Exercise: Algorithmic Thinking

This document defines bonus exercise problems from the "Advanced C#" Course @ Software University. These problems do not affect the final score. They are designed to improve problem solving skills.

1. Reverse Words in a String

Example: I have little patience -> Patience little have i. Do not use built-in reverse methods. Implement your own algorithm.

Input	Output
Gosho stana golqmo momche	Momche golqmo stana gosho
I am a student at Softuni	Softuni at student a am i
The bluest of skies	Skies of bluest the

2. Count Consecutive Digits

Implement algorithm that counts consecutive digits and appends the resulting value in front of the sequence

Example 3354 -> two 3s, one 5, one 4 or 231514

111 -> three 1s or **31**

Input	Output
1515	11151115
5566124	2526111214
0	10

3. Calculator

Implement an algorithm that correctly calculates simple expressions.

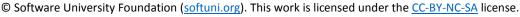
Input	Output
1 + 1 + 1	3
6 - 5 * 4	-14
12 * 3 * 1 / 5	7.2

4. Convert String to Integer

Implement your own algorithm that converts a string to integer. Do not use int. Parse, Convert. Tolnt32 or similar methods. Think of edge cases

Input	Output
155	155
	FormatException
18789718957189578956	OverflowException





















5. Multiply Integers in Array

Multiply each integer by all other integers except itself. Example:

[5, 6, 7, 8] -> [336, 280, 240, 210]

Input	Output
1 2 3 4	24 12 8 6
0 1 2 3	6 0 0 0
10 11 12 13 14	24024 21840 20020 18480 17160

6. Reverse number

Reverse numbers using only the math operators (+ - * / %)

Input	Output
4321	1234
100000	1
105101	101501

















