CS 110 – Creative Problem Solving in Computer Science
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Homework 1

Instructor: Adriana Compagnoni

This homework is about LightBot and Picobot.

LightBot is a controlled programming environment that uses a robot to introduce problem solving using sequences of simple instructions, procedures, and loops.

You can find LightBot at: http://light-bot.com/hocflash.html

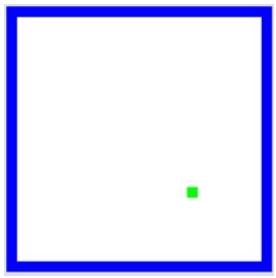
1. (a) Complete all three levels of LightBot: Basics, Procedures, and Loops.
   (b) (10 points) Submit screen shots for problems: Basics 8, Procedures 5, and Loops 6, in a single file.

The remainder of this homework is about Picobot. An online implementation can be found at: http://www.cs.hmc.edu/picobot/

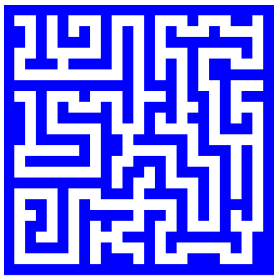
Unless otherwise specified, assume Picobot is on the center of the map with no obstacles other than the side walls.

2. (10 points) Write a program that moves Picobot 2 steps north.
3. (10 points) Write a program that moves Picobot 4 steps west.
4. (10 points) Write a Picobot program that makes it move along a square of length 3.
5. (10 points) Modify the instruction of the previous exercise to make it move along the square in a infinite loop.

6. (20 points) Write a Picobot program that visits every square of the map at least once. Notice that Picobot can start in any position on the map.



7. (30 points) Write a Picobot program to visit every square in the following maze. Make sure Picobot can start from any square.



Grading rubric: Correct idea: 50%, correct solution 50%