

Name: _____ UWNNetID: _____

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Symbolic Lightbot

Goal: The purpose of this assignment is to look at textual ways of programming the bot to learn about iteration and symbolic representation of instructions.

When we solved the Lightbot 2.0 exercises, we programmed the bot using a tiny list of instructions represented iconographically (as pictures). But, these could just as easily be written symbolically (as text). So, our instruction list can be expressed symbolically, as shown below:



Step (S)



Left (L)



Right (R)



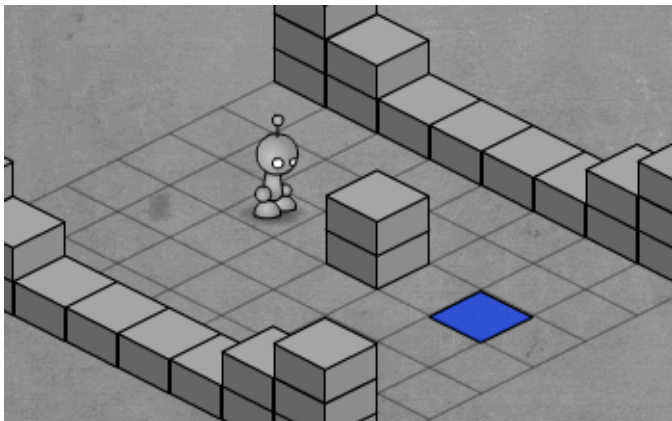
Jump (J)



Power (P)



F.name



We can give the symbolic solution as:

Left, Step, Right, Step, Step, Step, Step, Right, Step, Power.

or more succinctly: L, S, R, S, S, S, S, R, S, P.

Iteration

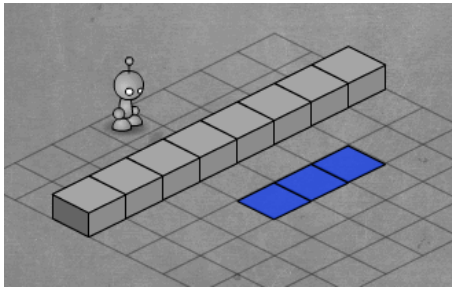
We notice that often in programming the bot we need to repeat operations, such as the four steps in the example. We can just write 4:(S) to mean to do the Step operation 4 times or 3:(J,S) to do J,S,J,S,J,S. generally we write **number:(operation)** where the operation is one or more basic instructions.

Assignment

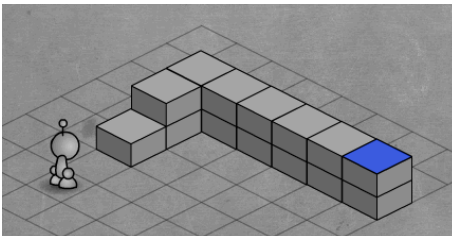
Write symbolic programs for the Lightbot problems below.

Note: You can check your work to be sure you've got it right using the Level Editor in Lightbot 2.0.

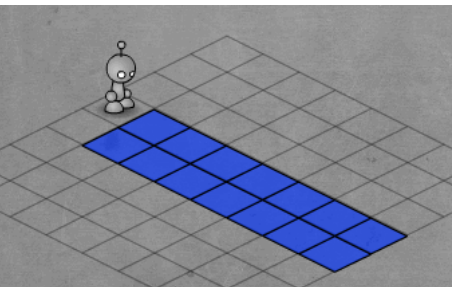
A.



B.



C.



Checkoff

Show your answers to a TA, who will verify them. Make sure that you write legibly and follow the syntax described on the previous page.