low-Level Design specification and preparation of SDS v.3.0 document

Week of October 19, 2009

1 Lab Overview

This lab will be the final stage in your design process. After working on the ABM system architecture in lab three, and revising it during lab four, you should have a solid architectural design of your system. Lab five concentrates on the low-level aspect of the design. Components are further decomposed into modules (class diagrams) using the principles of *modularity, information hiding,* and *design for change (as well as class diagram notations and concepts)*. The purpose of this lab is to produce the final version of your design document that will include an overview of the modules (class diagrams) and their detailed design.

Through this laboratory session you shall be able to achieve the following objectives:
1. Practice modularization techniques.
2. Practice specifying module (class) interfaces and the internal design.
3. Produce the final version of your Software Design Specification (SDS) document, based on the previous versions and the modularization (class diagrams) of components.

2 Lab Requirements

During this lab session, you will be required to work on the decomposition of your system components into modules (class diagrams). Before leaving the lab, you should provide the TA with a complete list of your modules (class diagrams) based on the following template:

Name: *The name of the module (class)*

File Name: *The file name for the module (class)*

Naming Convention: *The specific naming convention (prefix, or postfix) used to identify functions (methods) related to this module (class).*

Short Description: *A short description of the module (class) – include the main tasks performed by the module (class), etc.*

Container Component: *The name of Component in which the module (class) is located. Also, explain the rationale for this design decision.*

This list of modules (classes) is the same as the one you will have to provide in your SDS document in the *Modules (class diagram) Overview* section. During the lab, TA's will assist you with any questions you may have. After providing them with a list of modules (classes) you will have to develop a detailed design. The detailed design will include:

- Interface Specification (public methods)
- Module Design (Class behavior design) using Statecharts

SDS3 template, posted on the course web-site, provides a further explanation regarding the detailed design. Make sure you familiarize yourself with the new sections of the template and ask the TA if you are uncertain about the requirements of those sections. Do not forget to delete the comments and update your table of contents, as well as, to add a List of Tables and a List of Figures to your final document. The mark breakdown for the different sections of the document is provided below.

2.1 Revision History (3 Marks)

Make sure to update your revision table and indicate the exact changes made to the document. Documenting the changes is as important as making these changes.

2.2 Introduction (12 marks)

Revise this section to include the changes made to the document. For example, do not forget to include the new sections in the *Document Overview* section.

2.3 Architecture (5 marks)

This section has been already revised several times and should be flawless. However, in the case you decide to change the architecture, make sure you include this in your *Revision History*.

2.4 High-Level Design (5 marks)

As with the previous section, you will probably not be required to make any major changes unless the architecture was significantly changed.

2.5 Low-Level Design (20 + 50 = 70 marks)

This is the most important section of this document. Follow the template instructions closely with regard to formatting and content.

2.5.1 Modules (class diagram) Overview (20 marks)

You have already completed the hard part of this section. This is the same list you had to show to your TA before leaving the lab. Make sure to revise it based on the TAs comments and elaborate more where needed.

2.5.2 Module (class) Specifications (50 marks)

Provide a complete specification which includes:

1. Interface Specification (IS) – a table template for IS provided to you in SDS3.
2. Statechart illustrating the module (class) behavior design.

2.6 Group Log (5 marks)

As with the SRS, include an Appendix where you will specify all of the group-work related activities that you undertook in order to produce the third version of your SDS document.

GOOD LUCK!