# Problem 3 - Memory game

Problem for exam preparation for the [Programming Fundamentals Course @SoftUni](https://softuni.bg/courses/programming-fundamentals-csharp-java-js-python).

Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/Practice/Index/2517#1>.

Write a program that recreates the **Memory game**.

On the first line, you will **receive a sequence of elements**. Each element in the sequence **will have a** **twin**. Until the player receives **"end"** from the console, you will receive **strings with two integers** separated by a space, representing **the indexes** of elements in the sequence.

If the player **tries to cheat** and enters **two equal indexes** or indexes which are **out of bounds of the sequence**, you should **add** two matching elements at the middle of the sequence in the following format:

**"-{number of moves until now}a"**

Then print this message on the console:

**"Invalid input! Adding additional elements to the board"**

### Input

* On the **first** line**,** you will receive a **sequence of elements**
* On the **following** lines, you will receive **integers** until the command **"end"**

### Output

* Every time the player hit **two matching elements**, you should **remove** them from the sequence and **print** on the console the following message:

**"Congrats! You have found matching elements - ${element}!"**

* If the player hit **two different elements**, you should **print** on the console the following message:

**"Try again!"**

* If the player hit **all matching elements** before he receives **"end"** from the console, you should **print** on the console the following message:

**"You have won in {number of moves until now} turns!"**

* If the player receives **"end"** **before** **he hits all matching elements**, you should **print** on the console the following message:

**"Sorry you lose :(**

**{the current sequence's state}"**

## Constraints

* **All elements in the sequence will always have a matching element.**

## Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 1 2 2 3 3 4 4 5 5  1 0  -1 0  1 0  1 0  1 0  end | Congrats! You have found matching elements - 1!  Invalid input! Adding additional elements to the board  Congrats! You have found matching elements - 2!  Congrats! You have found matching elements - 3!  Congrats! You have found matching elements - -2a!  Sorry you lose :(  4 4 5 5 |
| **Comment** | |
| 1)  1 0  1 1 2 2 3 3 4 4 5 5 –> 1 = 1, equal elements, so remove them. Moves: 1  2)  -1 0  -1 is invalid index so we add additional elements  2 2 3 3 -2а -2а 4 4 5 5, Moves: 2  3)  1 0  2 2 3 3 -2а -2а 4 4 5 5 -> 2 = 2, equal elements, so remove them. Moves: 3  4)  1 0  3 3 -2а -2а 4 4 5 5 -> 3 = 3, equal elements, so remove them. Moves: 4  5)  1 0  -2а -2а 4 4 5 5 -> -2а = -2а, equal elements, so remove them. Moves: 5  6)  You receive the end command.  There are still elements in the sequence, so the player loses the game.  Final state - 4 4 5 5 | |
| a 2 4 a 2 4  0 3  0 2  0 1  0 1  end | Congrats! You have found matching elements - a!  Congrats! You have found matching elements - 2!  Congrats! You have found matching elements - 4!  You have won in 3 turns! |
| a 2 4 a 2 4  4 0  0 2  0 1  0 1  end | Try again!  Try again!  Try again!  Try again!  Sorry you lose :(  a 2 4 a 2 4 |

## JS Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| [  "1 1 2 2 3 3 4 4 5 5",  "1 0",  "-1 0",  "1 0",  "1 0",  "1 0",  "end"  ] | Congrats! You have found matching elements - 1!  Invalid input! Adding additional elements to the board  Congrats! You have found matching elements - 2!  Congrats! You have found matching elements - 3!  Congrats! You have found matching elements - -1a!  Sorry you lose :(  4 4 5 5 |
| **Comment** | |
| 1)  1 0  1 1 2 2 3 3 4 4 5 5 –> 1 = 1, equal elements, so remove them. Moves: 1  2)  -1 0  -1 is invalid index so we add additional elements  2 2 3 3 -2а -2а 4 4 5 5, Moves: 2  3)  1 0  2 2 3 3 -2а -2а 4 4 5 5 -> 2 = 2, equal elements, so remove them. Moves: 3  4)  1 0  3 3 -2а -2а 4 4 5 5 -> 3 = 3, equal elements, so remove them. Moves: 4  5)  1 0  -2а -2а 4 4 5 5 -> -2а = -2а, equal elements, so remove them. Moves: 5  6)  You receive the end command.  There are still elements in the sequence, so the player loses the game.  Final state - 4 4 5 5 | |
| [  "a 2 4 a 2 4",  "0 3",  "0 2",  "0 1",  "0 1",  "end"  ] | Congrats! You have found matching elements - a!  Congrats! You have found matching elements - 2!  Congrats! You have found matching elements - 4!  You have won in 3 turns! |
| [  "a 2 4 a 2 4",  "4 0",  "0 2",  "0 1",  "0 1",  "end"  ] | Try again!  Try again!  Try again!  Try again!  Sorry you lose :(  a 2 4 a 2 4 |