

EE4001/IM2001 Software Engineering Tutorial 5 and Sample Answer

Q1 Draw a use case diagram for the following library system:

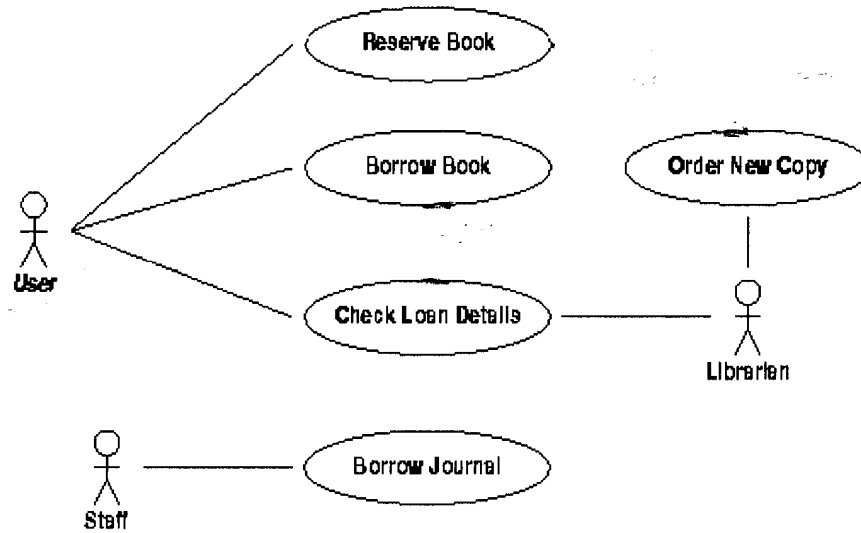
The library stores various items that can be borrowed, including books and journals. Books can be borrowed by both staff and students, but only staff members can borrow journals. When users borrow a book, their loan details are checked to ensure that they have no overdue books on loan, and have not already borrowed the maximum permitted number of books.

Users can check their own loan details at any time. Librarians are permitted to check the loan details of any user.

Library users can reserve books that are currently out on loan. If three reservations have already been made for a given book, and a further reservation is made, a new copy will be ordered by the librarian.

Q1 Answer:

The use-case diagram for the library system is as follows:



Here, the term “user” refers to both student or staff.

Q2 In a project, scheduling payments to supplier invoices via bank is one of the requirements. Payments are scheduled by sending an electronic request to the bank. All the payments are scheduled by an Accountant in the Account Department. If all the goods and services billed in an invoice have been received and the invoice is consistent with the order sent earlier, then the account will decide whether to schedule payment to the invoice. If all the goods and services billed in an invoice have been received, but the invoice is inconsistent with the order, an invoice rejection note must be sent to the supplier. Write a use-case description (only use-case name, primary actor, goal in context, preconditions, scenario and exceptions are required) for the schedule payment use-case.

Q2 Answer:

The use-case description for SchedulePayment is as follows:

Use-case: SchedulePayment

Primary actor: Accountant

Goal in Context: To schedule supplier invoices for payments.

Precondition: The use-case has been installed for the accountant to use.

Trigger: Accountant decides to schedule invoices for payment.

Scenario:

1. Accountant: Browse the outstanding invoices
2. Accountant: Select an invoice for which the goods and services have been received.
3. Accountant: Check the consistency between the goods and services billed in an invoice and the associated order sent earlier.
4. Accountant: Select the consistent invoice for payment via generating a request to the bank.

Exceptions:

1. No invoices are outstanding: exit from the use-case.
2. No invoices are selected for consistency check: exit from the use-case.
3. All the goods and services billed in an invoice have been received, but they are not consistent with the associated order sent earlier: send an invoice rejection note to the supplier.