# Golang Curriculum (6–7 Weeks)

## Week 1 – Getting Started with Programming & Go

- Introduction to programming concepts (problem → logic → solution → code).

- What is Go? Why learn Go?

- Installing Go and setting up the environment.

- Writing & running your first Go program (`Hello, World`).

- Basic Go syntax and structure.

- Variables, constants, and data types.

- Hands-on: Print values, simple calculations, string concatenation.

## Week 2 – Core Building Blocks

- Input/output in Go.

- Operators and expressions.

- Control structures: if/else, switch, loops (for).

- Scope and shadowing.

- Hands-on: Calculator program, Even/odd checker, Simple menu-driven app with switch-case.

## Week 3 – Functions/Interfaces and Error Handling

- Defining and calling functions.

- Introduction of Interfaces and uses

- Parameters and return values.

- Multiple return values.

- Error handling with error type.

- Introduction to Go’s standard library.

- Hands-on: Functions for area/perimeter of shapes, Function that returns both result and error.

## Week 4 – Collections: Arrays, Slices, Maps

- Arrays in Go.

- Slices: creation, appending, slicing operations.

- Maps: key-value storage, iteration.

- Range keyword.

- Hands-on: Student marks management (using slices), Word frequency counter (using maps), Small CRUD-like operations on a list.

## Week 5 – Structs, Methods, and Pointers

- Structs (custom data types).

- Methods (functions attached to structs).

- Pointers and memory basics.

- Passing by value vs reference.

- Hands-on: Define a struct for Student with fields, Create methods like Display() or IsPassed(), Use pointers to update struct data.

## Week 6 – Concurrency and File Handling

- Introduction to concurrency.

- Goroutines (lightweight threads).

- Channels (communication between goroutines).

- File handling basics: reading and writing files.

- Hands-on: Write a program that runs two tasks in parallel (goroutines), Save user input to a file and read it back.

## Week 7 – Putting It All Together (Mini Project Week)/Go Web Development

- Review of all key concepts.

- Error handling best practices.

- Project ideas (choose one): To-do list CLI app, Student management system, Basic chat-like app using goroutines and channels, File-based notes application.

- Final Q&A, wrap-up, and next steps (advanced Go, web development, testing).

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