# Peoblem 2. Collecting Eggs

*The Easter bunny started collecting eggs for the upcoming Easter.*

You will receive an integer **n** for the **size** of the **field** with a **square** shape. On the next **n lines** you will receive the **matrix**, which represents the **field.**

The Easter bunny will be in a **random** **cell**, marked with the letter '**B**'. Each cell stands for a place where the bunny can move. If the cell is marked with а **lowercase character**, that means there is an **egg**. If thecell is **marked** with **'C'**, the bunny eats a **carrot**. **All of the empty positions** will be marked with **'-' (dash).**

The Easter bunny can move "**up**", "**down**", "**left"**, "**right**". These will be the **commands** that you’ll receive. Anytime the bunny moves, change the value of the cell of his new position to '**B**' and the cell it left to **'-' (dash)**.

* If the **bunny moves to an egg** it puts it into its **basket**.
* If the bunny moves outside of the field, it **loses its first collected egg** (if there are any in its basket), **without changing its current possition**.
* If the bunny moves to **'C'**, it eats a **carrot** and gains the **ability to leap to the last index in the direction it received, if it is already on the last index – it leaps to the oppsite direction**. Opposite of "**up**" is "**down**", opposite of "**left"** is"**right"** and vice versa. Set the value of the carrot’s cell to **'-' (dash)**. **If there is an egg at the cell the bunny leaps to, it puts the egg in its basket**.
  + **Еxample**: If the bunny moves **up**, and eats a **carrot in [0;0]**, it **can't leap up**, so **it leaps down** to the **row's last position**, **[lastIndex;0]** **(column remains the same)**.

When the command"**end**" is received or the bunny **manages** to **collect** **all** eggs, **stop the program**, **print the result in the format below.**

### Input

* On the first line – integer **n** – size of the field
* The **next n lines** hold the values for every **row**
* On each of the next lines you will receive a command

### Output

* If the Easter bunny manages to collect all eggs on the field, print:

**"Happy Easter! The Easter bunny collected {numberOfEggs} eggs: {egg1}, {egg2}, {egg3}(…)."**

* If the Easter bunny could not collect every egg on the field, print:

**"The Easter bunny failed to gather every egg. There are {numberOfEggs} eggs left to collect."**

* Then print the current state of the matrix.

### Constraints

* The size of the square matrix will be between [2…15]
* The Easter bunny's position will be marked with 'B'
* The carrots will be marked with 'C'
* The Easter bunny will **never leap outside of the field**
* **All eggs** will be letters from english **alphabet (a – z)**
* There will be no case where Easter bunny will move to a carrot two consecutive times

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 4  - C e -  - B C y  - - - q  - - z x  up  right  right  right  up  end | The Easter bunny failed to gather every egg. There are 2 eggs left to collect.  - - e -  - - C y  - - - B  - - - - | The first command is **up** so **B** moves up.  **On turn 1**: the bunny moves **to carrot**. It should **leap up**, but the carrot is placed at the **end of the matrix**, so the bunny leaps to **opposite direction, which is down**. **[3;1]**  **On turn 2:** command is right, the bunny moves right and collect an egg. Now it has one eggs in its basket ('z').  **On turn 3:** command is right, the bunny moves right and collects another egg. Now it has two eggs in its basket ('z', 'x').  **On turn 4**: command is right, the bunny moves right, which is an invalid index, so it loses its first collected egg ('z').  **On turn 5**: command is up, the bunny moves up and collect onother egg. Now it has two eggs in its basket ('x', 'q').  We receive command **end** so we stop the program. There are **two eggs left on the field**. We print the output and the last state of the field.  1 2 3 4 5  - - e - - - e - - - e - - - e - - - e -  - - C y - - C y - - C y - - C y - - C y  - - - q - - - q - - - q - - - q - - - B  - B z x - - B x - - - B - - - B - - - - |
| 3  - - -  B C -  d b m  down  left  right  right  right | Happy Easter! The Easter bunny collected 2 eggs: b, m.  - - -  - C -  - - B |  |