

Software Engineering 2 Assignment

15% of Module, 50% of CA

It is ok to develop a USE model with 1 or 2 others. But reports must be written individually. If cooperating, state that on the report.

You can choose one of the following:

- Extend and test a more comprehensive USE model for the Library system in USE as discussed in class.
- Extend and test the USE model from the Restaurant lab test.
- extend the Java implementation of the Restaurant system to include another use case. Also expected to provide a use case realisation (sequence diagram and any consequent changes to the analysis class model) for this use case.
- Construct and test a USE model for Accounts Receivable Processor example in Design by Contract notes.
- Try something of interest to you but to be agreed with me. For instance try to do some design by contract code in Java for Library or restaurant.

You must produce a report in PDF which explanatory text and diagrams. Quality of report just as important as the diagrams, even more so.

In the first two options, the following types of diagram would be required: class, sequence, statemachine (statechart) and object. Also OCL contracts for some of the operations along with !openter and !opexit testing. You don't need to do this for every operation, just pick maybe 2 or 3 and analyse them in detail. Whatever you decide to model, it must include:

- You must do extra use cases besides borrow()/return() in Library or selectBooking()/recordArrival() in Restaurant. Describe the extra use case scenarios before you model them. For example change table or reserve a book.
- USE model with preconditions, postconditions and invariants. The USE code must be copied to your report as well as being submitted separately.
- Constraints must be tested with objects. Better to use SOIL implementations to make the testing easier. However, use !openter !opexit to test at least one method, note that methods with SOIL implementations can't be tested with !openter and !opexit.
- Use Windows snipping tool or something similar to copy and paste all your diagrams into your report.
- Use screen captures of testing on the command prompt window and paste them into the report.
- Also create at least two sequence diagrams in USE.
- When you can get the basics to work, build a **State Machine** for at least one class, such as the Reservation class for the library. Test drive this state machine and copy and paste it in while in various states into your report.

All the above must be put in a report along with a discussion and analysis, i.e. copy diagrams and screen captures to your Word document. **Convert the Word document to a PDF** before submitting.

Report is expected to have all the diagrams/screen captures from USE.

Note: The adding a reservation use case to the Library system greatly complicates it and is not at all straightforward. You have to think carefully about what a reservation means, which of course is the purpose of analysis modelling.

Submission

Report in PDF and USE files (.use and .soil) to be submitted thru Brightspace. **Do not use ZIP or RAR.**