

Introduction to Golang

Concepts of Programming Languages

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Gopher



Why Go?

- Go is the major language behind the Cloud Native Stack

www.cncf.io/ (<https://www.cncf.io/>)



- The most important components are written in Go: Docker, Kubernetes, etcd, Prometheus, Grafana, ...
- Go is Open Source and maintained by Google
- Go is a distributed, parallel language designed for systems programming at Google to solve the problems of C++ code.

Hello World

```
// Copyright 2018 Johannes Weigend
// Licensed under the Apache License, Version 2.0

package main

import "fmt"

func main() {
    fmt.Printf("Hello %s", "Programming with Go \xE2\x98\xAF\n") // \xE2\x98\xAF -> ☹
    fmt.Printf("Hello %s", "Programming with Go 😊\n")
}
```

Run

Palindrome

```
// IsPalindrome implementation. Does only work for 1-Byte UTF-8 chars (ASCII).
func IsPalindrome(word string) bool {
    for pos := 0; pos < len(word)/2; pos++ {
        if word[pos] != word[len(word)-pos-1] {
            return false
        }
    }
    return true
}
```

```
// palindrome_test.go
func TestPalindrome(t *testing.T) {
    if !IsPalindrome("") == true {
        t.Error("isPalindrome('') should be true. But is false.")
    }
    if !IsPalindrome("o") == true {
        t.Error("isPalindrome('o') should be true. But is false.")
    }
    if !IsPalindrome("oto") == true {
        t.Error("isPalindrome('oto') should be true. But is false.")
    }
    if !IsPalindrome("ottos") == false {
        t.Error("isPalindrome('ottos') should be false. But is true.")
    }
}
```

Introduction to Golang

Rob Pike @ Google 2009 (60 Min)

www.youtube.com/watch?v=rKnDgT73v8s (<https://www.youtube.com/watch?v=rKnDgT73v8s>)



Some Questions

- What makes Go different to other Languages?
- What makes Go similar to other Languages?
- Discuss your personal opinions in a group of students!

Exercise 1

github.com/jweigend/concepts-of-programming-languages/blob/master/docs/exercises/Exercise1.md (<https://github.com/jweigend/concepts-of-programming-languages/blob/master/docs/exercises/Exercise1.md>)

[languages/blob/master/docs/exercises/Exercise1.md](https://github.com/jweigend/concepts-of-programming-languages/blob/master/docs/exercises/Exercise1.md))

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concepts-of-programming-languages / docs / exercises / Exercise1.md

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1 contributor

29 lines (17 sloc) | 1.24 KB

Raw

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History

Excercise 1 - Getting Started with Go

If you are not get finished during the lecture hours, please finish it as homework.

Setup

- Install Go from <http://golang.org> inside a virtual disk (.vhd on Windows or .sparseimage on Mac) in a /software/go subdirectory.
- Create a Go workspace on the disk in the /codebase/gopath directory (<https://www.youtube.com/watch?v=XCsL89YtqCs>)
- Create a shell script (.sh / .cmd) to make your changes to the GOPATH and PATH environment variables persistent.
- Create a Github project with your personal account containing a HelloWorld.go programm
- Use go get <https://github.com/><<YOUR REPO>> to copy the repository into your local GOPATH.
- Test the HelloWorld programm with "go run HelloWorld"
- Run the Makefile (with make) and test the slides with "make slideshow"
- (Optional: Install Visual Studio Code, IntelliJ or any other Editor with Go support) on your virtual disk.

See also

github.com/jweigend/concepts-of-programming-languages (<https://github.com/jweigend/concepts-of-programming-languages>)

golang.org/ (<https://golang.org/>)

golang.org/doc/ (<https://golang.org/doc/>)

Thank you

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