CS101 Homework #1

Meeting two Robots in a maze

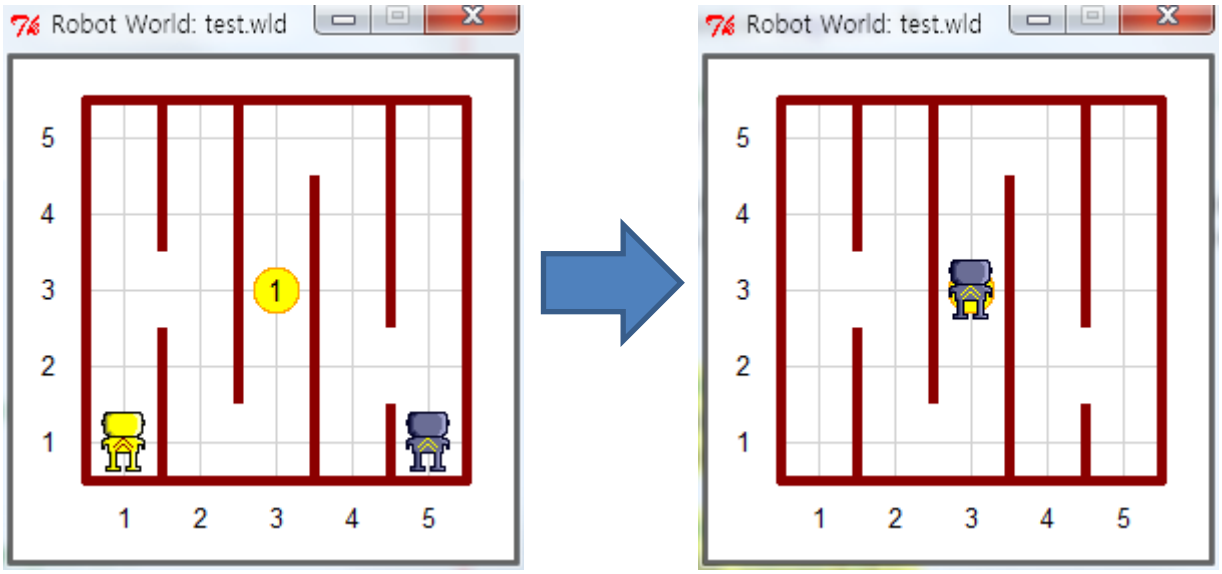
Due date: Mon, Mar 12, 2012 (until 23:59)

Please read the homework description carefully and make sure that your program meets all the requirements stated. The homework is an individual task. You can discuss the problem with your friend but you must not program together. **You will get F on entire course if your homework includes any plagiarism.**

Goal

Two robots named 'Hubo' and 'Ami' are in a maze. 'Hubo' is a gray robot and 'Ami' is a yellow robot. They promised to meet on beeper in the maze. Take them to the beeper.

Write a program that makes Hubo and Ami meet on the beeper in a maze



Requirements:

You are not allowed to create any other variable except predefined variable 'hubo' and 'ami'. If you create additional variables, you'll get -10 points.

You can use any functionality of Python, but the functions for hubo are limited to the functions you learned in the class. The list of functions you learned is as follows:

set_trace(), turn_left(), move(), on_beeper(), front_is_clear(), left_is_clear(), right_is_clear(), pick_beeper(), drop_beeper(), carries_beepers(), facing_north()

If you use any hubo functions which are not listed in the above, you'll get -10 point

Assumptions:

1. Size of world is 10x10
2. Ami will locate in bottom left side (avenue=1, street=1), and Hubo will locate in bottom right (avenue=10, street=1) side.
3. 'Ami' and 'Hubo' will lean towards the north
4. Vertical walls are exist in every avenue
5. Every wall has one or more passage.
6. Beeper can exist anywhere.

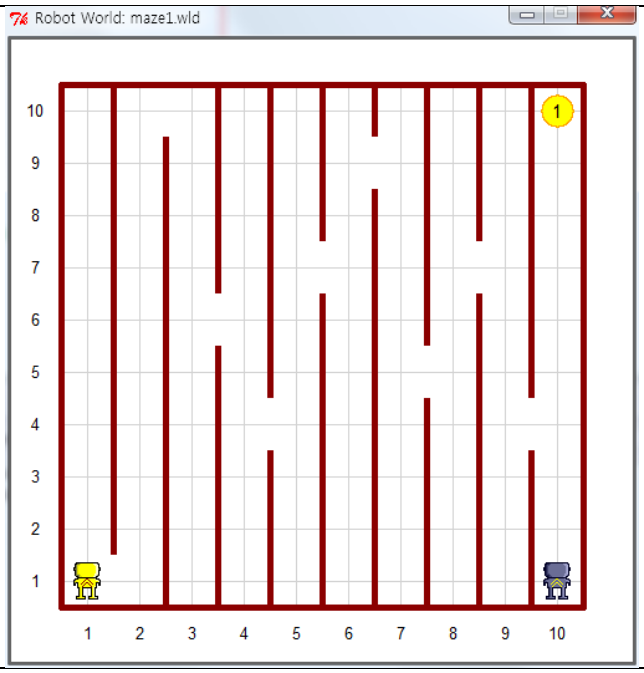
Evaluation:

Your program will be tested with several maps like maze1.wld, maze2.wld, maze3.wld

