

More Caterpillars

As we [mentioned previously](#), there are two types of caterpillars.

Your new task is to print several caterpillars which are relaxing, lying on a square.

Input

First two integers: c , $1 \leq c \leq 100$, denoting the number of caterpillars and n , $10 \leq n \leq 100$ the size of the square. Each of the next lines consists of one letter (V, for vertical caterpillars or H for horizontal ones, an integer $3 \leq n \leq 20$ - the caterpillar size in segments and two integers: x, y denoting the coordinates of the upper left corner of the given caterpillar.

Output

The $n \times n$ square and the caterpillars according to the description. Please consult the examples below.

Examples

Example 1

Input:

```
2 12
V5 1 1
H3 7 10
```

Output:

```
###.....
..#.....
###.....
#.....
###.....
..#.....
###.....
#.....
###.....
..#.#.###.
.....#.#.#.
.....###.##
```

Example 2

Input:

```
4 14
H3 3 1
H3 4 4
V4 2 5
V3 8 7
```

Output:

```
..#.#.###.....
..#.#.#.....
..###.##.....
```

...###.....
.###.#.#.....
...###.##.....
.###...###.....
#.....#.....
.###...###.....
...#.#.....
.###...###.....
#.....#.....
.....
.....

Scoring

By solving this problem you score 10 points.