

SOFTWARETECHNIK SS01

ASSIGNMENT 2

In this assignment and its successor we develop the product-definition of the ECO-system. The definition should be based on the product description, the feasibility study and the templates given in the class and in Balzert's book. We require the following artifacts.

- A glossary,
- a SRS (requirements specification, Pflichtenheft),
- a product model.

We do not require a GUI-model, a pilot system or a user manual.

In this assignment we consider only part of the product model. We only model the static properties of the system and postpone the dynamic ones to the next assignment. Since the product model is developed iteratively, depending both on the static and dynamic properties, it might be necessary to revise the static properties in the next assignment.

Exercise 2: (10 Points) Develop a glossary and an SRS for the ECO-system, including a solution to the following problem.

The project description requires that all enrollments of events by secretaries, professors or authorized employees are preliminary. Only the coordinator—the responsible person at the Dekanat—can definitively register, cancel and announce events. The system should guarantee data consistency, safety, liveness, fairness and quality properties.

- *No enrollment may interfere with data the coordinator or some other actor is concurrently working on (safety).*
- *No enrollment may violate a constraint on the location (safety).*
- *No actor may block an enrollment forever (liveness).*
- *The system should present to the coordinator proposals for registering enrollments such that the following holds.*
 - *Every enrollment will eventually be registered (fairness).*
 - *Colloquia (Fakultätskolloquien) have priority over external talks (Gastvorträge) and external talks over the remaining events. A colloquium can force cancellation/rearrangement of any other event (priority).*
 - *The number of enrollment conflicts is small, but not necessarily optimal (quality).*

Find a mechanism to guarantee both fairness and priority. Minimizing the number of conflicts has lower priority than establishing the safety, liveness, fairness and priority properties. It should also be possible that the coordinator manually breaks fairness and priority. Assume, for instance, that somebody has enrolled an event and been rejected by the coordinator because of a conflict. Moreover there is a long list of later enrollments. Then it might be desirable that this enrollment does not go back to the end of the list, but is considered with preference.

For didactic reasons, follow the template for the simplified variant of the requirement specification in (Balzert p.115–118) and the example in (Balzert p. 1107–1115). Do not follow the SRS-template based on the ANSI/IEEE standard. Model the product functions (Produktfunktionen) by use cases, following the template given in the class and (Balzert p.128), and use case diagrams. Use other methods (function trees, data flow diagrams) in addition, when necessary. We do not require a second project calculation.

Exercise 3: (10 Points) Model the static properties of the ECO-system by object oriented analysis, in particular by class diagrams. See (Balzert p.389) for a stepwise approach to a class model¹. The degree of precision of your model should correspond approximately to that in (Balzert p. 1116).

Please check in your solutions either as a postscript or a pdf document due to May 23, 2001.

¹Balzert also gives various check-lists for identifying classes, associations, etc. These can be used as a starting point.