Laboratory 3 – Cognitive Multi-Agent System

Consider the problem from laboratory 2, in which there are 4 cognitive agents, each agent being placed in a corner of the grid. The agents are self-interested, so they will not cooperate for filling in holes. The goal of each agent is to get as many points as possible by filling in holes.

Agents can co-exist in the same square of the grid, if they accidentally meet there. If two agents meet (have the same position), their points are summed and each one gets half of the sum (average of the two). If more than two agents meet in the same cell, each one gets the arithmetic mean of the points. If one agent A meets another agent B, and the agent B pushes a tile, then the agent A will steal the points of the agent B and will also put aside the agent B and agent A will continue to push the tile.

There is a system clock. At each tick, each agent will take one action. One tick will have a value between 100 and 200 ms, which can be easily set in the source.

Implement in Java the simulation environment. Display graphically the grid, the 4 agents and the objects from the grid. Also, display the scores for the agents. At the end, all the holes should be filled in with tiles.