**Homework: Introduction to Programming**

**Problem 1. Play with Visual Studio**

* Install Visual Studio on your laptop or home computer. Go to the official [Visual Studio](http://www.visualstudio.com/en-us/downloads/download-visual-studio-vs.aspx) site and download the **Community 2013 with Update 4** version.
* Start Visual Studio and familiarize yourself with it. Create a simple C# program (console application), compile and run it.

You do not have to submit anything in your homework for this problem.

**Problem 2. Blank Solution in Visual Studio**

* Create a blank solution in Visual Studio called “Intro-Programming-Homework”. This solution will hold all your homework projects, code and files. For each problem (exercises) add a separate project with self-descriptive name like “Hello-World” and “Print-Your-Name”.

You do not have to submit anything in your homework for this problem.

**Problem 3. Play with MSDN Library**

* Play with [Microsoft Developer Network (MSDN)](http://msdn.microsoft.com/library) Library Documentation.
  + Find information about Console.WriteLine() method in MSDN.
  + Find information about the Console class.
  + Find information about the class keyword.

You do not have to submit anything in your homework for this problem.

**Problem 4. Hello World**

* Create, compile and run a “Hello C#” console application.
* Ensure you have named the application well (e.g. “”HelloCSharp”).

You should submit the Visual Studio project holding the HelloCSharp class as part of your homework.

**Problem 5. Print Your Name**

* Modify the previous application to print your name.
* Ensure you have named the application well (e.g. “PrintMyName”).

You should submit a separate project Visual Studio project holding the PrintMyName class as part of your homework.

**Problem 6. Print Numbers**

* Write a program to print the numbers 1, 101 and 1001, each at a separate line.
* Name the program correctly.

You should submit in your homework the Visual Studio project holding the source code of the PrintNumbers program.

**Problem 7. Print First and Last Name**

* Create console application that prints your first and last name, each at a separate line.

**Problem 8. Square Root**

* Create a console application that calculates and prints the square root of the number 12345.
* Find in Internet “how to calculate square root in C#”.

**Problem 9. Print a Sequence**

* Write a program that prints the first 10 members of the sequence: 2, -3, 4, -5, 6, -7, ...

**Problem 10. Reformat C# Code**

* Reformat the following C# code to make it readable according to the C# best practices for code formatting. Change the casing of the identifiers in the code (e.g. use PascalCase for the class name): HorribleCode.cs

using

System;

class hoRRiblEcoDe

{

static

void

Main()

{

Console.

WriteLine("Hi, I am horribly formatted program"

); Console.

WriteLine("Numbers and squares:")

; for (int i = 0;

i < 10;

i++)

{

Console.WriteLine(i +

" --> " + i

\*

i);

}

}

}

**Problem 11. Programming Languages**

* Perform a research (e.g. in Google or Wikipedia) and provide a short list with information about the most popular programming languages. How similar are they to C#? How do they differ from C#?
* Write in a text file called “programming-languages.txt” at least five languages along with 2-3 sentences about each of them. Use English.

**Problem 12. Development Environments**

* Perform a research (e.g. in Google or Wikipedia) and provide a short list with popular development environments (IDEs) like Visual Studio.
* Write in a text file called “list-of-IDEs.txt” at least five IDEs along with 2-3 sentences about each of them. Use English.

**Problem 13. C# and .NET Differences**

* Describe the difference between C# and .NET Framework in 2-3 sentences.
* Write your description in a text file called “csharp-and-dot-net-framework.txt”. Use English.

**Problem 14.\* Current Date and Time**

* Create a console application that prints the current date and time. Find out how in Internet.

**Problem 15.\* Age after 10 Years**

* Write a program to read your birthday from the console and print how old you are now and how old you will be after 10 years.

**Problem 16.\* Print Long Sequence**

* Write a program that prints the first 1000 members of the sequence: 2, -3, 4, -5, 6, -7, …
* You might need to learn how to use loops in C# (search in Internet).

**Problem 17.\* Play with the Debugger in Visual Studio**

* Write a program that prints at the console the numbers from 1 to 1000, each at a separate line.
* You might need to learn how to use loops (search in Internet).
* Set a breakpoint in the line, which prints the next number in the Visual Studio code editor. Run the program through the debugger using the [F5] key. When the debugger stops at the breakpoint trace the code execution with [F10] key.

You do not have to submit anything in your homework for this problem. Just play with the debugger to learn how it works.