Now that the presents are ready, Santa has to deliver them to the kids.

You will receive an integer **m** for the **count** of **presents** Santa has and an integer **n** for the **size** of the **neighborhood** with a **square** shape. On the next lines you will receive the **matrix**, which represents the neighborhood.

Santa will be in a **random cell**, marked with the letter '**S**'. Each cell stands for a house where children may live. If the cell has '**X**' on it, that means there lives a **naughty** kid. Otherwise, if a **nice** kid lives there, the cell is marked by '**V**'. There can aslo be cells marked with '**C**' for cookies. **All of the empty positions** will be marked with **'-'**.

Santa can move **"up"**, "**down**", "**left**", "**right**". These will be the **commands** that you receive. If he moves to a house with a **nice** kid, the kid **receives a present**, but if Santa reaches a house with a **naughty** kid, he **doesn't** drop a present. If the command sends Santa to a cell marked with '**C**', Santa eats cookies and becomes happy and extra generous so **all the kids around him*** receive presents (doesn't matter if naughty or nice). If Santa has been to a house and the kid there has received a present, the cell becomes **'-'**.

Note: *around him means on his left, right, upwards and downwards by one cell. In this case **Santa** doesn't move to these cells or if he does, he **returns** to the **cell** where the **cookie** was.

If Santa runs out of presents or you receive the command **"Christmas morning"**, then you have to end the program.

Keep in mind that you have to check whether all of the nice kids received presents.

Input

Input

- On the first line, you are given the integer **m** – the count of presents
- On the second – integer **n** – size of the neighbourhood
- The **next n lines** hold the values for every **row**
- On each of the next lines you will get a command

Output

- On the first line:
  - If Santa goes out of presents, print: **"Santa ran out of presents!"**
- Next print the matrix.
- In the end print one of these messages:
  - If he manages to give **all** the nice kids presents, print:
    "Good job, Santa! {count nice kids} happy nice kid/s."
  - Otherwise print:
    "No presents for {count nice kids} nice kid/s."

Input	Output	Comments
5 4 - X V - - S - V - - - - X - - - up right down right Christmas morning	- - - - - - - S - - - - X - - - Good job, Santa! 2 happy nice kid/s.	Santa has 5 presents. The size of the matrix is 4. After we receive the matrix, we start reading commands. The first one is "up". The "X" means there is a naughty kid, so Santa moves on without dropping any presents. Next he reaches a nice kid and drops a present. The "down" command moves Santa to an empty cell. The last command before the "Christmas morning" message is "right". Again we have a nice kid. The count of nice kids reached 2 and we don't have any nice kids without presents left. So we print the appropriate message.
3 4 - - - - V - X - - V C V - - - S left	Santa ran out of presents! - - - - V - - - - - S - - - - - No presents for 1 nice kid/s.	The commands send Santa to a cell with a cookie, so all of the kids around him receive presents. He runs out of presents because we have 3 kids there and only 3 presents. The program ends and we have 1 nice kid that hasn't received a present.