**Truffle Hunter**

*In the summer Peter loves to hunt truffles. He has a well-trained dog, but his problem is how to deal with the wild boars, which eat his trifles.*

Create a program that helps Peter to **pick up truffles**. There are **three** kinds of **truffles** in the forest:

* **Black truffle** - **'B'**
* **Summer truffle** - **'S'**
* **White truffle** - **'W'**

**On the first line**, the size of the forest is given, which will be a matrix with a square shape. Then for **each** row, you will receive the **truffles**. **All of the empty positions** will be marked with a **'-' (dash).**

Then you will start receiving **commands**. Here are the possible ones you can receive:

* **"Collect {row} {col}"** - Peter goes to the given place in the forest and collect the truffle **if it exists**. When he collects a truffle, the cell’s should be change to a dash (**'-'**)**.**
* **"Wild\_Boar {row} {col} {direction}"** - a wild boar appeirs in the given coordinates (they will be always **valid**) in the forest and it goes all the way in that direction. Which means the wild boar, goes from the given **cell** to the **last cell** in the given direction. It **eats** the **given cell**, **skips the next**, and **eats** **the next one**, if there is a truffle there, and so on **until it reaches the last cell in the given direction**. **Mark** the **eaten** cells with **a dash** (**'-'**). There are four possible directions:
* **"up", "down", "left", and "right"**
* **"Stop the hunt"** – the program stops and the result is printed.

Here is an example (**up** and **right**) **of the wild boar eating pattern**:



In the end, **print** the **truffles** that Peter have successfully **found** and the **count** of truffles that the **wild boar** ate in the following format:

**"Peter manages to harvest {count black truffles} black, {count summer truffles} summer, and {count white truffles} white truffles."**

**"The wild boar has eaten {count of truffles} truffles."**

Then **print the last state of the forest.**

**Input**

* On the first line, you will receive **the size of the forest (matrix) in square shape**.
* On the next lines, for **each** **row**, you will receive the truffles in the described format.
* Next, until you receive **"Stop the hunt"**, you will be receiving commands in the described format.

**Output**

As an output **print three lines**:

* All types of truffles that Peter has **collected** in the format described above.
* Truffles **eaten by the wild boar** in the format described above.
* The **final state of the forest** - each cell separated by a single space.

**Constraints**

* The size of the square matrix will be between [3…10].
* The coordinate of the wild boar will be always valid.
* The input will always be **valid** and you don't need to check it explicitly.

**Examples**

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| **Input** | **Output** |
| 5  B W S - -  S S B W W  S S - W B  B B S - W  S S - - -  Collect 0 2  Collect 3 0  Collect 4 2  Collect 3 4  Collect 2 3  Wild\_Boar 2 2 up  Wild\_Boar 1 1 right  Stop the hunt | Peter manages to harvest 1 black, 1 summer, and 2 white truffles.  The wild boar has eaten 2 truffles.  B W - - -  S - B - W  S S - - B  - B S - -  S S - - - |
| **Comment** | |
| The first command is **"Collect",** so we go to the given coordinates and collect **'S'** (summer truffle).  The next command is "**Collect**", so we go to the given coordinates and collect **'B'** (black truffle).  The next command is "**Collect**", so we go to the given coordinates but there is no truffle there, so we continue to the next command.  The next command is "**Collect**", so we go to the given coordinates and collect **'W'** (white truffle).  The next command is "**Collect**", so we go to the given coordinates and collect **'W'** (white truffle).  The next command is **"Wild\_Boar"**, so to the wild boar start from the given index in a direction up. There were not any truffles in the coordinates, so the wild boar leave without eating anything.  The next command is **"Wild\_Boar"**, so to the wild boar start from the given index in a direction right. He menage to eat two truffles, which are **'S'** (summer truffle) and **'W'** (white truffle).  The last command is "**Stop the hunt**", the program stop, and the corresponding message is printed, with the last state of the forest. | |

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| **Input** | **Output** |
| 4  B - S W  S - B W  S S - B  B W S -  Collect 0 0  Collect 1 2  Collect 3 2  Collect 3 1  Stop the hunt | Peter manages to harvest 2 black, 1 summer, and 1 white truffles.  The wild boar has eaten 0 truffles.  - - S W  S - - W  S S - B  B - - - |