

Software Engineering with Objects and Components

Practical Work: Tutorial 6

Note that you are required to do some preparation for the tutorial. Before the tutorial you need to *prepare* a short presentation that:

1. Presents the Java definition of the main classes that you are developing Java code for. *Note that in order to realise sensible and non-trivial use cases you may need to implement other classes that collaborate with the main ones.*
2. Presents the main use cases that involve those classes.
3. Presents an outline of the collaboration diagrams corresponding to those use cases.
4. Provides a summary of the test cases (i.e., unit tests and integration tests) you propose to develop to test the classes. *Note that the integration tests form the basis of your integration test plan.*
5. Demonstrates how the test cases can be traced back to the relevant use cases via the collaboration diagrams. *Hint: You may want to use (for your deliverable 2) a table similar to that one presented in the Lecture Notes on Software Testing.*

The aim of this tutorial is to identify implementation issues (e.g., conflicting definitions, missing information, etc.) that inhibit the collaboration between teams in order to realise high-level and complex use cases. Ideally:

1. This should be a small subset that would allow the rapid implementation of a basic system.
2. There should be agreement across the teams on the collection of selected use cases that will provide the basis for deliverable 2.
3. The outcome of the tutorial will be:
 - (a) An agreed set of use cases from each team that will be used as the basis for this part of the practical.
 - (b) Agreement with each team on the classes that they should provide tests and implementations for.

After the tutorial:

1. You should review the choice of use cases chosen to represent the preliminary implementation and attempt to identify inconsistencies.
2. You should finalise the definition of the main classes that will provide the basis for deliverable 2.
3. You should finalise the tests you need for your chosen classes.

Team Resources and Activities

Team Resources:

- 1 instruction sheet (this page)
- 1 blank OHP slides
- 1 non-permanent OHP pen
- 10 minutes preparation (presentation) time

Instructions: *Each team brings along the slides with the main Java class definitions they are implementing for their deliverable 2.*

1 Tutorial Activities

A Statechart Diagram [10 mins]

Each team should draw a statechart diagram for one of the classes involved in the realisation of the selected use cases. *The whole team writes one OHP slide containing their statechart diagram.*

Presentation [10 mins]

Each team will have 10 mins to present their class definitions and statechart diagram for one of the classes. The rest of the group will comment on the suitability of the proposed implementation of the team presenting. The aim of the comments should be to fix the inconsistencies in the class definitions and improve the quality of the testing of the team presenting their proposals.

The process you should follow is:

1. Each team presents their slide overviewing the Java class definitions, together with some preliminary test cases, they intend to fully implement. During the presentations a “secretary” to the group records potential issues to be resolved between the teams.
2. After the presentations, the “secretary” takes the group through the list of issues attempting to resolve them, this process will arrive at an agreed collection of classes that will be implemented for deliverable 2.
3. Teams consider the use cases their classes realise. Teams figure out high-level use cases combining the proposed use cases proposed. Ideally the classes should be non-trivial and should both be involved in meeting at least one of the requirements expressed in the use cases.

Tutorial Outcomes

By the end of this tutorial your group should have:

1. Agreed a set of use cases that capture the preliminary implementation of the system.
2. Ensured that each team has agreed on the Java class definition they are implementing for deliverable 2 (with their tutor).
3. Begun to refine what test cases are appropriate for their classes.

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