CS350 HW5

Due: November 16, 2012

1. Implement ports using explicit state in Oz. Recall that a port is an entity associated with (the end of) a stream, and a stream in Oz is a list with an unbound tail. This association of the port with the end of its stream is that which mutates over time, as messages arrive. Write a code that uses cells to implement the same mechanism.

   [10 points]

2. Smalltalk: Write a class `ManagedObject` which allows at most 4 instances of itself to be created.

   [10 points]

3. Smalltalk: Modify the SBEGame example from the book "Smalltalk by Example", to create a basic minesweeper game, in class SBEMinesweeper. Assume that you are given the classes. (in file http://www.cse.iitk.ac.in/šatyadev/fall12/SBE-Quinto.st) Instructions on how to import the file are given after the questions.

   The game initializes a 10x10 grid of cells. Each cell is randomly assigned to have a mine, or to be a safe cell. (see the `Random` class.) Unlike the actual minesweeper game, there are no hints on how many neighbours of a cell are mined - we have just a basic game. When a user clicks on a safe cell, the cell just turns blue. When the user clicks a mined cell, the game exits with the user failing. If at any stage of the game, all the remaining cells are mined, then the user wins.

   Create this game using minimal changes, using inheritance, to the SBECell and SBEGame classes. The resulting Smalltalk system should have both the Quinto and Minesweeper as playable games.

   [20 points]

Instructions to import a class definition into squeak: In Squeak, take File Chooser, and then choose the file in the pane. Right-click and choose "file in" the complete class definition. The class should now appear in the `Browser` window.

To save a class into a file, from the "Browser" window, right-click on the category pane and choose "file out".