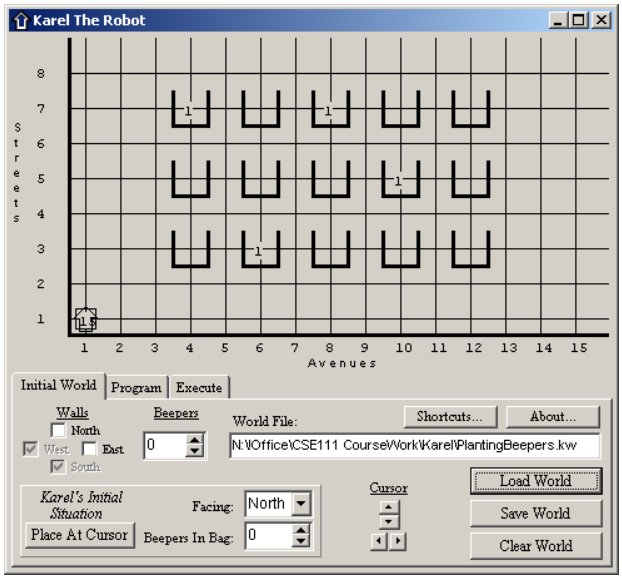
Karel the Robot

Extra Credit Project

Email to your TA by Nov. 1, 2008

Problem Statement:

Karel has been instructed to “plant” exactly one beeper in each of three rows of beeper-pots. In order to do this Karel needs to check each pot to see if it already contains a beeper. If it does, then Karel moves on. If not, Karel puts a beeper in the pot. Since Karel does not know, in advance, how many pots have beepers, if any, Karel must first put 15 beepers in his beeper-bag. After Karel has completed planting the beepers in the beeper-pots, Karel must return to the Origin (Home Base) and face NORTH.



NOTE: Four of the beeper-pots have beepers in them. But, Karel does not know this.

The problem statement above has NOT been written in sufficient detail to solve the problem. Karel cannot understand most of the words. Use the process of revising an algorithm to solve this problem.

This problem is a variation on Project 1 where you learned to write new definitions for Karel to use. Most of those can also be used in Project 2. When starting to solve this problem, begin by working on a solution for one row of beeper-pots. When Karel has successfully planted one row of beeper-pots, then expand your solution to all three rows of beeper-pots.

Create whatever definitions you require to make your work easier. Hint: The definition for turnright.

Name your program BeeperPlanting.yourlastname
My version of this program would be named BeeperPlanting.kershner

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If you choose to do this project, mail it to your TA by Nov. 1, 2008. This project uses materials from Chapters 4 (pp. 65-78) & Chapter 5 (pp. 93-95 top.

While this project is based on 100 points, I have not yet figured out how to enter it into your grades.

1) Solve the problem of planting exactly one beeper in the first row of beeper pots. The program must compile correctly and must end using the turnoff statement and not end in an error message. 30 points.

2) Expand the problem to solve all three rows of beeper-pots. The program must compile correctly and must end using the turnoff statement and not end in an error message. 30 points.

3) Use an IF statement, to check the beeper-pots. 15 points

4) Use an ITERATE statement to pick up the 15 initial beepers Karel needs to have in the beeper-bag before any planting can begin. 10 points

5) Use an ITERATE statement in some way to plant the beepers. 15 points