

Exercises 4

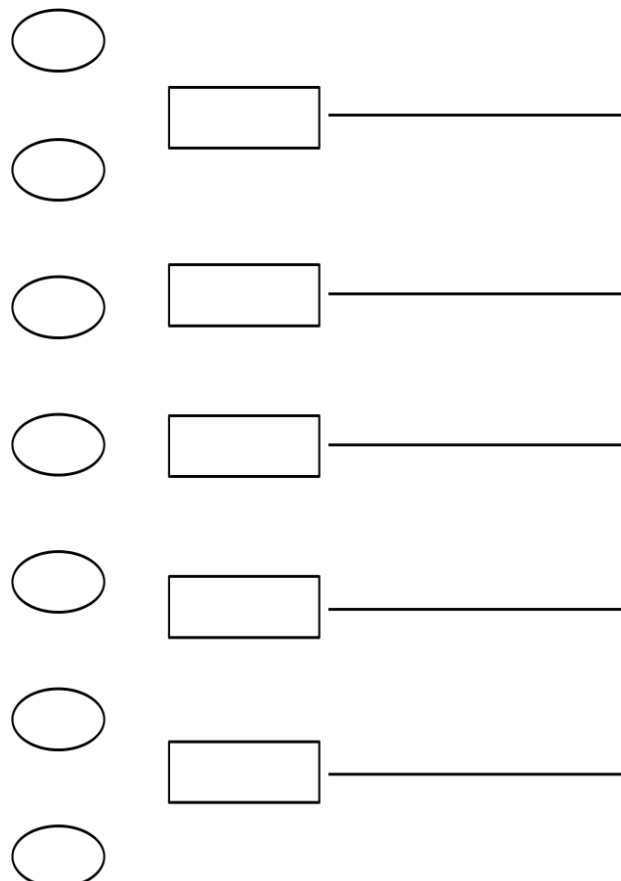
4th October

1) Formal modeling in MVP-L

The development process for a certain company involves the following products:

- Problem Description (PD)
- Requirements (Req)
- Design (Des)
- Component Requirements (CReq)
- Component Test Cases (CTC)
- Components Code (Co)
- Component Test Results (CTR)

Your task is to create an MVP-L graphical process model for this company. Start by defining process steps for producing the products listed above (with the exception of the Problem Description, which is provided at the start of the process). In order to make sure that the test cases for each component properly match the requirements specified for the component, the Component Requirements and the Component Tests Cases products must be produced by a single process step. Also, in order to test the components, not only the Components Code product, but also the Component Test Cases is necessary as input. Create a process model that produces the products in a simple waterfall. Use the following template.



2) Refining models in MVP-L

For this task, consider the MVP-L model created in task 1.

- a) Requirements defects or design defects can be detected in later processes. How would you change the process model and the associated criteria for the processes to accommodate that these defects can be fixed in the respective processes?
- b) Assume that the design and the specification of the components can be done in parallel. How could the model be changed so that this is allowed?

3) State transitions in MVP-L

- a) Describe a project scenario where a process status changes directly from enabled to disabled.
- b) Who is invoking the events “complete” and “start”?

4) Modeling Scrum in MVP-L

Create a process model in MVP-L for Scrum (information about the Scrum process can be found in the course material of Chapter 2). Consider only the products “Product_Backlog”, “Sprint_Backlog”, and “Product_Release” and the processes “Sprint_Planning” and “Sprint”.

Hint: There are different modeling alternatives, e.g.,

- a) Use a global variable “i” for the number of the iteration (e.g., Product_Backlog(i) indicates the product backlog in the iteration number i). A global variable is visible in all models and can be used in entry and exit criteria as well as invariants (example: date).
- b) Define a more detailed status attribute for the Product_Backlog (including for instance a state “ready_for_sprint_planning”).

5) Criteria in MVP-L

Suppose you want to create an MVP-L process model that is able to limit the maximum effort invested into a development task. Why is it inadequate to include this limit in the task exit criteria? What would be the appropriate place for making sure that effort limits are not surpassed?