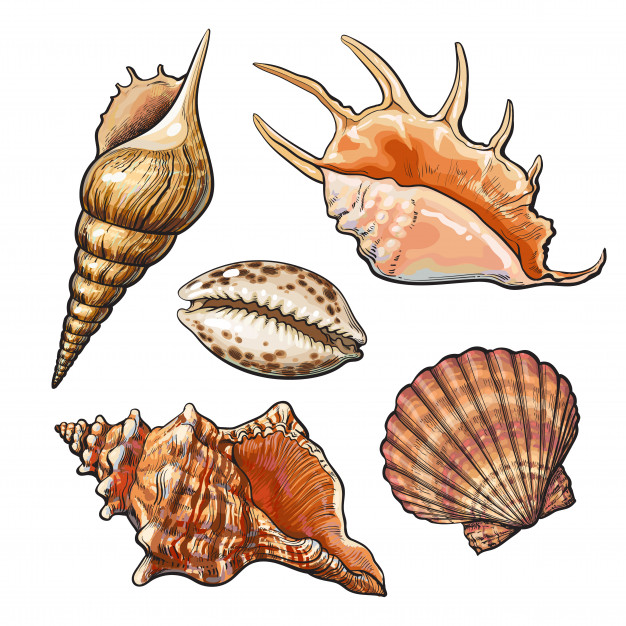
**Seashell Treasure**



*It's beautiful summer afternoon and you decide to go to the beach and collect some seashells. There will be three types of seashells (the most beautiful in the world) - Cockle, Nautilus and Moonshell. But you are not alone at the beach - the Seagull Gully is on his watch and also wants to steal some seashells.*

Write a program, that collects seashells from the beach. First you will be given the number of **rows** of the beach – an **integer n**. On the next **n** lines, you will receive the **available seashells** to **collect** for **each row**, **separated by a single space** in the format:  
**"{seashell1} {seashell2} … {seashelln}"**  
The **positions** (cells) **without seashells** in them are considered **empty** and they will be **marked** with a **dash ('-').**

After that you will start receiving **commands**. There are **three** possibilities:

* **"Collect {row} {col}"**:
  + You have to go to the given place **if you can** and collect the seashell, **if** there is one.
  + When you **collect** it, you have to mark the place as an **empty**, using **dash** symbol.
* **"Steal {row} {col} {direction}"**:
  + The evil Gully **lands** at the given coordinates **if they exist**.
  + Every time, he **steals the seashell** from **the cell that he landed on** and **moves 3 steps** in the **given** **direction**, if such places exist. Again, **if there are seashells** in those cells, he **steals** them.
  + When he **steals** seashells, he **marks the cells as** **empty**.
  + If Gully **cannot land**, you are lucky - he **doesn't steal seashells** and **continues** circling around.
  + There are four possible directions, in which Gully can go: **"up", "down", "left", "right".**
* **"Sunset"** – it's getting late and you should stop collection seashells.

In the end, print on the console the **last condition of the beach**. The cells, containing a seashell or not, should be **separated by single space**. After that print the **count** of the seashells you've collected and if they are **one or more** - list them in **order of collecting**, separated by **comma and space**:  
**"Collected seashells: {countOfCollectedSeashells} -> {seashell1}, {seashell2}, …, {seashelln}"**

Last step is to print the number of **stolen** by Gully seashells in the format:  
"**Stolen seashells: {countOfStolenSeashells}"**

## Input

* On the first line, you will receive the number of beach's **rows** - **integer n**
* On the next **n** lines, for each row, the situation of the **seashells** at the beach in the described **format** above
* Next, until you receive **"Sunset"**, you will get the **commands** in the specified format.

## Output

* Print the **resulting** beach - each cell separated **by single space**
* On the next output line - print information for **seashells** you've **collected** in the **described** format
* On the last line - print the **number** of seashells **stolen** by the seagull

## Constraints

* The number of **rows** will be **positive** **integer** between **[1, 10]**
* The **types** of seashells will always be **'C', 'N', 'M'**
* Move commands will be: "**up**", "**down**", "**left**", "**right**"

## Examples

|  |  |  |
| --- | --- | --- |
| ****Input**** | ****Output**** | ****Comment**** |
| **6**  **C N - M C - N**  **- N - -**  **N - M - C N - -**  **- C - M - C**  **M N**  **C M N - C**  **Collect 2 2**  **Collect 4 1**  **Steal 3 1 up**  **Collect 4 3**  **Collect 5 0**  **Collect 4 0**  **Steal 2 0 down**  **Sunset** | **C - - M C - N**  **- - - -**  **- - - - C N - -**  **- - - M - C**  **- -**  **- M N - C**  **Collected seashells: 4 -> M, N, C, M**  **Stolen seashells: 4** | First we receive **"Collect"** command, we go to the given coordinates and collect the **'M'** and leave its cell **empty ('-')**. At the same way we collect and **'N'** for the next command. After that there is **"Steal"** command - the seagull **lands** at coordinates **3 1**, first collects **'C'**, then takes **3 steps up** - the first cell is **empty**, so he continues up, on the **second** step he steals **'N'** and on the **third** - **'N'** and sets their cells as **empty**. The **"Collect"** command is next, but we **don't do** anything, because the coordinates are **invalid**. We execute the last commands in the same way. In the end we print the beach. We've collected **4** seashells, so we print them in order **"M, N, C, M"**. The seagull managed to **steal** **4** seashells. |
| 4  - N M  C  M - - -  N  Collect 9 0  Collect 1 4  Steal 0 2 right  Steal 5 5 up  Sunset | **- N -**  **C**  **M - - -**  **N**  **Collected seashells: 0**  **Stolen seashells: 1** | **The **"Collect"** commands are **skipped**, because of the **invalid** **coordinates**. When we receive "**Steal"** command, the seagull steals the **'M'**, leaves it **empty** and he **can't** go 3 steps right, so the program **continues**. The next command is also **"Steal"** but the seagull **cannot** land so he **doesn't steal** anything. There are **no more** commands and the program ends.**  **We **didn't collect** any seashells, so we **print** the given final messages.** |