# Introduction to Golang

## Concepts of Programming Languages
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# Gopher

2

# 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

4

# 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("") {
        t.Error("isPalindrome('' should be true. But is false.")
    }
    if !IsPalindrome("o") {
        t.Error("isPalindrome('o' should be true. But is false.")
    }
    if !IsPalindrome("oto") {
        t.Error("isPalindrome('oto' should be true. But is false.")
    }
    if IsPalindrome("ottos") {
        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)

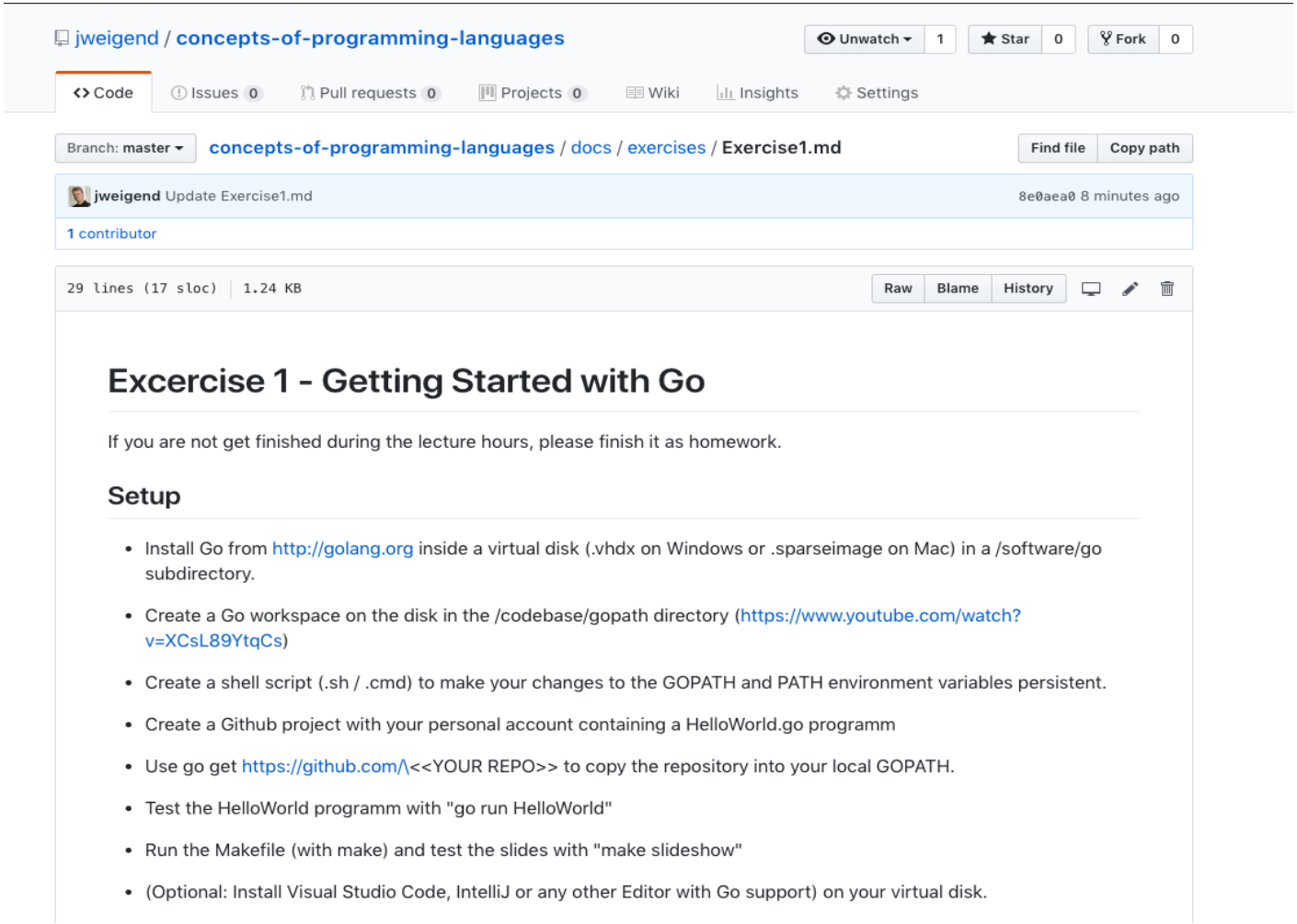
# Some Questions

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

7

# Exercise 1

github.com/0xqab/concepts-of-programming-languages/blob/master/docs/exercises/Exercise1.md (https://github.com/0xqab/concepts-of-programming-languages/blob/master/docs/exercises/Exercise1.md)



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Branch: master ▾ concepts-of-programming-languages / docs / exercises / Exercise1.md — Find file | Copy path

jweigend Update Exercise1.md — 8e0aea0 8 minutes ago

1 contributor

29 lines (17 sloc) | 1.24 KB — Raw | Blame | 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 (.vhdx 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/0xqab/concepts-of-programming-languages (https://github.com/0xqab/concepts-of-programming-languages)

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

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

9

# Thank you

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