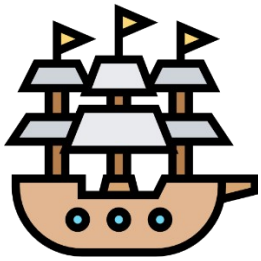
Man-O-War



The pirates encounter a huge Man-O-War at sea.

Create a program that **tracks** the **battle** and either chooses a **winner** or prints a **stalemate**. On the **first line** you will receive the **status** of the **pirate ship**, which is a **string** representing **integer sections** separated by **'>'**. On **the second line** you will receive the **same** type of status, but for the **warship**:

"{section$_1$}>{section$_2$}>{section$_3$}… {section$_n$}"

On the **third line** you will receive the **maximum health capacity** a section of the ship can reach.

The following lines represent commands **until "Retire"**:

- **`Fire {index} {damage}` –** the pirate ship **attacks** the warship with the **given damage** at that section. Check if the **index is valid** and if not **skip** the command. If the section **breaks** (health <= 0) the warship **sinks**, print the following and **stop** the program:

  `"You won! The enemy ship has sunken."`

- **`Defend {startIndex} {endIndex} {damage} -`** the warship **attacks** the pirate ship with the **given damage** at that **range** (**indexes are inclusive**). Check if both **indexes are valid** and if not **skip** the command. If the section **breaks** (health <= 0) the pirate ship **sinks**, print the following and **stop** the program:

  `"You lost! The pirate ship has sunken."`

- **`Repair {index} {health} -`** the crew **repairs** a section of the **pirate ship** with the **given health**. Check if the **index is valid** and if not **skip** the command. The health of the section **cannot** exceed the **maximum health capacity**.
- **`Status` –** prints the **count** of all sections of the **pirate ship** that need repair soon, which are all sections that are **lower than 20%** of the **maximum health capacity**. Print the following:

  `"{count} sections need repair."`

In the end if a **stalemate** occurs print the **status** of **both** ships, which is the **sum** of their individual sections in the following format:

`"Pirate ship status: {pirateShipSum}"`

`"Warship status: {warshipSum}"`

Input

- On the **1st line** you are going to receive the **status** of the **pirate ship** (**integers** separated by **'>'**)
- On the **2nd line** you are going to receive the **status** of the **warship**
- On the **3rd line** you are going receive the **maximum health** a section of a ship can reach.
- On the next **lines**, until **`"Retire"`**, you will be receiving commands.

Output

- Print the output in the **format described above**.

Constraints

- The **section numbers** will be integers in the range [**1**….**1000**]
- The **indexes** will be integers [**-200**….**200**]
- The **damage** will be an integer in the range [**1**….**1000**]
- The **health** will be an integer in the range [**1**….**1000**]

Examples

Input	Output
12>13>11>20>66 12>22>33>44>55>32>18 70 Fire 2 11 Fire 8 100 Defend 3 6 11 Defend 0 3 5 Repair 1 33 Status Retire	2 sections need repair. Pirate ship status: 135 Warship status: 205

Comments

First, we receive the command "**Fire 2 11**" and damage the warship at section index 2 which is currently 33 and after reduction the status of the warship is the following:

12 22 22 44 55 32 18

The **second** and **third** command have **invalid indexes**, so we skip them.

The **fourth** command "**Defend 0 3 5**" damages **4 sections** of the pirate ship with **5** which results in the following status:

7 8 6 15 66

The **fifth** command "**Repair 1 33**" repairs the pirate ship section and adds **33 health** to the current **8** which results in **41**

Only **2 sections** of the pirate ship (**7** and **6**) need repair soon.

In the end there is a **stalemate,** so we print both ship statuses (**sum** of all sections).

Input	Output
2>3>4>5>2 6>7>8>9>10>11 20 Status Fire 2 3 Defend 0 4 11 Repair 3 18 Retire	3 sections need repair. You lost! The pirate ship has sunken.