Robot Cleaner II

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

(Please read the description of Robot Cleaner I first.)

Tired of programming the robot every time according to the situation of his room, BaoBao decides to write a “super program” so that the robot can pick up most of the litter using this program, no matter how the litter is positioned in the room.

To simplify this problem, we now put some constraints on BaoBao's room and the robot.

- $n = m = 12$;
- For all $1 < i < n$ and $1 < j < m$, (i, j) is NOT a wall;
- There are exactly 50 pieces of litter in the room, and they are randomly distributed with equal probability;
- The robot always starts from $(2, 2)$.

Your task is to design the “super program”, so that when feeding this program to the controller, the robot can pick up at least 95% of the litter in the room under the above constraints after executing 200 instructions.

Input

There is no input for this problem.

Output

You should output a string of length 243 ($243 = 3^5$) consisting of 'U', 'D', 'L', 'R', 'P' and 'I' in one line, indicating your super program.

Example

standard input
(No input)

standard output
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII >> IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII >> IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII >> IIIIIIIIIIII

Note

In the above example, "»"indicates that the contents of the current line and the next line is actually on the same line in the output. We have to split them into different lines here because they're too long to fit into one line of the printed problemset. See the contest website for a more precise output example.

Also note that this output example is (obviously) NOT the correct answer. It only serves the purpose of showing you the output format.

We have prepared 1000 randomly generated rooms under the above constraints and will test your solution against them. Your solution will be accepted if the robot can pick up at least 95% of the litter **on average** in these 1000 rooms after executing 200 instructions in your super program.