

SWENET Module
REQ3 – Software Requirements:
Use Case Modeling
Exercise Booklet

Developed with support from the National Science Foundation

Table of Contents

Exercise Description	2
Exercise Objectives	2
Reading Assignment.....	2
LIS Description	2
Use Case Modeling	3
Exercise Deliverables	3
Use Case Template.....	4

REQ3 Exercise: Use Case Modeling

Exercise Description

The exercise involves a reading assignment about Use Case modeling; analyzing a problem and constructing a use case model; and performing a formal review of the model.

Exercise Objectives

Students completing these exercises will be able to:

- * Describe the key concepts and terms involved in use case modeling
- * Develop a use case model for a software problem
- * Conduct a formal review of a use case model.

Reading Assignment

Read the below material:

1. Woolridge, R., "An Introduction to Use Case Analysis",
http://www.cbd-q.com/articles/1999/991115rw_caseanalysis.asp
2. Kenworthy, E., "Use Case Modelling: Capturing user requirements",
http://www.zoo.co.uk/~z0001039/PracGuides/pg_use_cases.htm

LIS Description

- * The LIS is a software system that supports operations of a library. The library lends books and magazines to borrowers, who are registered in the system, as are the books and magazines. The library handles the purchase of new titles for the library. Popular titles are bought in multiple copies. Old books, and magazines are removed when they are out of date or on poor condition.
- * The Librarian is an employee of the library who interacts with the LIS to manage library holdings.
- * Librarians can create, update, and delete information about library titles and borrowers. They can also generate a report about borrowers and about titles in the LIS.
- * A borrower is a library user who can make a loan of a copy of a title that is part of the library holdings.
- * A borrower can also reserve a book or magazine that is not currently available in the library, so that when it is returned or acquired by the library, that person is notified. The reservation is canceled when the borrower checks out the book or magazine or through an explicit canceling procedure.
- * Librarians and borrowers make requests and interact with the LIS through a library kiosk (a computer interface). Loans and returns of library material are processed

using an ID scanner.

- * The LIS is capable of running on various commonly used operating systems (Windows, UNIX, OS/2, etc.)
- * The LIS is easy to maintain.

Note: This problem was adapted from Hans-Erik Eriksson and Magnus Penker, *UML Toolkit*, John Wiley & Sons, 1998.

Use Case Modeling

1. Review the LIS description.
2. Construct a context diagram for the LIS.
3. Identify and list the Primary Actors for the LIS.
4. For each of the primary actors, state the goals for the actor; and identify and list a Use Case for each goal, using the Use Case format of *Actor-Action-Subject*.
5. Use the attached UC template to describe and document two of the uses cases identified in the preceding part 3.
6. Construct a checklist for reviewing the use cases. Use the checklist to review the use cases produced in the preceding part 4.

Note: The LIS description may not possess sufficient detail to properly determine actor goals. You may make assumptions about the LIS that seem consistent with your own knowledge about the way library systems function.

Exercise Deliverables

- * LIS Context Diagram
- * In a tabular format, list the LIS primary actors, their goals and the names of the associated use cases.
- * Completed LIS Use Case Templates for two use cases.
- * A Use Case Review Checklist.
- * A short description of the review of your use case review. Indicate how long the review took, what problems were found (if any), and changes you would make in your review process for the future.

Use Case Template

Use Case: <Use Case Name>

Primary Actor: <has goals/needs satisfied by the UC>

Goal: <high-level description of use case purpose>

Preconditions: <list of conditions that must be true before Use Case can be executed >

Main Success Scenario:

Step	Actor Action	Step	System Reaction

Post Conditions: <list of conditions that must be true when the Scenario is complete >

Exceptions:

< list of failure conditions that could occur during execution of the scenario and a description of how the system would respond >

Use Cases Utilized: < list of other use cases used>

Scenario Notes: < description of supporting actors, concurrency of actions, and any additional information such as nonfunctional requirements related to the UC.>