

Informatik für Mathematiker und Physiker HS16

Exercise Sheet 1

Submission deadline: 15:15 - Tuesday 27th September, 2016

Course URL: <http://lec.inf.ethz.ch/ifmp/2016/>

This exercise sheet guides you through the process of using *Codeboard*, an online programming environment that you will need for this course. If you encounter any problems, contact your teaching assistant (by email or in an exercise class). You can simply click on all the hyperlinks in this document, and you will get directly to the right place!

Assignment 1 - Online Tutorial

We offer you a tutorial,

<https://frontend-1.et.ethz.ch/sc/XYHGDWs9KNTgh66Qu>,

in which you learn to take the first steps in C++. It will help for example those students who don't have any prior programming experience. If you haven't already done this, read through the tutorial. This will make you to understand the material of later weeks much more quickly!

In the exercise class on Tuesday, 27. September 2016, we give you the opportunity to test your C++ knowledge that you obtained in the Online Tutorial. Of course this does not influence any official grade, but it gives you a highly valuable insight to how well prepared you are for the lectures in the upcoming weeks.

Assignment 2 - Your First Program

In this assignment, you use Codeboard to solve an exercise. The task (that you might already know from the Online Tutorial) is to write a program `hello_world.cpp` which outputs the text `Hello world!` and then to submit this program to your teaching assistant. Do the following steps:

1. At the end of the exercise there is a box called *I/O-Examples*. Click on the link at the bottom of the box.
2. A browser-window opens in which you are asked to log in with your regular ETH-login (usually the same as your email account).
3. In the next window, choose your exercise group from the dropdown menu.

4. Now you are redirected to the editor. If there is a message box telling you to sign in, do so by clicking on the provided link. If you worked through the Online Tutorial already, you should have an account. Otherwise you can easily set up an account from there.
5. In the File Manager (left pane) click on `hello_world.cpp` which opens the file for being edited. Now complete the program!
6. Once you're done, click on the "Compile"-Button. If everything worked well, you can read `Compilation successful` in the Output pane. Otherwise the output pane lists some information on where to look for the error in your program.
7. Once it compiles, you can see it in action! Click on the "Run"-Button.
8. In order to test your program for correctness we provide a testing environment. To activate it, simply remove the two slashes `//` at the beginning of line 5. Then press "Compile" and "Run". Now a different output should be visible in the lower pane which lists test cases, and which ones your program passes.
9. Once you are happy with your program, it is time to submit it to your teaching assistant. To do so, press "Submit", *but make sure that the line `#include "tests.h"` is activated!*

I/O-Examples	(Explanation: http://lec.inf.ethz.ch/ifmp/2016/codeboard.html)
<div style="border: 1px solid black; display: inline-block; padding: 5px 20px;">Hello world!</div>	
Submission: https://codeboard.ethz.ch/ifmp16E1T2	

Assignment 3 - Skript-Aufgabe 8

Write a program `power20.cpp` that reads an integer a from the user and outputs a^{20} using at most 5 multiplications.

I/O-Examples	(Explanation: http://lec.inf.ethz.ch/ifmp/2016/codeboard.html)
<div style="display: flex; align-items: center;"> -1 <div style="border: 1px solid black; display: inline-block; padding: 5px 20px;">-1²⁰ = 1</div> </div>	
<div style="display: flex; align-items: center;"> 2 <div style="border: 1px solid black; display: inline-block; padding: 5px 20px;">2²⁰ = 1048576</div> </div>	
Submission: https://codeboard.ethz.ch/ifmp16E1T3	