Bee

You will be given an integer **n** for the **size** of the bee territory with **square** shape. On the next **n** lines, you will receive the **rows** of the territory. The bee will be placed on a **random position**, marked with the letter **'B'**. On random positions there will be flowers, marked with **'f'**. There may also be a **bonus** on the territory. There will always be only one bonus. It will be **marked** with the **letter** - **'O'**. **All of the empty positions** will be marked with **'.'**.

Each turn, you will be given **command** for the **bee's movement**.

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

If the bee **moves** to a **flower**, it pollinates the flower and increase pollinated flowers with one.

If it goes to a **bonus**, the bee gets a bonus one move forward and then the bonus **disappears**. If the bee **goes out** she can't return back and the program ends. If the bee receive "**End**" command the program ends. The bee needs **at least 5 pollinated flowers**.

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 until you receive "**End**" command, you will receive a move command.

Output

- On the first line:
  - If the bee goes out of its territory print: **"The bee got lost!"**
- On the second line:
  - If the bee couldn't pollinated enough flowers print: **"The bee couldn't pollinate the flowers, she needed {needed} flowers more"**
  - If the bee successfully pollinated enough flowers print: **"Great job, the bee manage to pollinate {polinationed flowers} flowers!"**
- In the end print the matrix.

Constraints

- The size of the **square** matrix will be between **[2…10].**
- There will **always** be **0** or **1** bonus, marked with - **'O'**.
- The bee position will be marked with **'B'**.
- There won't be a case where a bonus moves the bee out of its territory.

Examples

Input	Output	Comments
5 Bff.. ..O.. f.f.f ..... fffff right right down left left down down right down	The bee got lost! Great job, the bee manage to pollinate 6 flowers! ....f ....fff	1) right 2) right 3) down 5) left .Bf.. ..B.. ....O.. ..O.. .... f.f.f f.f.f f.B.f fB..f .... fffff fffff fffff fffff … 2) pollinate a flower: 'f' (0, 1) 3) step on a bonus: 'O' (1, 2) and make one more step down to: 'f' (2, 2) 4) the bee is on (4, 1), the next command she receive is down and she goes out of the field and the program ends.
4 .... .O.. ff.. f.B. left left up right up End	The bee couldn't pollinate the flowers, she needed 2 flowers more .B..	