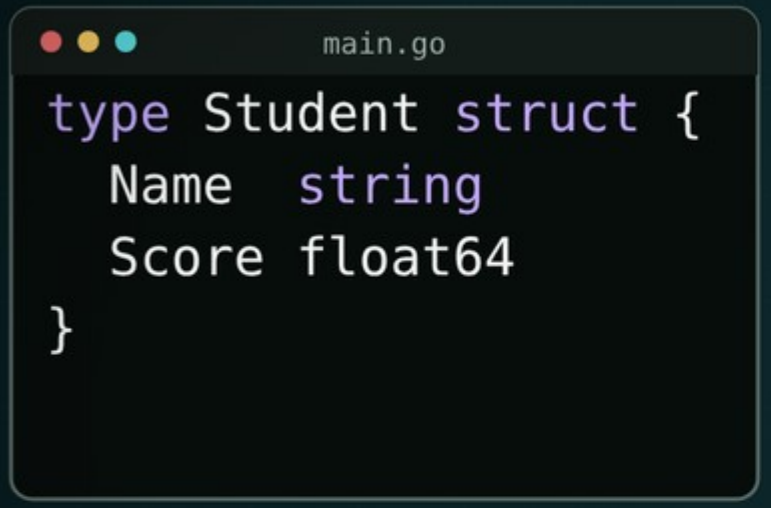
LESSON 6



Go

Structs & Methods



A FREE MYWEBUNIVERSITY COURSE

GO PROGRAMMING

LESSON 6

Structs, Methods and Pointers

Defining types, methods, value vs pointer receivers, and constructors

Structs

student.go

```go
type Student struct {
    Name  string
    City  string
    Score float64
}

s := Student{Name: "Mariam", City: "Kabul", Score: 95}
s.Score += 2
fmt.Printf("%+v\n", s)   // {Name:Mariam City:Kabul Score:97}
```

- A struct groups named fields into one type. Create values with a struct literal, naming the …
- Go has no classes. Structs plus methods give you everything you need, with less ceremony.

01

Methods

methods.go

```go
func (s Student) Grade() string {
    switch {
    case s.Score >= 90: return "A"
    case s.Score >= 75: return "B"
    default:            return "C"
    }
}
fmt.Println(s.Name, s.Grade())     // Mariam A
```

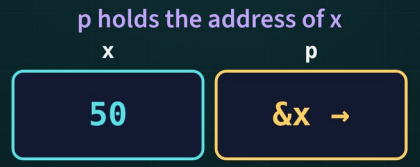
- A method is a function with a receiver, written in parentheses before the name. It attaches …
- Call it with a dot, just like methods in other languages: s dot Grade.

02

Pointers

main.go

```
x := 42
p := &x        // p points to x
*p = 50        // x is now 50
```



- A pointer holds the address of a value. Ampersand takes an address, and star follows a ...
- Pass a pointer when a function must change the caller's value, or when copying a big struct ...

03

Value vs Pointer Receivers



- A method with a value receiver gets a copy, so changes are lost. A pointer receiver, star …
- Rule of thumb: if any method needs to modify the struct, give all its methods pointer …

04

Constructor Functions

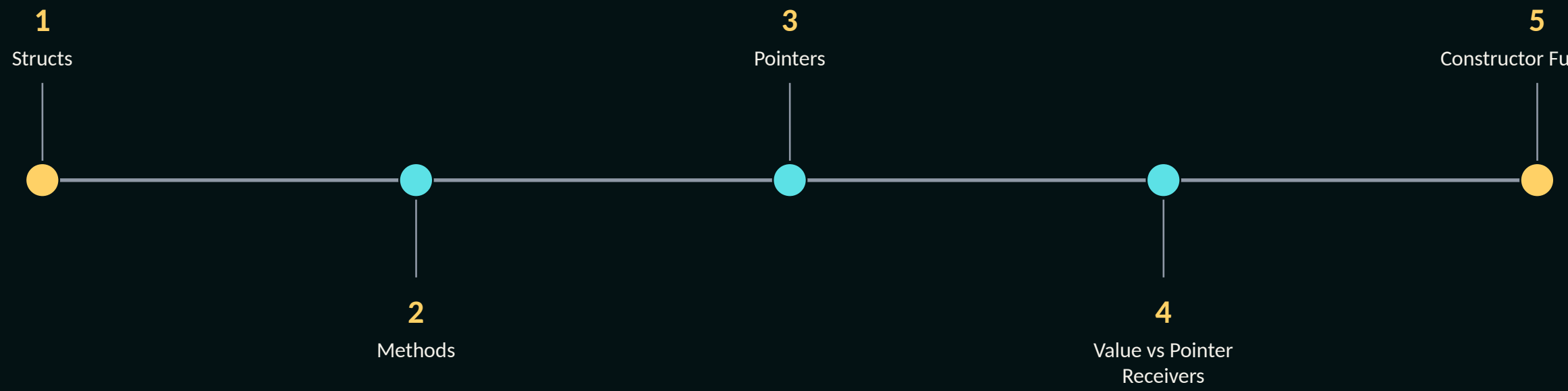
account.go

```
type Account struct {
    owner   string
    balance float64          // lowercase: private
}
func NewAccount(owner string) (*Account, error) {
    if owner == "" { return nil, errors.New("owner required") }
    return &Account{owner: owner}, nil
}
func (a *Account) Deposit(x float64) { a.balance += x }
```

- Go has no constructors, so the convention is a function named New plus the type name that …
- It can check inputs, set defaults, and keep fields private to the package by starting them …

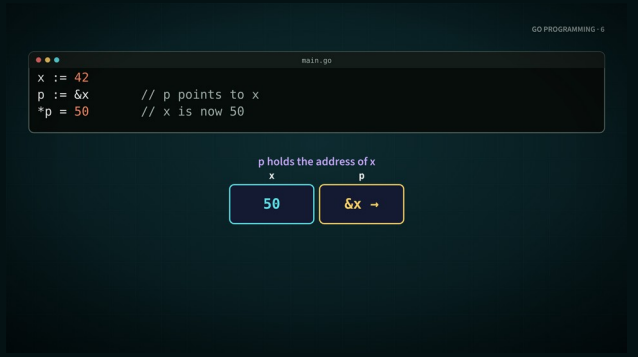
05

Lesson Map


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Sources and Further Reading





Thank you for watching

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