

# What is Golang? Things you need to know about Golang programming language

Golang is designed to be simple, efficient, and easy to learn, making it a popular choice for building scalable network services, web applications, and command-line tools.

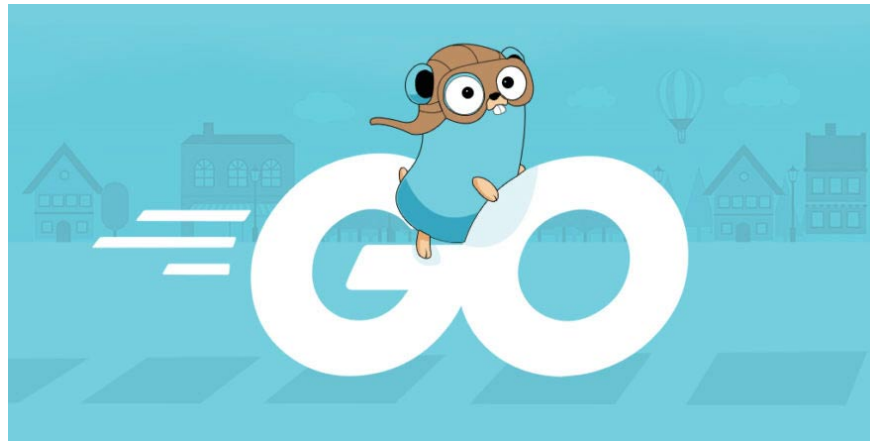
**Go** is a procedural programming language. It was developed in 2007 by Robert Griesemer, Rob Pike, and Ken Thompson at Google, but was released as an open source programming language in 2009. Programs are built using packages, which efficiently manage dependencies. The Golang language also supports the apply environment pattern, similar to dynamic languages. For example, type inference (`y := 0` is a valid declaration of a variable `y` of type `int`).



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Go is known for its support for concurrency, which is the ability to run multiple tasks at the same time. Concurrency is achieved in Go through the use of Goroutines and Channels, which allow you to write code that can run multiple operations at the same time. This makes Go an ideal choice for building high-performance and scalable network services, as well as for solving complex computational problems.

Another important feature of Go is garbage collection, which automatically manages memory for you. This eliminates the need for manual memory management, reducing the possibility of memory leaks and other errors that can arise from manual memory management. Go is often used to build large-scale distributed systems and high-performance applications.



## Key Features of Golang

1. **Simplicity** : Go is designed to be easy to learn and use. Its syntax is simple and easy to understand, making it suitable for both beginners and experienced programmers.
2. **Concurrency** : Go has built-in concurrency support, allowing developers to write efficient and scalable code for multi-core and distributed systems.
3. **Garbage Collection** : Go has automatic memory management, which saves developers from worrying about memory allocation and deallocation.
4. **Fast compile time** : Go has a fast compiler, which makes it easy to iterate quickly during development.
5. **Cross-platform support** : Go can be compiled to run on a variety of platforms, including Windows, Linux, and macOS.
6. **Strongly Typed** : Go is a statically typed language, which helps detect errors at compile time instead of at run time.
7. **Go has a large and growing developer community** and is used by many well-known companies, including Google, Uber, and Dropbox.

## Example of a simple "Hello World!" program in Go

```
package main import "fmt" func main() { fmt.Println("Hello, World!") }
```

Result:

```
Hello, World!
```

## Getting Started with Go Programming

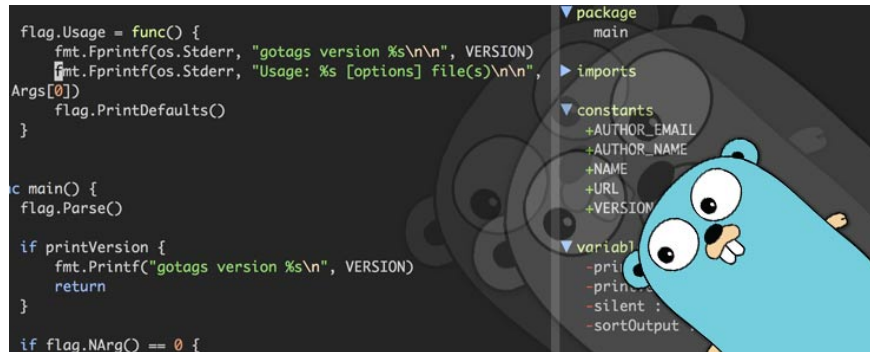
There are many online IDEs like The Go Playground, repl.it, etc. that can be used to run Go programs without installation.

To install Go on your own PC or Laptop, we need the following two software: Text Editor and Compiler

Text Editor: Text editors provide you with a platform to write source code. Here is a list of text editors that can run Golang:

1. Windows notepad
2. OS Edit command
3. Brief
4. Epsilon
5. vm or vi
6. Emacs
7. VS Code

Find a Go compiler: Go distributions come in installable binary form for FreeBSD (version 8 and above), Linux, Mac OS X (Snow Leopard and above), and Windows operating systems with 32-bit (386) and 64-bit (amd64) x86 processor architectures.



The image shows a screenshot of a code editor with a dark theme. On the left, there is Go code for a command-line application. On the right, there is a file explorer showing a directory structure for a Go package named 'main'. A blue cartoon bear character is visible in the bottom right corner of the editor window.

```

flag.Usage = func() {
    fmt.Fprintf(os.Stderr, "gotags version %s\n\n", VERSION)
    fmt.Fprintf(os.Stderr, "Usage: %s [options] file(s)\n\n",
Args[0])
    flag.PrintDefaults()
}

func main() {
    flag.Parse()

    if printVersion {
        fmt.Printf("gotags version %s\n", VERSION)
        return
    }

    if flag.NArg() == 0 {

```

File Explorer:

- package
  - main
  - imports
  - constants
    - +AUTHOR\_EMAIL
    - +AUTHOR\_NAME
    - +NAME
    - +URL
    - +VERSION
  - variables
    - pri
    - print
    - silent
    - sortOutput

## Pros and cons of Golang

### Advantages of Go programming language

1. Flexible – Short, simple and easy to read.
2. Concurrency – Allows multiple processes to run simultaneously and efficiently.
3. Fast Results – Very fast compilation times.
4. Library – Provides rich standard library.
5. Garbage Collection – This is a key feature of Go. Go excels in providing a lot of control over memory allocation and has significantly reduced latency in recent versions of the garbage collector.
6. Validate interface and embedded type.
7. Performance: Go is designed to be fast and efficient, with a focus on performance and low memory usage. This makes Go well suited for building high-performance network services as well as solving complex computational problems.
8. Simple: Go has simple syntax and a simple type system, making it easy to learn and use, even for people with no previous programming experience.

### Disadvantages of Go programming language

1. It doesn't support generic types, even though there's a lot of discussion about it.
2. The packages distributed with this programming language are quite useful but Go is not object-oriented in the usual sense.
3. Some libraries are missing, especially the UI toolkit.
4. Limited object-oriented features.
5. The standard library is not complete.

# Some popular applications developed using Go Language

1. : a toolkit for deploying Linux containers
2. Openshift: a cloud computing platform as a service from Red Hat.
3. Kubernetes: The Future of Seamless Automated Deployment Processes
4. Dropbox: migrated some of their key components from Python to Go.
5. Netflix: for two parts of their server architecture.
6. InfluxDB: is an open source time series database developed by InfluxData.
7. Golang: The language itself is written in Go.

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