Assignment 2

Analysis, Design and Implementation

1DV600 Spring 2016

In this assignment you are going further with your planning to the phases analysis, design and implementation. In this, you will find out the value of planning and also how successful you were at it in the first place. To perform the tasks in this assignment you will need use diagrams from UML, primarily use case and sequence diagrams.

Remember that all assignments are individual!

Task 1 -- Analysis

In the analysis phase the focus is on *what* to do rather than how to implement it. In the subtasks you will be using UML in different ways to perform an analysis on the library system that you began with in the last assignment.

Subtask a -- Identifying Use Cases

The UML way of documenting requirements is through *use cases* and in this first task you are to identify and document the use cases used in the system. When documenting a use case, it is customary to specify initiation, pre and post conditions, the primary flow as well as some additional ones. Do this for *two* of your use cases and describe the flows using activity diagrams.

Also write down your own reflections on identifying use cases and documenting them in about 100 words.

Subtask b -- Robustness Diagrams

A non-standardised, but yet highly valuable diagram, in UML is the *robustness diagram* in which in a way is a simplification of communication and collaboration diagrams. They are used to analyse the steps of a use case and validate the business logic for them, that the use cases are sufficiently robust to represent the usage requirements for the system. Create robustness diagrams for the use cases you identified in task a.

In your reflection document you write down about 100 words on your experience using robustness diagrams.

Subtask c -- Use Case Realisation

To specify more in detail what a use case is supposed to do, i.e. to realise it, it is common to use sequence diagrams. In the previous assignment you implemented the use case “List Books” and in this subtask you are to show a use case realisation of that in the form of a sequence diagram. In addition to that, do the same for the use case “Delete Book”.

Again, write down your reflections on use case realisations in about 100 words.

Task 2 -- Design

In this task you are to design the logic to fetch books in XML format (a suitable XML file is supplied). After reading the XML file it should be converted into objects in the running system and lastly translated into JSON for the web browser.

Notice that this is a *design* task and therefore suitable design diagrams from UML are to be used to describe your solution (i.e. not code). You need to identify objects used in this and what messages they are sending, and when.

As with the previous tasks, we also like you to write down your reflections in about 100 words.

Task 3 -- Implementation

Take the design you created in task 2 and implement it in the system. In addition to that, also implement “Delete Book” without first designing it. Describe your reflections on the two approaches in about 100 words.

Include in the submission

The following should be included in the submission that you hand in via Moodle:

- Suitable diagrams; use case, activity, robustness, sequence
- Design with diagram and description
- Implementation (***/*src** for Java and ***/*app** for Node.js)
- Report with all personal reflections
- Time log