Updated 10/10/2024

Sign up

Zig training

3 days (21 hours)

Presentation

Our Zig training course will teach you how to use this versatile programming language to create robust, optimal and reusable software. Zig enhances the C language with customized memory control, null reference protection and mandatory error handling. Zig offers many advantages:

- It's a language that's enjoying very strong market growth
- A simpler, more modern syntax than C
- Focus on performance and safety

Our training will focus on the basics of the language, i.e. syntax, the development environment and structuring your projects. But also memory management and data types. At the end of the course, you'll know how to use Zig to design modern, easy-to-maintain applications.

Objectives

- Understanding Zig syntax
- Mastering the toolchain
- Developing a console application
- Optimizing your application

Target audience

- Developers

Prerequisites

Basic knowledge of code (preferably C language)

our training program zig

INTRODUCTION TO ZIG

- What is Zig and what problems does he solve?
- Comparing Zig with C and other programming languages
- Zig philosophy (Zig Zen)
- Presentation of the ecosystem and development tools
- Zig tool chain installation

GETTING TO GRIPS WITH THE DEVELOPMENT ENVIRONMENT

- Configuring the development environment with VSCode
- Create and run your first program: Hello, Zig!
- Exploring Zig's standard library
- Cross-compilation for different operating systems
- Source file management

LANGUAGE FEATURES

- Importing from the standard library and using constants
- Definition of "main" public service
- Error handling with try and union error types
- String interpolation and comments in code
- Understanding expressions, operators and flow control (If, Switch, While/For)

STRUCTURING ZIG PROJECTS

- Create and manage new executable projects and libraries
- Project compilation, execution and debugging
- Using tests and assertions to verify code
- Versioning and collaboration techniques with Git

CONSOLE APPLICATION DEVELOPMENT

- Techniques for print output and terminal input capture
- Using format specifiers and anonymous structures
- String manipulation and error handling in an application context
- Advanced control structures and loop management

DATA TYPES AND DATA STRUCTURES

- Use of integer, float, array, pointer and slice types
- Understanding structures (struct), enumerations (enum), and unions
- Declaring and using variables in different contexts

FUNCTIONS AND MODULES

- Defining, calling and passing parameters in functions
- Exploring immutable vs. mutable parameters
- Importing and using functions from other code files
- Modular code structuring for improved maintainability

MEMORY MANAGEMENT

- Memory allocation philosophy and techniques
- Selecting and using specific allocators
- Handling allocation failures and using optional pointers
- Understanding the lifespan and property of variables

ADVANCED PROGRAMMING AND BEST PRACTICES

- Advanced use of data types, dynamic allocation
- Good programming practices, including the official style guide
- Summary of key concepts and effective development strategies
- Discussion of real-life use cases and large-scale projects

CONCLUSION AND QUESTION-AND-ANSWER SESSION

- Review of key training points
- Interactive question-and-answer session to clarify doubts
- Tips for continuing to learn and improve Zig skills
- Final evaluation and awarding of participation certificates

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning on entry to training complies with Qualiopi quality criteria. As soon as

Upon final registration, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the forthcoming training course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.