

hackerrank.com/test/7816hot1if4/questions/k5eprpag

1h 0m left

BETA Can't read the text? Switch theme

3. Encircular

ALL Build a computer simulation of a mobile robot. The robot moves on an infinite plane, starting from position (0, 0). Its movements are described by a command string consisting of one or more of the following three letters:

- G instructs the robot to move forward one step.
- L instructs the robot to turn left in place.
- R instructs the robot to turn right in place.

The robot performs the instructions in a command sequence in an infinite loop. Determine whether there exists some circle such that the robot always moves within the circle.

Consider the commands R and G executed infinitely. A diagram of the robot's movement looks like:

```

RG → RG
↑      ↓
RG ← RG
  
```

The robot will never leave the circle.

Language C++20

```

9 |
10 /*
11  * Complete the
12  *
13  * The function
14  * The function
15  */
16
17 bool solve(const string& command){
18     int x = 0;
19     int dir = 0;
20
21     for(auto &cmd : command){
22         if(cmd == 'G'){
23             if(dir == 0) y++;
24             else if(dir == 1) x++;
25             else if(dir == 2) y--;
26             else x--;
27         } else if(cmd == 'L'){
28             dir = (dir + 3) % 4;
29         } else if(cmd == 'R'){
30             dir = (dir + 1) % 4;
31         }
32     }
33
34     return (x==0 && y==0) != dir != 0;
35 }
36
37 vector<string> doesCircleExist(vector<string> commands) {
38     vector<string> ans;
39     for(const string& cmd : commands) {
40         bool res = solve(cmd);
41         if(res) {
42             ans.push_back("YES");
43         } else ans.push_back("NO");
44     }
45     return ans;
  
```

```

13  * The function is expected to return a STRING_ARRAY.
14  * The function accepts STRING_ARRAY commands as parameter.
15  */
16
17 bool solve(const string& command){
18     int x = 0, y=0;
19     int dir = 0;
20
21     for(auto &cmd : command){
22         if(cmd == 'G'){
23             if(dir == 0) y++;
24             else if(dir == 1) x++;
25             else if(dir == 2) y--;
26             else x--;
27         } else if(cmd == 'L'){
28             dir = (dir + 3) % 4;
29         } else if(cmd == 'R'){
30             dir = (dir + 1) % 4;
31         }
32     }
33
34     return (x==0 && y==0) != dir != 0;
35 }
36
37 vector<string> doesCircleExist(vector<string> commands) {
38     vector<string> ans;
39     for(const string& cmd : commands) {
40         bool res = solve(cmd);
41         if(res) {
42             ans.push_back("YES");
43         } else ans.push_back("NO");
44     }
45     return ans;
  
```

Test Results Custom Input