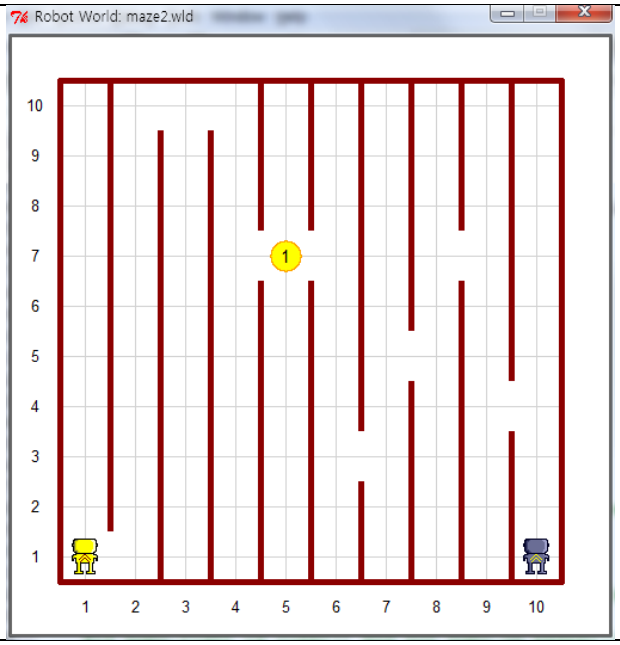
(♣ Test maps are similar to the given maps, but not exactly same)

Please, try to make as many your own maps as possible and test your program with them in order to verify your program.

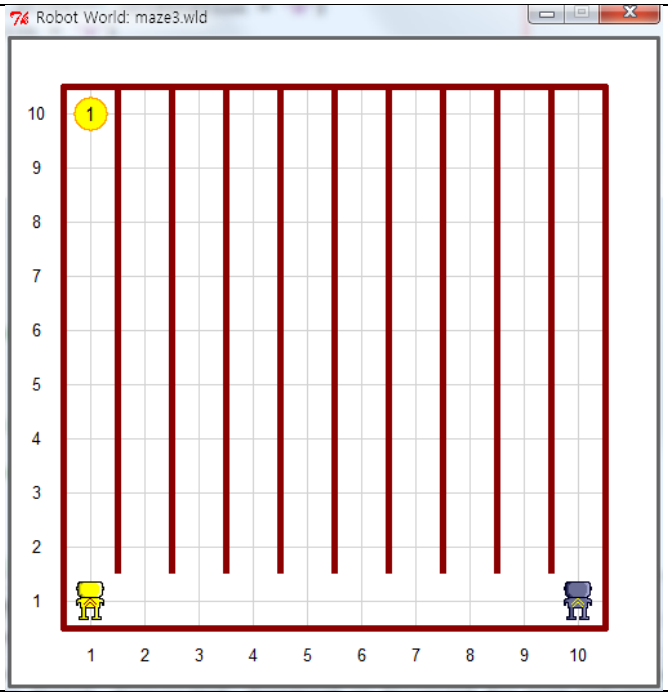
maze1.wld



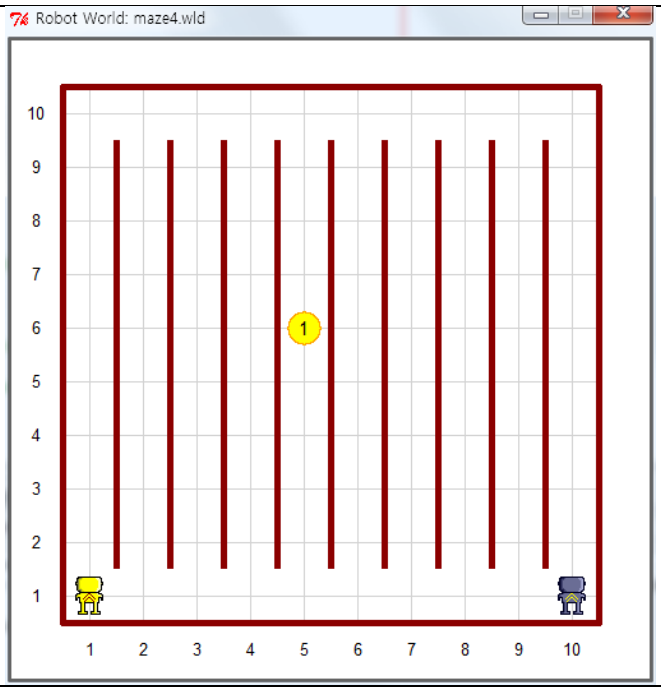
maze2.wld



maze3.wld



Maze4.wld



Submission

You need to submit the followings

- The file "yourid.py" : the program that solves the 'Meeting two robots in a maze' problem

  (e.g.) 20121234.py

- One world file created by yourself "yourid.wld":

  You need to create one example as shown maze1~3.wld by yourself.

  (You can create a new world using edit_world() function. Please, refer to the robot lecture note Section 7.)

  (e.g.) 20121234.wld

- The report "yourid.doc or docx" (Microsoft Word file):

  You have to describe the way to solve the problem and show your testing worlds and the results. You may include two images shown in **GOAL** section (Before robots move, and after robots move) in the report.

- (e.g) 20121234.doc or 20121234.docx

You must archive those three files into "yourid.zip" and submit the archived file to the webpage for homework submission.

(e.g.) 20121234.zip

♣If you do not archive with .zip extension, you will have a penalty.