# Space Station Establishment

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 **one of the black holes** and then **appears** 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 **out** of the galaxy and straight into the **void**. |
| 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 **no** black holes and galaxy rich of stars.  Our spaceship pilot manages to collect **enough** star power **without** **going out** 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 neeeded star power (2,2). |