Karel the Robot
## **Project 2**
Final Due Date – March 28th 3-pm by Email to your TA

<u>Problem Statement:</u>
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.
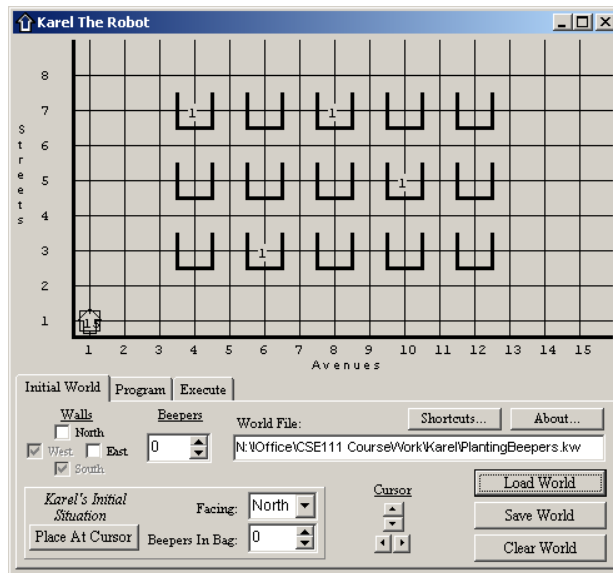
NOTE: Four of the beeper-pots have beepers in them. But, Karel does not know this.

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. In Project 1, 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 will be very helpful and can be found on page 42 of your textbook well as in the class notes.

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

Karel the Robot
Project 2
Final Due Date – March 28th 3-pm by Email to your TA

This project is Due, at the latest, on Friday March 28th at 3-pm by Email to your TA. You CAN mail your solution to your TA at any time prior to the March 28th due date. That gives you two weeks to solve this problem, which includes two 2-hour lab sessions. If you read the problem in advance of your lab, read Chapters 4 (pp. 65-78) & Chapter 5 (pp. 93-95 top) prior to attending lab, and come to lab with a thought through algorithm, you should be able to complete the project within the four lab hours provided. If you need additional time Karel can be found on most of the Windows computers on campus.

This project is worth 100 points.

The project <u>MUST</u> be Emailed to your TA by 3-pm on Friday March 28th. You will receive NO credit for turning in a paper copy of your project.

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. 25 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. 25 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. 15 points

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

6) Return Karel to the Origin. 5 points

Extra ITERATE statements or IF statements, used correctly and that simplify are worth 5 points extra credit up to a total of 10 points extra credit.