## **Cooking journey**



You successfully started your cooking journey, so now you need to sell the products from your basket in the pastry shop in order to collect your price.

You will be given an integer **n** for the **size** of the pastry shop with **square** shape. On the next **n** lines, you will receive the rows of the pastry shop. You will be placed on a random position, marked with the letter 'S'. On random positions there will be clients, marked with a single digit. There may also be pillars. Their count will be either 0 or 2 and they are marked with the letter - 'P'. All of the empty positions will be marked with '-'.

Each turn, you will be given commands for the your movement. Move commands will be: "up", "down", "left", "right". If you move to a client, you collects the price equal to the digit there and the client disappears. If you move to a pillar, you move on the position of the other pillar and then both pillars disappear. If you go out of the pastry shop, you disappear from the pastry shop and you are out of there. You need at least 50 dollars to rent your own Pastry shop.

When you are out of the pastry shop or you collect enough money, the program 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.

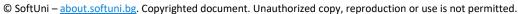
#### **Output**

- On the first line:
  - If the player goes to the void, print: "Bad news! You are out of the pastry shop."
  - If the player collects enough star power, print: "Good news! You succeeded in collecting enough money!"
- On the second line print all star power collected: "Money: {money}"
- 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 pillars, marked with the letter 'P'.
- Your position will be marked with 'S'.
- You will **always** go out of the pastry shop or collect enough money.





















# **Examples**

Input	Output	Comments
5 SP   P right right	Bad news, you are out of the pastry shop.  Money: 0	The first command is right. You move to <b>one of the pillars</b> and then <b>appears</b> on the other side of it (4,4). The pastry shop looks like this after the first command:  The second command is right. You go of the pastry shop.
6 S98 99 666666776-6-6 right right down left left down right right	Good news! You succeeded in collecting enough money!  Money: 53S666776-6-6	Here we have <b>no</b> pillars and pastry shop rich of clients.  You manage to collect <b>enough</b> money <b>without going out</b> of the pastry shop.  The clients you have selled food to have disappeared and we can see where you were when you collected the last neeeded money (2,2).















