## Problem 1 –The Imitation Game

A problem for exam preparation for the [Programming Fundamentals Course @ SoftUni](https://softuni.bg/trainings/3950/programming-fundamentals-with-csharp-january-2023)

Submit your solutions in the SoftUni Judge system [here](https://judge.softuni.org/Contests/Practice/Index/2525#0)

*During World War 2, you are a mathematician who has joined the cryptography team to decipher the enemy's enigma code. Your job is to create a program to crack the codes.*

On the first line of the input, you will receive the **encrypted message**. After that, until the "Decode" command is given, **you will be receiving strings** with **instructions** for different **operations** that need to be performed upon the **concealed message** to **interpret** **it** and reveal its true content. There are several types of instructions, split by '|'

* "Move {number of letters}":
  + **Moves** the **first n letters** to the **back** of the string
* "Insert {index} {value}":
  + **Inserts** the given value **before the given index** in the string
* "ChangeAll {substring} {replacement}":
  + **Changes** **all occurrences** of the given substring with the replacement text

### Input / Constraints

* On the first line, you will receive a string with a message.
* On the following lines, you will be receiving commands, split by **'|' .**

### Output

* After the "Decode" command is received, print this message:  
  "**The decrypted message is: {message}**"

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| zzHe  ChangeAll|z|l  Insert|2|o  Move|3  Decode | The decrypted message is: Hello |
| **Comments** | |
| **ChangeAll|z|l**  zzHe → llHe (We replace all occurrences of 'z' with 'l')  **Insert|2|o**  llHe → lloHe (We add an 'o' before the character on index 2)  Move|3  lloHe → Hello (We take the first three characters and move them to the end of the string)  Finally, after receiving the **"Decode"** command, we print the resulting message. | |
| **Input** | **Output** |
| owyouh  Move|2  Move|3  Insert|3|are  Insert|9|?  Decode | The decrypted message is: howareyou? |

## Problem 2 – Destination Mapper

A problem for exam preparation for the [Programming Fundamentals Course @ SoftUni](https://softuni.bg/trainings/3950/programming-fundamentals-with-csharp-january-2023)

Submit your solutions in the SoftUni Judge system [here](https://judge.softuni.org/Contests/Practice/Index/2518#1)

*Now that you have planned out your tour, you are ready to go! Your next task is to mark all the points on the map that you are going to visit.*

You will be given a **string** representing some **places** on the map. You have to **filter** only the **valid ones**. A valid location is:

* Surrounded by **"="** or **"/"** on **both sides** (the **first** and the **last** symbols must **match**)
* After the **first "="** or **"/"** there should be **only letters** (the **first** must be **upper-case,** other letters could be upper or lower-case)
* The **letters** must be **at least 3**

**Example**: In the string **"=Hawai=/Cyprus/=Invalid/invalid==i5valid=/I5valid/=i="** only the **first two** locations are valid.

After you have **matched** all the **valid locations**, you have to **calculate travel points**. They are calculated by **summing** the **lengths** of all the **valid destinations** that you have found on the map.

In the end, on the **first line,** print: **"Destinations: {destinations joined by ', '}"**.

On the **second line,** print **"Travel Points: {travel\_points}"**.

### Input / Constraints

* You will receive a string representing the locations on the map
* JavaScript: you will receive a single parameter: string

### Output

* Print the **messages described above**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| =Hawai=/Cyprus/=Invalid/invalid==i5valid=/I5valid/=i= | Destinations: Hawai, Cyprus  Travel Points: 11 |
| ThisIs some InvalidInput | Destinations:  Travel Points: 0 |

### JS Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| ("=Hawai=/Cyprus/=Invalid/invalid==i5valid=/I5valid/=i=") | Destinations: Hawai, Cyprus  Travel Points: 11 |
| ("ThisIs some InvalidInput") | Destinations:  Travel Points: 0 |

## Problem 3 – Need for Speed III

A problem for exam preparation for the [Programming Fundamentals Course @ SoftUni](https://softuni.bg/trainings/3950/programming-fundamentals-with-csharp-january-2023)

Submit your solutions in the SoftUni Judge system [here](https://judge.softuni.org/Contests/Practice/Index/2307#2)

*You have just bought the latest and greatest computer game – Need for Seed III. Pick your favorite cars and drive them all you want! We know that you can't wait to start playing.*

On the first line of the standard input, you will receive an integer **n** – the **number of cars** that you can obtain. On the next **n** lines, the **cars themselves** will follow with their **mileage** and **fuel** **available**, separated by "|" in the following format:

"{car}|{mileage}|{fuel}"

