

# Space Station Establishment



*Stephen successfully started his journey in the galaxy and now he has to collect some star power in order to establish his very own Space Station.*

You will be given an integer **n** for the **size** of the galaxy with **square** shape. On the next **n** lines, you will receive the **rows** of the galaxy. Stephen's spaceship will be placed on a **random position**, marked with the letter '**S**'. On random positions there will be stars, marked with a **single digit**. There **may** also be **black holes**. Their **count** will be either **0** or **2** and they are **marked** with the **letter** - '**O**'. **All of the empty positions** will be marked with '- '.

Each turn, you will be given **commands** for the **player's movement**. Move commands will be: "**up**", "**down**", "**left**", "**right**". If he **moves** to a **star**, he **collects energy equal** to the **digit there** and the star **disappears**. If he moves to a **black hole**, he **appears** on the **position** of the **other black hole** and then **both** black holes **disappear**. If a player **goes out** of the galaxy, he goes into the void, **disappears** from the galaxy and is lost forever. He needs **at least 50 star power** to build the Space Station.

When **the player** is **lost** in the void **or collects enough star power**, the journey **ends**.

## 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 player goes to the void, print: "**Bad news, the spaceship went to the void.**"
  - If the player collects enough star power, print: "**Good news! Stephen succeeded in collecting enough star power!**"
- On the second line print all star power collected: "**Star power collected: {starPower}**"
- 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** black holes, marked with the **letter** - '**O**'.
- The player position will be marked with '**S**'.
- The player will **always** go to the void or collect enough star power.

## Examples

Input	Output	Comments
5 SO--- ----- ----- ----- ----O right right	Bad news, the spaceship went to the void.  Star power collected: 0  ----- ----- ----- ----- ----- -----	The first command is right. The player moves to <b>one of the black holes</b> and then <b>appears</b> on the other side of it (4,4).  The galaxy looks like this after the first command:  ----- ----- ----- ----- ----- -----S  The second command is right. The player goes <b>out</b> of the galaxy and straight into the <b>void</b> .
6 S98--- 99--- 555555 ----- --77-- -6-6-6 right right down left left down right right	Good news! Stephen succeeded in collecting enough star power!  Star power collected: 50  ----- ----- --S555 ----- --77-- -6-6-6	Here we have <b>no</b> black holes and galaxy rich of stars. Our spaceship pilot manages to collect <b>enough</b> star power <b>without going out</b> of the galaxy and builds his Space Station!  The stars he has collected disappeared and we can see where he was when he collected his last needed star power (2,2).