Lab: Functional Programming

Problems for the "C# Advanced" course @ Software University
You can check your solutions in Judge

1. Sort Even Numbers

Create a program that reads one line of **integers** separated by **", "**. Then prints the **even numbers** of that sequence **sorted** in **increasing** order.

Examples

Input	Output
4, 2, 1, 3, 5, 7, 1, 4, 2, 12	2, 2, 4, 4, 12

Input	Output
1, 3, 5	

Input	Output
2, 4, 6	2, 4, 6

Hint

It is up to you what type of data structures you will use to solve this problem. Use a functional programming filter and sort the collection of numbers.

2. Sum Numbers

Create a program that reads a line of **integers** separated by **", "**. Print on two lines the **count** of numbers and their **sum.**

Examples

Input	Output
4, 2, 1, 3, 5, 7, 1, 4, 2, 12	10 41
2, 4, 6	3 12

3. Count Uppercase Words

Create a program that reads a line of **text** from the console. Print **all** the words that start with an **uppercase letter** in the **same order** you've received them in the text.

Examples

Input	Output
The following example shows how to use Function	The Function
Write a program that reads one line of text from console. Print count of words that start with Uppercase, after that print all those words in the same order like you find them in text.	Write Print Uppercase,

Hint

Use **`Func<string, bool>`** and use **`' '`** for splitting words.

4. Add VAT

Create a program that reads one line of **double** prices separated by **`", "`**. Print the **prices** with **added VAT** for all of them. **Format** them to **2 signs** after the decimal point. The **order** of the prices must be the **same**.
VAT is equal to **20%** of the price.

Examples

Input	Output

`1.38, 2.56, 4.4`	`1.66`
	`3.07`
	`5.28`

Input	Output

`1, 3, 5, 7`	`1.20`
	`3.60`
	`6.00`
	`8.40`

5. Filter by Age

Write a program that receives an integer **N** on the first line. On the next **N** lines, read pairs of **`"[name], [age]"`**. Then read three lines:

- **Condition** - "**`younger`**" (<) or "**`older`**" (>=)
- **Age threshold** - integer
- **Format** - "**`name`**", "**`age`**" or "**`name age`**"

Depending on the **condition**, print the correct **pairs** in the correct **format**. **Don't use the built-in functionality from .NET. Create your own methods.**

Examples

Input	Output

`5`
`Lucas, 20`
`Tomas, 18`
`Mia, 29`
`Noah, 31`
`Simo, 16`
`older`
`20`
`name age`
	`Lucas - 20`
	`Mia - 29`
	`Noah - 31`

Input	Output

`5`
`Lucas, 20`
`Tomas, 18`
`Mia, 29`
`Noah, 31`
`Simo, 16`
`younger`
`20`
`name`
	`Tomas`
	`Simo`

Input	Output

`5`
`Lucas, 20`
`Tomas, 18`
`Mia, 29`
`Noah, 31`
`Simo, 16`
`younger`
`50`
`age`
	`20`
	`18`
	`29`
	`31`
	`16`

Hints

Implement the following steps:

```
List<Person> people = ReadPeople();
Func<Person, bool> filter = CreateFilter(condition, ageThreshold);
Action<Person> printer = CreatePrinter(format);
PrintFilteredPeople(people, filter, printer);
```

The methods **`CreateFilter(condition, ageThreshold)`** and **`CreatePrinter(format)`** should return **lambda functions** as output.