

Beginner Go Course Outline

Welcome to the Beginner Go Course! This course is designed for experienced software engineers new to the Go programming language. Below is the outline of the course contents.

Table of Contents

1. Introduction to Go

- Overview of Go and its design philosophy
- Setting up the Go development environment
- Basic Go programs structure and the `main` function
- Understanding Go modules for package management

2. Basic Syntax and Types

- Variables, types, and type inference
- Constants and `iota`
- Basic data types (integers, floats, strings, booleans)
- Composite types (arrays, slices, maps, structs)

3. Control Structures

- Conditional statements (`if` , `else` , `switch`)
- Loops (`for` , ranging over slices and maps)

4. Functions and Methods

- Function syntax and return values
- Variadic functions and `defer`
- Methods on types
- Anonymous functions and closures

5. Interfaces and Type Assertions

- Defining and implementing interfaces
- Empty interface and its uses
- Type assertions and type switches

6. Concurrency in Go

- Goroutines for concurrent function execution
- Channels (unbuffered and buffered)
- Select statement for channel operations
- Best practices and common patterns in Go concurrency

7. Error Handling

- Error handling with `error` type
- Creating custom errors
- Best practices for handling errors in Go

8. Testing in Go

- Writing test cases using Go's `testing` package
- Table-driven tests
- Mocking dependencies

9. Packages and Tooling

- Overview of standard library packages
- Writing and organizing Go packages
- Using `go` tools (`go build` , `go test` , `go fmt` , etc.)

10. Practical Applications

- Building a simple web server with `net/http`
- Simple file I/O operations
- Interacting with a database using `database/sql`

Enjoy your journey through learning Go!