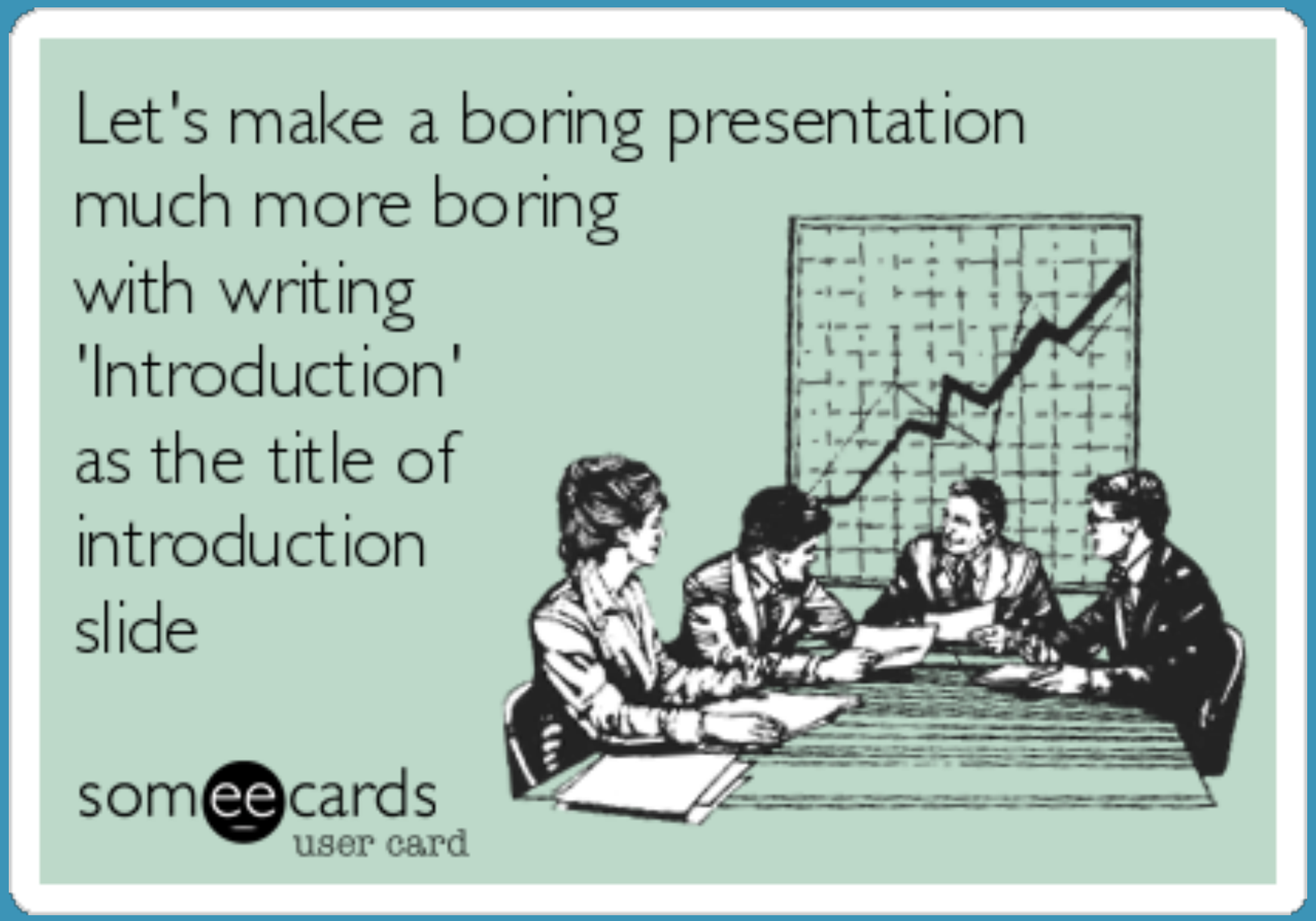
Women Who Go

meeting 1.0

introductions

Who you are? Career?
Programming experience?
Why you use or want to learn Go?



agenda

- Why use / learn Go?
- Lab: Install Go & ‘Hello World’
- Have fun!

why learn Go?

