353. Design Snake Game Premium

Medium   Topics   Companies

Design a Snake game that is played on a device with screen size `height x width`. Play the game online if you are not familiar with the game.

The snake is initially positioned at the top left corner `(0, 0)` with a length of `1` unit.

You are given an array `food` where `food[i] = (r_i, c_i)` is the row and column position of a piece of food that the snake can eat. When a snake eats a piece of food, its length and the game's score both increase by `1`.

Each piece of food appears one by one on the screen, meaning the second piece of food will not appear until the snake eats the first piece of food.

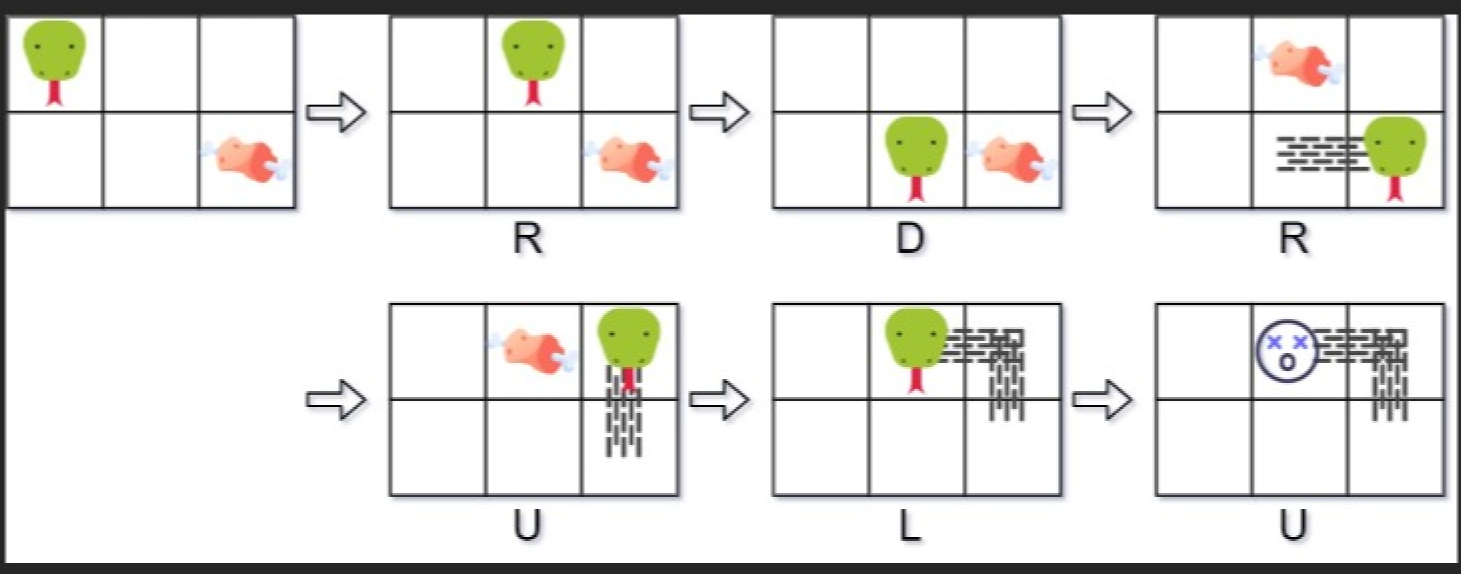
When a piece of food appears on the screen, it is **guaranteed** that it will not appear on a block occupied by the snake.

The game is over if the snake goes out of bounds (hits a wall) or if its head occupies a space that its body occupies **after** moving (i.e. a snake of length 4 cannot run into itself).

Implement the `SnakeGame` class:

- `SnakeGame(int width, int height, int[][] food)` Initializes the object with a screen of size `height x width` and the positions of the `food`.
- `int move(String direction)` Returns the score of the game after applying one `direction` move by the snake. If the game is over, return `-1`.

Example 1:



```
Input
["SnakeGame", "move", "move", "move", "move", "move", "move"]
[[3, 2, [[1, 2], [0, 1]]], ["R"], ["D"], ["R"], ["U"], ["L"],
["U"]]
Output
[null, 0, 0, 1, 1, 2, -1]

Explanation
SnakeGame snakeGame = new SnakeGame(3, 2, [[1, 2], [0, 1]]);
snakeGame.move("R"); // return 0
snakeGame.move("D"); // return 0
snakeGame.move("R"); // return 1, snake eats the first piece of
food. The second piece of food appears at (0, 1).
snakeGame.move("U"); // return 1
snakeGame.move("L"); // return 2, snake eats the second food. No
more food appears.
snakeGame.move("U"); // return -1, game over because snake
collides with border
```

Constraints:

- $1 <= width, height <= 10^4$
- `1 <= food.length <= 50`
- `food[i].length == 2`
- $0 <= r_i < height$
- $0 <= c_i < width$
- `direction.length == 1`
- `direction` is `'U'`, `'D'`, `'L'`, or `'R'`.
- At most 10^4 calls will be made to `move`.

Seen this question in a real interview before? 1/5

Yes   No

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