ITEC 120 Lab 6
Created by Dr. Ray

Reference links:
http://www.radford.edu/~aaray/template.java
http://www.radford.edu/~aaray/Robot.java
http://www.radford.edu/~aaray/robotDoc/Robot.html

You need to turn in a lab report for this lab.

Problem 1: Send the data, ship a product

You have been hired by Boring Online Retail Inc. to provide communication from the client ordering department to the order filling department. Each order can be determined by six colors (simulated by 6 strips of duct-tape on a piece of paper). The color red translates to the value 1, the color white corresponds to the value 2, and the color black corresponds to the value 3. Write a program that will read in the values and store them into an array. Next, add the capability for your robot to send the array to another robot. This second robot (in the client ordering department) will translate the array of Strings into an array of integers with each value derived from the earlier mapping. Print out the six numbers, and print out the sum of the last three numbers on the second robot.

To have robots talk to each other you have to decide which one is the server and which one is the client. First, write a program that calls the `findRobots` method. Install it on both robots, make sure both are on, then run the program. It will take 15-30 seconds for this program to run, and it will let the robots know who they can connect with. Write another program, where the server calls the `listen` method and then uses the `sendString` or `getString` methods to send the information to the other robot. The client program will call `connectTo(name)` where name holds the name of the robot you want to connect to. After the robot is connected, you can call the `send/getString` methods listed earlier.

Problem 2: Pollination helper

The bees of North America are experiencing tough times. The numbers of bees have dropped to 50 to 60% of the populations from the 60s and 70s. Farmers are starting to get worried because they need bees to help pollinate their crops. In order to help the native bees out, the farmers have hired Robotics Inc. to build a robot that will help them pollinate their crops. The farmers want to see an existing robot simulate pollinating flowers before they invest large sums of money in the project. You have been hired by Robotics Inc. to write software that Rob will use to perform the pollination demonstration.

Part 1: Finding the distance to each flower around Rob

The walls in each of the cardinal directions from Rob's starting location represent flowers that need to be pollinated. Have Rob find the distance to the wall in each of the cardinal directions and store it in an array.

Part 2: Find the longest and shortest distance to flowers around Rob
Calculate which cardinal direction has the shortest and longest distance from Rob's starting location. Make sure you keep track of which direction Rob is currently pointing.

Part 3: Pollinate a flower
To minimize time to pollination, Rob should bump into the flower (wall) closest to his starting location. Next, Rob should bump into the flower located the farthest distance from his starting location.

Hints:
Remember where Rob's starting and current direction is and what direction Rob is pointing after each turning and movement