

Go Lang



Developed by Google in 2007 and open-sourced in 2009, Go is a statically typed, compiled programming language. It is popular for cloud-based or server-side applications.

Why Go?

↳ Evolution of Infrastructure

- ↳ Cloud infrastructure changed a lot
- ↳ multi-core processors became common
- ↳ Big networked computational clusters
- ↳ Scalable and distributed
- ↳ dynamic and more capacity

↳ Existing languages did not take full advantage of it, like you could not do multiple tasks at once

Ex → watching youtube while also commenting and liking other comments.



This is the concept of multi-threading (doing multiple things at once), it makes applications fast but can also cause problems.

→ Challenges of multi-threading

↳ multiple people editing a single document at the same time.

↳ two users trying to book the last ticket

↑
This should work in a way that there are no double bookings.

It is handled by developers in code using Concurrency.

→ Concurrency

↳ Execution of multiple instruction sequences at once

Languages such as Go, Java and C++ has inbuilt Concurrency while Python and Node.js does not.

In Concurrency, Code can become very complex, Expensive and slow.

Go was designed to run on multiple cores and make Concurrency cheap and easy.

→ Main use case of Go

- ↳ low performant applications
- ↳ running on scaled and distributed systems.

→ Characteristics of Go

- ↳ Simple and readable syntax
- ↳ highly efficient
- ↳ fast build times
- ↳ requires fewer resources
- ↳ used in server-side or backend
 - ↳ microservices
 - ↳ Database services
 - ↳ web applications
- ↳ Compiled Language - Compiles into a single binary