DigitalOcean

Akamai

PayPal

Dropbox

many projects/companies using Go!

CANONICAL

docker

Google

SendGrid

HASHICORP

CLOUDFLARE

CLOUD FOUNDRY

- simple by design
- great tooling
- features to help you build fast
  - GC (Garbage Collection)
  - concurrency (goroutines/channels)

easy for teams to learn & be productive in quickly

simple by design.

```
break        default      func         interface    select
case         defer        go           map          struct
chan         else         goto         package      switch
const        fallthrough  if           range        type
continue     for          import       return       var
```

few keywords.

```
err := s.Update(v)
if err != nil {
            // handle error
}
```

explicit errors.

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}


func main() {
    var hello string = "hello"
     a, b := swap(hello, "world")
     fmt.Println(a, b)
}
```

```go
package main
```

how to define a package in Go.

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func main() {
    var hello string = "hello"
    a, b := swap(hello, "world")
    fmt.Println(a, b)
}
```

how to import an external package.

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}


func main() {
    var hello string = "hello"
     a, b := swap(hello, "world")
     fmt.Println(a, b)
}
```

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}
```

this is a function definition.

```go
func main() {
    var hello string = "hello"
    a, b := swap(hello, "world")
    fmt.Println(a, b)
}
```

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
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func main() {
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func main() {
    var hello string = "hello"
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    fmt.Println(a, b)
}
```

the program entry point

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}


func main() {
    var hello string = "hello"
     a, b := swap(hello, "world")
     fmt.Println(a, b)
}
```

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}

func main() {
    var hello string = "hello"
    a, b := swap(hello, "world")
    fmt.Println(a, b)
}
```

declaring variables
(2 ways)

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}


func main() {
    var hello string = "hello"
     a, b := swap(hello, "world")
     fmt.Println(a, b)
}
```

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}

func main() {
    var hello string = "hello"
    a, b := swap(hello, "world")
    fmt.Println(a, b)
}
```

calling a function in another package.

```go
package main

import "fmt"

// swap will swap the variables
func swap(x, y string) (string, string) {
    return y, x
}


func main() {
    var hello string = "hello"
     a, b := swap(hello, "world")
     fmt.Println(a, b)
}
```

tooling!

```
$ go run main.go
world hello

$ go build -o hello.go
$ ./hello
world hello
```

running/building code.

```
$  gofmt main.go
package main

import "fmt"

func swap(x, y string)
 (string, string) {
```

enforcing conventions.

```
$ go get -v github.com/
mailgun/godebug
github.com/mailgun/godebug
(download)
```

getting code.

```
$ go test -v .
=== RUN   TestThis
--- FAIL: TestThis (0.00s)
    apple_test.go:6:
FAIL
exit status 1
```

testing code!

- statically typed
- statically compiled binaries
- opinionated code conventions/formatting and supporting tooling

grows with the team and project

great production story

types in Go

```
var hello string // declare a string
hello = "hello"  // assign it to a string
```

or

```
hello := "hello"  // it's inferred to be a string
```

static types.. but with type inference.

types in Go

basics

bool string int int8 int16 int32 int64 uint uint8 uint16 uint32 uint64 uintptr byte rune float32 float64 complex64 complex128

arrays, maps, slices

```
// arrays have a fixed size
var nums []int = {1, 2, 3}

// slices are dynamic
nums := make([]int, 5)
nums = append(nums, 1)

// maps are like hashtables or dicts
stringmap := make(map[string]string)
```

no generics, no “magic”

strong conventions

tabs not spaces.
curly braces with the func definition
CamelCase enforced.
exported functions/variables
are capitalized.
all package files in same folder.
opinionated workspace.

= your team writing code in the same way.

opinionated workspace

- Go workspaces are defined by your $GOPATH env variable.
  - $GOPATH/bin - binaries installed here
  - $GOPATH/pkg - packages built here
  - $GOPATH/src - sources here

