

Name: _____

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)



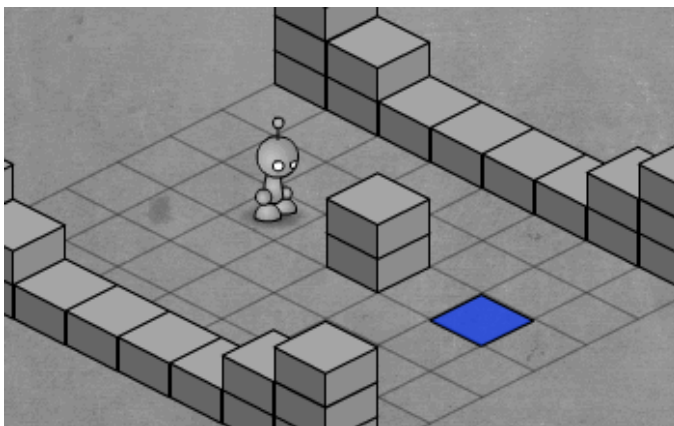
Jump (J)



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

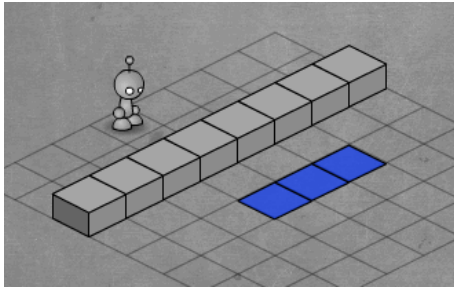
We notice that often in programming the bot we need to repeat operations, such as the four steps in the example. We can just write 4:(S) to mean to do the Step operation 4 times or 3:(J,S) to do J,S,J,S,J,S. generally we write **number:(operation)** where the operation is one or more basic instructions.

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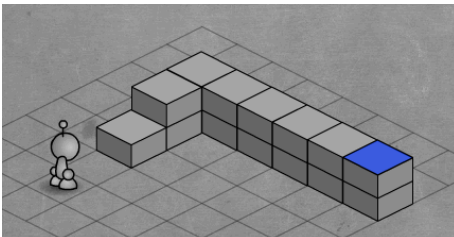
Assignment

Write symbolic programs for the Lightbot problems below. Caution: Check your work to be sure you've got it right.

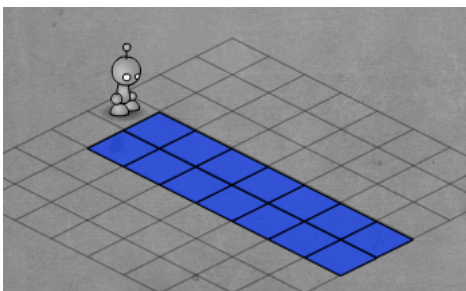
A.



B.



C.



Submit

Scan this page of the worksheet and upload it to the assignment on canvas, please make sure we can easily read your answers.