Exercise for the lecture Modeling Methods in Computer Science, Winter Semester 2007/08
Ingo Frommholz (LF 138)
Consultation-hour: Thursday, 15:00-16:00
mod07@is.inf.uni-duis.de

Exercise Sheet 7 Due date: 5.12.2007, 14:00

Please hand in all diagrams in hand-written form!

Exercise 13: UML Class Diagrams
Since you don’t want to draw the different types UML Diagrams by hand anymore you decide to implement a piece of modeling software to make that task easier. Of course you try to create a model before you work on the actual implementation. In the process you identify the following classes:

Person, Activity, Activity Diagram, Use Case, Use Case Diagram, Relation, Diagram, Event, Class, Class Diagram, Collaboration Diagram, Object, Sequence Diagram, Behavior Diagram, State, State Diagram, State Transition.

Describe all individual classes and their relations in a UML Class Diagram.

6 Points

Exercise 14: State Transition System
Given the state transition system $Y = (S, T, F, K, W, M_0)$ with

$S = \{s_1, s_2, s_3, s_4, s_5, s_6\}$

$T = \{t_1, t_2, t_3, t_4, t_5, t_6\}$

$F = \{(t_1, s_1), (s_1, t_2), (t_2, t_1), (t_2, s_2), (t_2, s_3), (t_3, t_2), (s_3, t_4), (s_4, t_4), (t_3, s_5), (t_4, s_5), (s_5, t_5), (s_5, t_6), (t_5, s_6), (t_6, s_6), (s_6, t_1)\}$

$K = \{\infty, \infty, \infty, \infty, \infty, \infty\}$

$W = \{1, 1, 1, 1, 1, 1, 2, 2, 1, 1, 1\}$

$M_0 = \{1, 0, 0, 0, 0, 0\}$

(a) Draw the net graph.
(b) Create a reachability table.
(c) Draw the reachability graph.

$4 + 5 + 5 = 14$ Points