Technical University of Denmark
DTU Informatics
Assoc. Prof. H. Baumeister

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Exercise Nr. 1
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02161: Software Engineering 1

A library application (user requirements)

- The library contains books, DVDs and CDs, and journals. Books, DVDs and CDs can be borrowed from any user registered with the library. Books can be borrowed for a period of at most 4 weeks; DVDs and CDs only for a period of one week; and journals can't be borrowed at all.
- Everyone with a CPR number can register as a user of the library.
- Everyone can search / browse the electronic library catalogue and search/browse for books, DVDs, CDs, journals, and journal articles by title and author. However, only a person who is registered can borrow books and DVDs/CDs. A user can at most borrow 10 books, DVDs or CDs. He can't borrow anything if he has an overdue book, DVD or CD. He can only borrow something again after he has paid a fine and returned the overdue media. It can also happen that a user looses or damages a book or DVD/CD. In this case he has to pay to the library the price of the lost media so that the library can buy it again. A user of the library can be blocked from borrowing books. This blocking can be undone.
- The librarian can register users and add or delete books, DVDs, CDs, or journals. He can also block and unblock users. He can mark books as missing. The librarian has to be able to register journal copies when they arrive from the publisher and make their articles accessible for searching.
- The librarian can generate reports on the status the library: what is the current number of overdue books; what is the current number of missing books; how often has a certain media been borrowed; how often has a certain media been borrowed that belongs to a certain topic. e.t.c..

1.1 Domain Model

- Based on the description of the user requirements of the library application, create a domain model of the important terminology, i.e. a glossary and a class diagram showing the relationship between the terms of the glossary

1.2 Business Processes

- Model the life cycle of a book using an activity diagram. Starting with the librarien getting the idea of aquiring a book, ordering x copies of the book, registering the copies of the book in the library system, borrowring and returning the book by the user, to finally deregistering the book (maybe because it is damaged) to throwing the book away. Identify where within the life cycle of the book, an interaction with the library application happens.

1.3 Use Case Diagram, Detailed Use Cases, and User Stories

1. Provide a *use case diagram* showing the use cases of the library application.
2. Take one or two use cases (not trivial ones) and present detailed use case description for them with main-, alternative-, and exceptional scenarios. Please use the template introduced in the slides of week 2.
3. Convert the use case scenarios to user stories

Hand-in

- Please send the glossary, class diagram, the activity diagram, the use case diagram, the detailed use cases, and the user stories as *one PDF* file to me (huba@dtu.dk). This is a two weeks exercise.

Programming exercise

- Finish programming exercise 1 and continue with programming exercise 2
- Please send the solution as a ZIP file of the Eclipse project to huba@dtu.dk