# Homework: Introduction to Programming

This document defines homework assignments from the [“C# Basics“ Course @ Software University](http://softuni.bg/courses/csharp-basics/). Please submit as homework a single zip / rar / 7z archive holding the solutions (source code only) of all below described problems.

## Play with Visual Studio

Familiarize yourself with Microsoft Visual Studio (if you already have it installed) or **install Visual Studio** (or Visual Studio Express) at your laptop or home computer. Search in Internet for the correct download link: <http://google.com/search?q=download+visual+studio>. You do not have to submit anything in your homework for this problem. Start Visual Studio and play with it. **Create a simple C# program** (console application), compile and run it.

## 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.

## Play with MSDN Library

Play with Microsoft Developer Network (MSDN) Library Documentation. You may find it online at <http://msdn.microsoft.com/library>.

* 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.

## 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.

|  |
| --- |
| **Expected Output** |
| Hello C#! |

## 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.

|  |
| --- |
| **Expected Output** |
| My name is Bob. |

## 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.

|  |
| --- |
| **Expected Output** |
| 1  101  1001 |

## Print First and Last Name

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

|  |
| --- |
| **Expected Output** |
| Bob  Dylan |

## 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#”.

|  |
| --- |
| **Expected Output** |
| 111.1080555… |

## Print a Sequence

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

|  |
| --- |
| **Expected Output** |
| 2,-3,4,-5,6,-7,8,-9,10,-11 |

## 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).

**Note:** How to test in Judge System. In the bottom right corner there’s a dropdown menu. Select “Plain text” and copy/paste the whole source code. Or find a way to print it on the console (then select “C# code” from dropdown menu).

|  |
| --- |
| 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);  }  }  } |

## 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.

## 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.

## 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.

## \* Current Date and Time

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

|  |
| --- |
| **Expected Output** |
| 19.5.2015 г. 12:02:55 ч. |

## \* 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. **NOTE**: If you want to test in Judge System - the present day should be 01.11.2015.

|  |  |
| --- | --- |
| **Input** | **Output** |
| 12.04.1991 | Now: 24  After 10 years: 34 |

## \* 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).

|  |
| --- |
| **Expected Output** |
| 2,-3,4,-5,6,-7,8,-9,10,-11,12,-13,14,-15,16,-17…998,-999,1000,-1001 |

## \* 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.