Building a Reactor

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Building a reliable and efficient reactor consists of many stages, and you are tasked with helping to design such a reactor.

There is a framework representing a grid of size $n \times m$. Some of its cells contain load-bearing walls for the strength of the structure and cannot be used for any other purposes. The remaining cells can be filled with fuel rods and cooling elements, at most one per cell.

According to safety regulations, each fuel rod must be adjacent to at least one cooling element. Formally, their cells must share a common side.

The more fuel rods there are in the design, the more energy can be extracted from the reactor. Your task is to find any configuration with the maximum number of fuel rods while adhering to all the requirements.

Input

The first line contains two integers n and m ($1 \le n \le 12$, $1 \le m \le 30$): the height and width of the reactor framework.

Each of the next n lines contains m characters describing the reactor cells. The character '`.`' corresponds to a free cell, while the character '`#`' corresponds to a load-bearing wall.

Output

Output nm characters, with m characters in each of the n lines that denote an optimal arrangement of the reactor elements. The characters can take the following values:

- '`#`' if there is a load-bearing wall in the cell;
- '`0`' if you placed a fuel rod in the cell;
- '`1`' if you placed a cooling element in the cell;
- '`.`' if the cell remains empty.

If there are multiple optimal solutions, output any of them.

Example

standard input	standard output
6 9 ....#.... ....#....	001000100 100010001 0010#0100 0010#0100 100010001 001000100