## Maps in Go

This lesson gives an introduction to maps, using the map literals and mutating maps in Go

#### WE'LL COVER THE FOLLOWING ^

- Introduction
- Mutating maps
- Resources

## Introduction #

Maps are somewhat similar to what other languages call "dictionaries" or "hashes".

A map *maps* keys to values. Here we are mapping string keys (actor names) to an integer value (age).

```
Environment Variables
 Key:
                         Value:
 GOPATH
                         /go
package main
                                                                                       6
import "fmt"
func main() {
        celebs := map[string]int{ //mapping strings to integers
                "Nicolas Cage":
                                    50,
                "Selena Gomez":
                                     21,
                "Jude Law":
                "Scarlett Johansson": 29,
        }
        fmt.Printf("%#v", celebs)
}
```

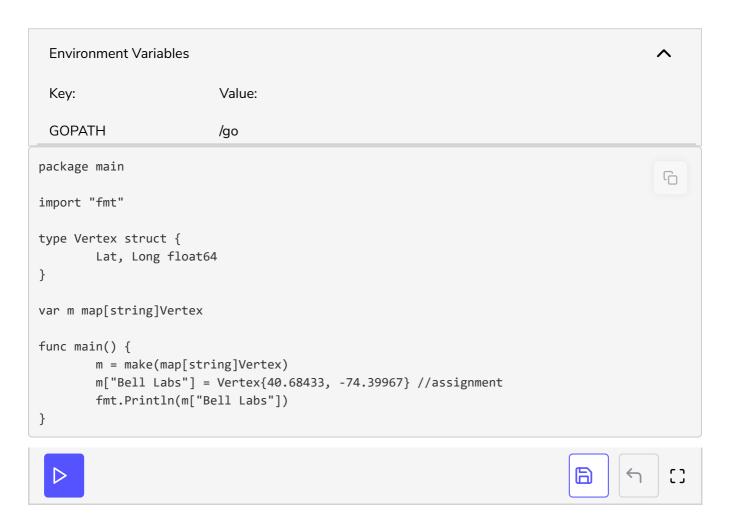






When not using map literals like above, maps must be created with make (not new) before use. The nil map is empty and cannot be assigned to.

Assignments follow the Go convention and can be observed in the example below.



In the example above the map m takes string as input and maps it to vertex which is a struct containing two variables of type float64. Hence, the string "Bell" gets mapped to the value "40.68433" and "Labs" gets mapped to "-74.39967".

When using map literals, if the top-level type is just a type name, you can omit it from the elements of the literal.

| Environment Variables |        | ^ |
|-----------------------|--------|---|
| Key:                  | Value: |   |
| GOPATH                | /go    |   |
| package main          |        |   |

```
import "fmt"

type Vertex struct {
        Lat, Long float64
}

var m = map[string]Vertex{
        "Bell Labs": {40.68433, -74.39967},
        // same as "Bell Labs": Vertex{40.68433, -74.39967}
        "Google": {37.42202, -122.08408},
}

func main() {
        fmt.Println(m)
}
```



# Mutating maps #

Insert or update an element in map m:

```
m[key] = elem
```

Retrieve an element:

```
elem = m[key]
```

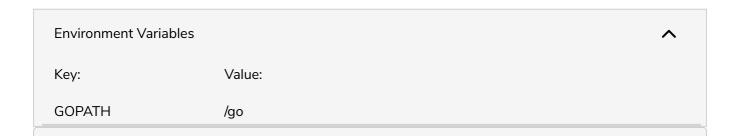
Delete an element:

```
delete(m, key)
```

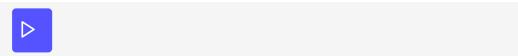
Test that a key is present with a two-value assignment:

```
elem, ok = m[key]
```

Let's take a look at an example now:



```
package main
                                                                                         6
import "fmt"
type Vertex struct {
        Lat, Long float64
var m = map[string]Vertex{
        "Bell Labs": {40.68433, -74.39967},
        // same as "Bell Labs": Vertex{40.68433, -74.39967}
        "Google": {37.42202, -122.08408},
}
func main() {
  m["Splice"] = Vertex{34.05641, -118.48175} //inserting a new (key,value) here
        fmt.Println(m["Splice"])
                               //deleting the element
        delete(m, "Splice")
        fmt.Printf("%v\n", m)
        name, ok := m["Splice"]
                                     //checks to see if element is present
        fmt.Printf("key 'Splice' is present?: %t - value: %v\n", ok, name)
        name, ok = m["Google"]
        fmt.Printf("key 'Google' is present?: %t - value: %v\n", ok, name)
}
```



If key is in m, ok is true. If not, ok is false and elem is the zero value for the map's element type. Similarly, when reading from a map if the key is not present the result is the zero value for the map's element type.

### Resources #

- Go team blog post on maps
- Effective Go maps

This marks the end of this chapter. Read on to the next one to learn more interesting concepts in Go.