```
.
├── bin
│   └── helloworld
├── pkg
└── src
    └── github.com
        └── jandre
            └── helloworld
                └── main.go
```

- comprehensive, well-designed stdlib
- tooling for importing external packages
- many robust open source projects built with Go

strong, growing community

lots of code to build from

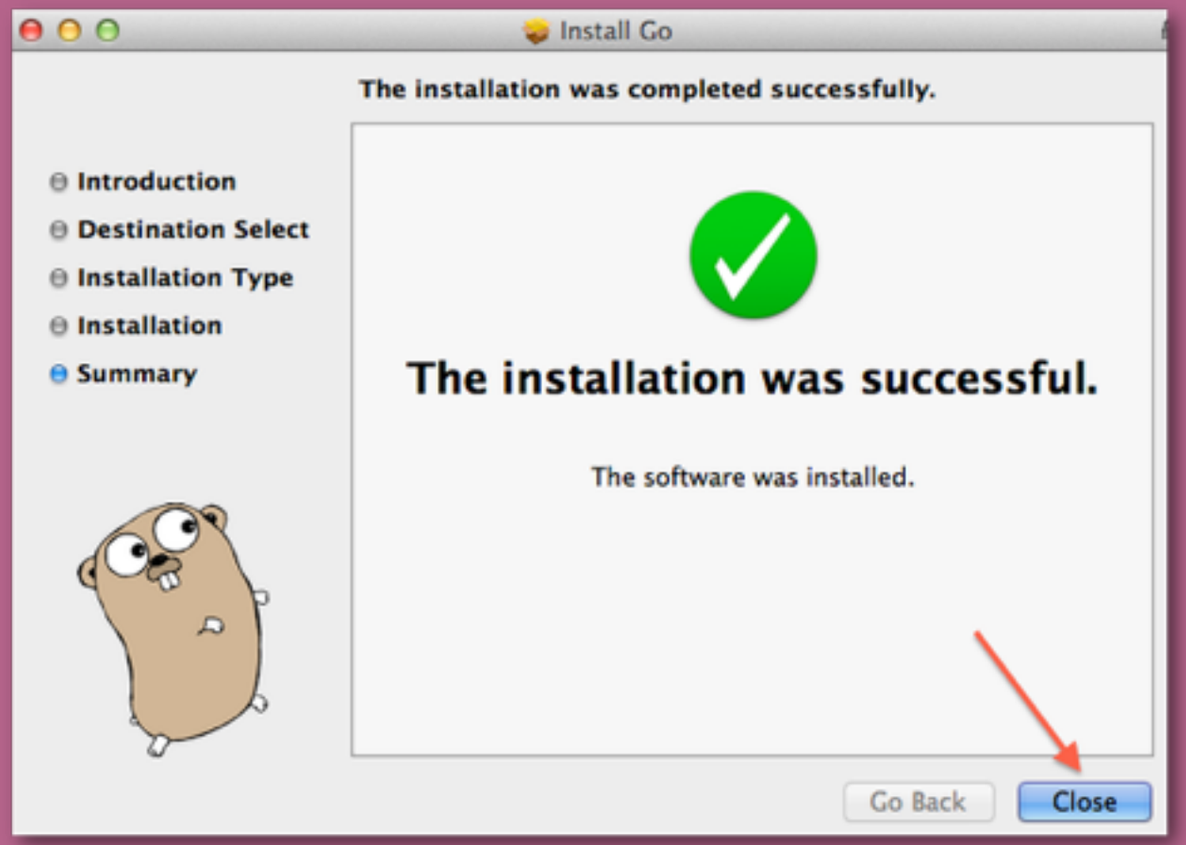
resources!

- A tour of Go: https://tour.golang.org/welcome/1
- Go by example: https://gobyexample.com
- Boston GoBridge workshop 2/6: https://www.bridgetroll.org/events/237
- Boston GoLang meetup (next week!): http://www.meetup.com/Boston-Go-lang-User-Group/events/227889016/

lab!

1. install Go

- Windows: https://golang.org/dl/
- Mac: https://golang.org/dl/ or Homebrew (http://brew.sh/ using `brew install golang`)
- Linux: http://ask.xmodulo.com/install-go-language-linux.html



2. Install code editor support

- Sublime: https://github.com/DisposaBoy/GoSublime
- Atom: https://atom.io/packages/go-plus
- VIM: https://github.com/fatih/vim-go