Low Level C Linux Programming (code: LX-C-LOWLEV)

Ask for details
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Overview

When practising low-level programming, the programmer must use techniques vastly different from those employed in high-level programming languages. During this course, we cover the crucial low-level C/C++ programming techniques in Linux. Participants will learn both system functions, input/output capturing and handling of files, pipes and sockets, as well as thread-aware programming topics such as managing processes/threads, synchronization or inter-process communication. We also cover the assembly language and hybrid programming.

Duration

2 days

Agenda

1. Introduction to a Linux based system, building blocks, APIs
2. Automation and build supporting tools:
   - make, automake, autotools
3. Processes, threads and scheduling
   - processes
   - scheduling priorities and classes
   - thread programming and synchronization (pthread)
   - OpenMP basics
4. File operations, pipes, sockets
   - UNIX sockets
   - network sockets
   - connection handling techniques (select)
5. Signal handling (including POSIX RT Signals)
6. IPC and synchronization (POSIX and SysV)
   - message queues
   - shared memory
   - semaphores
7. Timers and clocks
8. Managing system resources, forcing limits on resources
9. Assembly language in operating system environment, hybrid programming
10. Using SIMD and DSP in-CPU blocks (depends on system)

Target audience and prerequisites

This course targets engineers and programmers who want to use Linux to develop applications, get familiar with the APIs provided by this system and choose the right one for a given task.

Participants should be familiar with UNIX or Linux command line interface and basic tools, as well as the basics of C programming.

Certificates

Course participants receive completion certificates signed by ALX.

Locations

— Online (English) – your home, office or wherever you want
— Warsaw (English) – Jasna 14/16A
— any other location (London, UK, EU) on request

Price

790 EUR

The price includes:

— course materials,
— meals,
— snacks, coffee, tea and soft drinks,
— course completion certificate,
— one-time consultation with the instructor after course completion.

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