

Snake

Everyone remembers the old snake games. Now is time to create our own snake game.

You will be given an integer **n** for the **size** of the territory with **square** shape. On the next **n** lines, you will receive the **rows** of the territory. The snake will be placed on a **random position**, marked with the letter '**S**'. There will also be food on random positions, marked with '*****'. The territory may have **lair**. The lair will have two burrows **marked** with the letter - '**B**'. **All of the empty positions** will be marked with '**-**'.

Each turn, you will be given **command** for the **snake's movement**. When the snake moves it leaves a trail marked with '**.**'

Move commands will be: "**up**", "**down**", "**left**", "**right**".

If the snake **moves** to a **food**, it will eat the food, which will increase food quantity with one.

If it goes inside to a **burrow**, it **goes out** on the **position** of the **other burrow** and then **both** burrows **disappear**. If the snake **goes out** of its territory, the game is over. The snake needs **at least 10 food quantity** to be fed.

If the snake **goes outside of its territory** or **has eaten enough food**, the game should **end**.

Input

- On the first line, you are given the integer **n** – the size of the **square** matrix.
- The **next n lines** holds the values for every **row**.
- On each of the next lines you will get a move command.

Output

- On the first line:
 - If the snake goes out of its territory, print: "**Game over!**"
 - If the snake eat enough food, print: "**You won! You fed the snake.**"
- On the second line print all food eaten: "**Food eaten: {food quantity}**"
- In the end print the matrix.

Constraints

- The size of the **square** matrix will be between **[2...10]**.
- There will **always** be **0** or **2** burrows, marked with - '**B**'.
- The snake position will be marked with '**S**'.
- The snake will **always** either go out of its territory or eat enough food.
- There will be no case in which the snake will go through itself.

Examples

Input	Output	Comments
6 -----S ----B- ----- ----- --B--- --*--- left down down down left	Game over! Food eaten: 1 ----.. ----.. ----.. ----- ----- --B--- --*--- --.---	1) left 2) down 3) down 5) down ----S. ----.. ----B- ----.. ----- ----- --B--- --S--- --*--- --*--- --S--- 3) eat the food: '*' (5, 2) 5) the snake goes out from its territory and the program ends
7 --***S- --*----- --***-- ---**-- ---*--- ---*--- ---*--- left left left down down right right down left down	You won! You fed the snake. Food eaten: 10 --....- ---.--- ---...- ---..- ---S--- ---*--- ---*---	