

CS-UH

2012

Software Engineering

Project Deliverable 3 (Design Document)

**Introduction:**

At this stage, you will decide on at least 5 primary use cases to move forward with their design.

The "Software Design" stage of the project is a pivotal phase where the foundational structure and design of the software system are meticulously crafted.

**This deliverable is graded out of 100 points.** **You must submit it as a PDF on Brightspace.**

**Instructions and Template:**

**Section 1 (10 points)**:

Select five functional requirements from your requirements document that your team will move forward with. Create 5 use case scenarios for these requirements. Document these scenarios the use case specification format discussed in class.

**Section 2 (10 points):**

System Sequence Diagram (SSD): Create 5 System Sequence Diagrams that illustrate the main success scenarios of the selected use cases. The SSDs should clearly depict the interactions between the actor(s) and the system, showcasing the sequence of messages exchanged during the use case execution.

**Section 3 (10 points):**

Domain Model: Develop one domain model that encompasses the fundamental concepts and associations relevant to the chosen use case scenarios. The domain model should include all significant concepts, their attributes along with data types, and associations. Each association within the domain model should be well-defined with a name and multiplicity.

**Section 4 (15 points):**

Operation Contracts: Based on the SSDs, write different operation contracts for the main significant operations (at least five) using the template discussed in class. In the post-conditions section of the operation contract, explicitly describe any of the following: the creation of an object instance, the formation of an association, or the modification of an attribute.

**Section 5 (20 points):**

UML Interaction Diagram: Utilize the operation contracts developed in the previous step as a reference. Create a UML interaction diagrams (at least five) that visualizes the interactions between objects during the execution of the selected operation. Annotate the messages in the diagram with GRASP patterns such as Expert, Creator, etc., where applicable.

**Section 6 (20 points):**

Bounded by the domain model, operation contracts and the interaction diagrams, create the final class diagram (one class diagram) that you will move forward with for this system.

**Section 7 (15 points):**

Include (refined) User Interface (UI) prototype screens of your application. You need to include at least two different screens. Interacting with these (two or more) screens should cover the five selected user cases.

**Additional Guidelines:**

1. Use Case Selection: Ensure that the chosen use case scenarios reflects a significant aspect of your system's functionality. Avoid selecting overly simplistic use cases and focus on those that contribute substantially to your project.
2. Submission Format: Compile your assignment into a single PDF file for submission.
3. UML Drawing Tool: You are encouraged to utilize specialized UML drawing tools to create accurate and well-structured UML diagrams. However, you can also use any non-specialized tools (E.g., powerpoint, keynote, draw.io etc).