# **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					C	utp	ut		
4, 7,	2, 1,	1, 4,	3, 2,	5, 12	2,	2,	4,	4,	12

	Inpu	t	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**

				ln	put					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

Inpu	ut	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
Lucas, 20	Mia - 29
Tomas, 18 Mia, 29 Noah, 31 Simo, 16	Noah - 31
older	
20	
name age	

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

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

#### Hints

Implement the following steps:

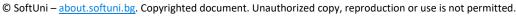
List<Person> people = ReadPeople();

Func<Person, bool> filter = CreateFilter(condition, ageThreshold);

Action<Person> printer = CreatePrinter(format);

PrintFilteredPeople(people, filter, printer);

















The methods <code>CreateFilter(condition, ageThreshold)</code> and <code>CreatePrinter(format)</code> should return <code>lambda functions</code> as output.