

# Problem J. Skating

TimeLimit: 1 second  
MemoryLimit: 256 megabytes

Alice and Bob are playing a skating game on an  $n \times m$  grid. Each cell of the grid is either an empty cell ( $.$ ), an obstacle ( $\#$ ), the starting cell ( $S$ ), or the target cell ( $T$ ).

Alice starts at cell  $S$  and first chooses one of the four directions: up, down, left, or right. The chosen direction must allow Alice to eventually reach the target cell  $T$ . Once she begins skating, she continues moving in a straight line in the chosen direction until she hits either the boundary of the grid or an obstacle. When this happens, Alice must immediately **right turn** and continue skating.

After turning right, if Alice immediately faces another obstacle or the grid boundary, she keeps **right turn** until a valid direction is available. Turning in place is allowed and still counts as a turn. Alice’s movement continues according to these rules.

If Alice passes through or stops on the target cell  $T$  at any point during her movement, she end the game.

You are Bob, the map designer. Your task is to construct an  $n \times m$  grid by placing obstacles ( $\#$ ) so that there exists at least one initial direction from the starting cell  $S$  that allows Alice to reach the target cell  $T$ . At the same time, even if Alice chooses the initial direction that results in the minimum number of right turns, the total number of right turns  $r$  she makes during the entire process must satisfy  $r \geq \frac{n \times m}{10}$ .

## Input

The input contains 2 integers  $n$  and  $m$  — the height and width of the grid.

- $5 \leq n, m \leq 500$

## Output

Print  $n$  lines, each line contains  $m$  characters, representing the grid map you designed. The characters in the grid must follow these rules:

- $S$ : Represents Alice’s starting cell (exactly one in the map).
- $T$ : Represents Alice’s target cell (exactly one in the map).
- $.$ : Represents an empty cell (passable).
- $\#$ : Represents an obstacle cell (impassable).

## Example

standard input	standard output
6 5	S.... ####. ...#. .#T#. .###. .....

## Note

In the example, Alice chooses to move to the right (which is the direction with the minimum number of right turns). After hitting the wall on the right, she turns right and moves downward. Then she hits the wall below, turns right again, and moves to the left. This process continues in the same way.

In total, Alice makes 5 turns.

Since  $r = 5 \geq \frac{6 \times 5}{10}$ , the condition is satisfied.