Homework: Introduction to C

This document defines the homework assignments from [the "C Programming" Course @ Software University]. Please submit as homework a single **`zip`** / **`rar`** / **`7z`** archive holding the solutions (source code) of all below described problems.

Problem 1. Play with Your IDE / Text Editor

Familiarize yourself with your development environment (Eclipse, Code::Blocks, Vim, etc.). You do not have to submit anything in your homework for this problem. Start it and play with it. **Create a simple C program** (console application), compile and run it.

Problem 2. Play with Standard C Library

Search online for information about the following C functions. You may find it online at http://en.cppreference.com/w/.

- Find information about the **`printf()`** function.
- Find information about the **`scanf()`** function.

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

Problem 3. Hello World

Create, compile and run a **"Hello, C" console application**. Make sure you include the standard Input/Output library definition "**stdio.h**" in your source code. You should submit the **source code folder** (holding **.c** files) as part of your homework.

Expected Output
`Hello, C!`

Problem 4. Print Your Name

Modify the previous program to **print your name**.

Expected Output
`My name is Bob.`

Problem 5. Print Numbers

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

Expected Output

`1`
`101`
`1001`

Problem 6. Print First and Last Name

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

Expected Output
Bob Dylan

Problem 7. Square Root

Create a console application that calculates and prints the **square root** of the number 12345. Search in Internet "how to calculate square root in C".

Expected Output
111.1080556

Extra:

Modify your program to read the number from the console. Use the **`scanf()`** function.

Problem 8. 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

Extra:

Modify your program to **read a number n** from the console and then finds the **first n members** from the sequence, starting from **2**.

Input	Expected Output
5	2 -3 4 -5 6

Input	Expected Output
2	2 -3

Input	Expected Output
9	2 -3 4 -5 6 -7 8 -9 10

Problem 9. 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 10. Compiled vs Interpreted Languages

Perform a search online about **compiled** and **interpreted** programming languages. What is the difference between the two kinds? Give a few examples for each kind. Is C compiled or interpreted?

Problem 11. Development Environments

Perform a research (e.g. in Google or Wikipedia) and provide a short list with popular development environments (IDEs) like Eclipse. 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 12. * Current Date and Time

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

Expected Output
`15 September 2015 16:25:17`

Tips: Search for a C function that **retrieves the current date** and a function for **formatting the date** into a string.

Problem 13. * Age after 10 Years

Write a program that reads your birthday from the console as text and prints how old you are now and how old you will be after 10 years.

Input	Output
`12.04.1991`	`Now: 24` `After 10 years: 34`