

SCOOP project: Implementation of concurrent applications

Hand-out: 17 April 2007
Due: 02 June 2007

The goal of the project is to design and implement two interesting concurrent applications (respectively three, depending on the complexity of the applications) of your own choice (which must be first approved by the assistant) using the SCOOP concurrency model. No GUI is required – the applications can use either the standard text output (console) or a text log file. The main focus is on the concurrency issues and the way you handle them with SCOOP. It is recommended to solve the exercise in teams of up to two people!

*Please submit the source code of your applications (a zip file) and a project report by e-mail to Volkan.Arslan@inf.ethz.ch until **June 02 2007**. You will need to present your project to the assistant before June 16 2007.*

1. Assessment

The final mark will depend on the following criteria:

- Correct implementation: the applications do what they are supposed to do.
- Proper use of O-O mechanisms.
- Quality of the accompanying project report.

Questions to be answered in the project report:

- 1.1. What synchronisation patterns (producer-consumer, reader-writer, etc.) have you used in each application?
- 1.2. How have you implemented each pattern? Give a short description of the algorithm you have used and include code snippets.
- 1.3. What are the main problems with the implementation of these synchronisation patterns in SCOOP?
- 1.4. Can you think of additional mechanisms or abstractions that SCOOP should offer?
- 1.5. As a programmer, what is your feeling about SCOOP? Does it allow you to program efficiently and express what you want to express? How would you compare SCOOP with other mechanisms (say Java multithreading with monitors, C#, Active-Oberon, etc.) in terms of expressivity, usability and “programmer-friendliness”? When answering that question, please try to consider all important elements, e.g. ease of code reuse, etc.
- 1.6. What is your opinion on the pre-processor integrated into the SCOOP version of EiffelStudio? How would you improve the tool?

2. Tools

You will use the SCOOP version of ISE EiffelStudio 5.7 IDE for Windows downloadable from the course website (<http://se.inf.ethz.ch/teaching/ss2007/0268/>).

3. Support

You have the possibility to ask questions during the exercise sessions on Tuesdays. You can also send questions by e-mail (concur-course@se.inf.ethz.ch). Additionally, you can drop in at RZ J3 or if you need an individual meeting with me on a particular day, just send a request to concur-course@se.inf.ethz.ch.