Exercise Sheet 1
Due: November 9th, 2010

Exercise 1.1 (Blackboard System (3 Pts))
Implement a blackboard system for the fire brigades. Use the Exercise01Blackboard class for your implementation. Override the compute method to compute an assignment matrix based on the utility matrix. A target can only be given to maximally one agent.
The result of a blackboard system assignment should be simulated in each round in the following way:

• The first agent will get the first choice for a target and write this to the board.
• Then the second agent will get a choice from the targets not on the board.
• ... etc. ...
• Until all agents have chosen a target.

When an agent has a choice it will chose the target with the highest utility from the available targets.

Exercise 1.2 (Contract Net (7 Pts))
Implement a contract net for the fire brigades. Use the Exercise01ContractNet class for your implementation. Override the compute method to compute an assignment matrix based on the utility matrix. A target can only be given to maximally one agent.

Each target should be auctioned using a contract net, i.e.:

• Offer the target for auctioning.
• Each agent will bid its utility for the target, if it is higher than the agent’s current contract’s utility.
• The highest bidder will get the contract.
• When an agent already has a previous contract, it will cancel it. In that case the canceled contract’s target will need to be reauctioned.

All targets should be auctioned until no target receives any bids anymore.