Then, you will be receiving different **commands**, each on a new line, separated by " : ", until the "Stop" command is given:

* "Drive : {car} : {distance} : {fuel}**"**:
  + You need to **drive the given distance**, and you will **need the given** fuel to do that. If the car **doesn't have enough fuel**, print: "**Not enough fuel to make that ride**"
  + If the car has the required fuel available in the tank, **increase its mileage** with **the given distance**, **decrease its fuel with the given fuel,** and **print**:   
    "{car} driven for {distance} kilometers. {fuel} liters of fuel consumed."
  + You like driving new cars only, so if a car's mileage reaches **100 000** km, remove it from the collection(s) and print: "**Time to sell the {car}!**"
* "Refuel : {car} : {fuel}**"**:
  + **Refill** the tank of your car.
  + Each tank can hold a **maximum of 75 liters of fuel**, so if the given amount of fuel is more than you can fit in the tank, take only what is required to fill it up.
  + Print a message in the following format: "{car} refueled with {fuel} liters"
* "Revert : {car} : {kilometers}**"**:
  + Decrease the **mileage** of the given **car with the given kilometers** and print the kilometers you have decreased it with in the following format:  
    "{car} mileage decreased by {amount reverted} kilometers"
  + If the mileage becomes **less** **than** **10 000km** **after** it is decreased, **just set it to 10 000km** and   
    **DO NOT print anything.**

Upon receiving the "Stop" command, you need to print all cars in your possession in the following format:  
"**{car} -> Mileage: {mileage} kms, Fuel in the tank: {fuel} lt.**"

### Input/Constraints

* The **mileage** and **fuel** of the cars will be valid, 32-bit integers, and will never be negative.
* The **fuel** and **distance** amounts **in the commands will never be negative**.
* The **car** **names** in the **commands** will always be **valid cars in your possession**.

### Output

* All the output messages with the appropriate formats are described in the problem description.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 3  Audi A6|38000|62  Mercedes CLS|11000|35  Volkswagen Passat CC|45678|5  Drive : Audi A6 : 543 : 47  Drive : Mercedes CLS : 94 : 11  Drive : Volkswagen Passat CC : 69 : 8  Refuel : Audi A6 : 50  Revert : Mercedes CLS : 500  Revert : Audi A6 : 30000  Stop | Audi A6 driven for 543 kilometers. 47 liters of fuel consumed.  Mercedes CLS driven for 94 kilometers. 11 liters of fuel consumed.  Not enough fuel to make that ride  Audi A6 refueled with 50 liters  Mercedes CLS mileage decreased by 500 kilometers  Audi A6 -> Mileage: 10000 kms, Fuel in the tank: 65 lt.  Mercedes CLS -> Mileage: 10594 kms, Fuel in the tank: 24 lt.  Volkswagen Passat CC -> Mileage: 45678 kms, Fuel in the tank: 5 lt. |
| **Comments** | |
| After we receive the cars with their mileage and fuel, we start driving them. When we get to "**Drive : Volkswagen Passat CC : 69 : 8**" command, our program calculates that there is not enough fuel, and we print the appropriate message. Then we refuel the Audi A6 with 50 l of fuel and Revert the Mercedes with 500 kilometers.  When we receive the "Revert : Audi A6 : 30000", we set its mileage to **10000** km, because if the current mileage of the Audi is **38543** kms and if we subtract **30000** from it, we receive **8543** kms, which is less than 10000 kms.  After all the commands, we print our current collection of cars with their current mileage and current fuel. | |
| **Input** | **Output** |
| 4  Lamborghini Veneno|11111|74  Bugatti Veyron|12345|67  Koenigsegg CCXR|67890|12  Aston Martin Valkryie|99900|50  Drive : Koenigsegg CCXR : 382 : 82  Drive : Aston Martin Valkryie : 99 : 23  Drive : Aston Martin Valkryie : 2 : 1  Refuel : Lamborghini Veneno : 40  Revert : Bugatti Veyron : 2000  Stop | Not enough fuel to make that ride  Aston Martin Valkryie driven for 99 kilometers. 23 liters of fuel consumed.  Aston Martin Valkryie driven for 2 kilometers. 1 liters of fuel consumed.  Time to sell the Aston Martin Valkryie!  Lamborghini Veneno refueled with 1 liters  Bugatti Veyron mileage decreased by 2000 kilometers  Lamborghini Veneno -> Mileage: 11111 kms, Fuel in the tank: 75 lt.  Bugatti Veyron -> Mileage: 10345 kms, Fuel in the tank: 67 lt.  Koenigsegg CCXR -> Mileage: 67890 kms, Fuel in the tank: 12 lt. |