

Course

CS-E3190

Course materials

Your points

◀

This course has already ended.

The latest instance of the course can be found at: [Principles of Algorithmic Techniques: 2023 Autumn](#)

◀ Warm-up to Programming Exercises

Course materials

2.2 Hello, world! ▶

CS-E3190 / Warm-up to Programming Exercises / 2.1 Welcome

Welcome

This chapter gives a warm-up to the programming exercises at this course.

There is also one (super-easy) programming exercise for you to solve.

Why programming exercises?

The role of the programming exercises is to contribute towards building your skills at implementing algorithm designs into concrete computer programs that

1. correctly solve the problem instances given as input, and
2. have the appropriate scalability in terms of their consumption of computational resources, such as time and memory.

These skills are concretely needed, for example, at many job interviews that involve algorithmic problem-solving under pressure. These skills are, of course, also needed on the job. Indeed, efficient algorithms and their efficient implementations govern the modern world. Having the skill to create such implementations enables one to rather concretely and rewardingly create something new and valuable into this world.

The tools we use to create

At this course, we use real-world professional programming tools that give you convenient access to the full power of the available hardware configuration. Accordingly, we will use the [C++ programming language](#), with the possibility to access parallelism and low-level features of the CPU microarchitecture all the way to inlined assembly language, if you so choose.

The hardware configuration that we use at this course is a real-world high-performance computing node—in fact, for the duration of the course, we have secured access to one of the nodes at the [Triton cluster](#) at Aalto University.

We have also put effort to make the tools *accessible*. That is, you do not need to be an expert in C++ programming, although basic programming skills are of course a prerequisite. Also, you do not need to be an expert in software installation or configuration, such as in the setting-up of a C++ programming environment. You will need access to a web browser—which you presumably have since you are reading this material—and your favourite text editor for editing program text.

Of course if you *are* an expert and prefer to set up and maintain your own programming environment, we encourage you to go ahead and proceed. We will also supply a [brief guide](#) on how to work with the Linux workstations maintained by Aalto IT services, in case you prefer such an environment.

Code of conduct

The following code of conduct applies to the programming exercises.

- The programming exercises are *personal* and *confidential* assignments. In particular, producing program text together, copying program text from others, or making personal solutions available to others (either privately or by posting to some shared or public forum) is not allowed.
- Discussing general algorithmic concepts and techniques with fellow students is of course allowed, even encouraged, as long as the level of detail is abstract enough so that the submitted programming exercise solutions of the participating students do not start to look similar.
- If you help someone, help him/her to understand the topic at hand, not just how to pass the assignment and get the points.
- Submissions to the online services at this course should directly involve the coursework at this course; that is, the exercises or examples related to the exercises at this course. Any other use of the services is not allowed.

Violations of this code of conduct can have consequences affecting your coursework at this course as well as your studies at Aalto University. Further information is available at the [Aalto University Code of Academic Integrity](#).