Programming in Go

🕐 Duration: 4 Days
🈂 Available Languages: English

Audience

Software Developers.

Precondition

Knowledge of programming in general.

Goals

Write programs and microservices in Go.

Contents

Go is a programming language developed at Google by Robert Griesemer, Rob Pike, and Ken Thompson. In many ways, Go is similar to C, but with memory safety, garbage collection, and structural typing. Go first appeared in 2009, and has recently gained popularity, primarily for the development of microservices.

- Basic Go
  - Hello, World
  - Building and running go programs, go build, go run
  - Using third party libraries, go get
  - Qualities and weaknesses of Go
  - Go Environment
- Go toolchain
  - go test
  - go doc
  - go clean
  - go env
  - go fmt
  - go generate
  - go install
  - golint
- Imperative and Structured Programming
  - Primitive Literals, Operators and Types
  - Statements and Expressions
  - Conditions, if / else, switch-case
  - Loops, variants of the for syntax, do-while, for, for-each, break, and continue
  - Arrays and Slices
  - Maps
  - Error Handling
- Object-Oriented Programming

- ◦ Packages, package initialization
- ◦ Structures and Interfaces
- ◦ Instance Methods
- ◦ Inheritance
- ◦ Pointers
- Functional Programming
  - ◦ Function Types
  - ◦ Function Literals as Lambda Expressions
  - ◦ Function Pointers
- Fundamental APIs
  - ◦ strings
  - ◦ fmt
  - ◦ ioutil
  - ◦ os
  - ◦ time
  - ◦ net/http (HTTP client and server)
  - ◦ flag (command line arguments)
- Concurrency
  - ◦ Goroutines
  - ◦ Mutexes
  - ◦ Channels
- Testing Go programs
  - ◦ go test
  - ◦ testing package for TDD
  - ◦ datadog/godog package for BDD
- Difference between go and some other popular languages: C, C#, Java, JavaScript, Ruby
- Writing platform-specific code, build constraints

The course is based on Go 1.13.1 and JetBrains Goland 2019.2.2. Examples and lab exercises tend towards microservices use cases as much as reasonable.

Booking

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