**Exercises: Functional Programming**

Problems for exercises and homework for the ["C# Advanced" course @ Software University HYPERLINK "https://softuni.bg/courses/csharp-advanced".](https://softuni.bg/courses/csharp-advanced)

You can check your solutions here: <https://judge.softuni.bg/Contests/1473/Functional-Programming-Exercises>

* **Action Point**

Write a program that reads a collection of **strings** from the console and then **prints** them onto the **console**. Each name should be printed on a **new** **line**. Use **Action<T>**.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| Lucas Noah Tea | Lucas  Noah  Tea |

* **Knights of Honor**

Write a program that reads a collection of **names** as **strings** from the **console**, appends "**Sir**" in front of every name and **prints** it back on the **console**. Use **Action<T>**.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| Eathan Lucas Noah StanleyRoyce | Sir Eathan  Sir Lucas  Sir Noah  Sir StanleyRoyce |

* **Custom Min Function**

Write a simple program that reads from the **console** a set of **integers** and **prints** back on the **console** the **smallest** **number** from the collection. Use **Func<T, T>**.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 4 3 2 1 7 13 | 1 |

* **Find Evens or Odds**

You are given a lower and an upper bound for a range of integer numbers. Then a command specifies if you need to list all even or odd numbers in the given range. Use **Predicate<T>**.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 10  odd | 1 3 5 7 9 |
| 20 30  even | 20 22 24 26 28 30 |

* **Applied Arithmetics**

Write a program that executes some mathematical operations on a given collection. On the **first line** you are given **a list of numbers**. On the **next lines** you are passed **different commands** that you need to **apply to all the numbers** in the list:

* **"add"** -> add 1 to each number
* **"multiply"** -> multiply each number by 2
* **"subtract"** -> subtract 1 from each number
* **"print"** -> print the collection
* "**end**" -> ends the input

Use functions.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 2 3 4 5  add  add  print  end | 3 4 5 6 7 |
| 5 10  multiply  subtract  print  end | 9 19 |

* **Reverse and Exclude**

Write a program that reverses a collection and removes elements that are divisible by a given integer **n**. Use predicates/functions.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 2 3 4 5 6  2 | 5 3 1 |
| 20 10 40 30 60 50  3 | 50 40 10 20 |