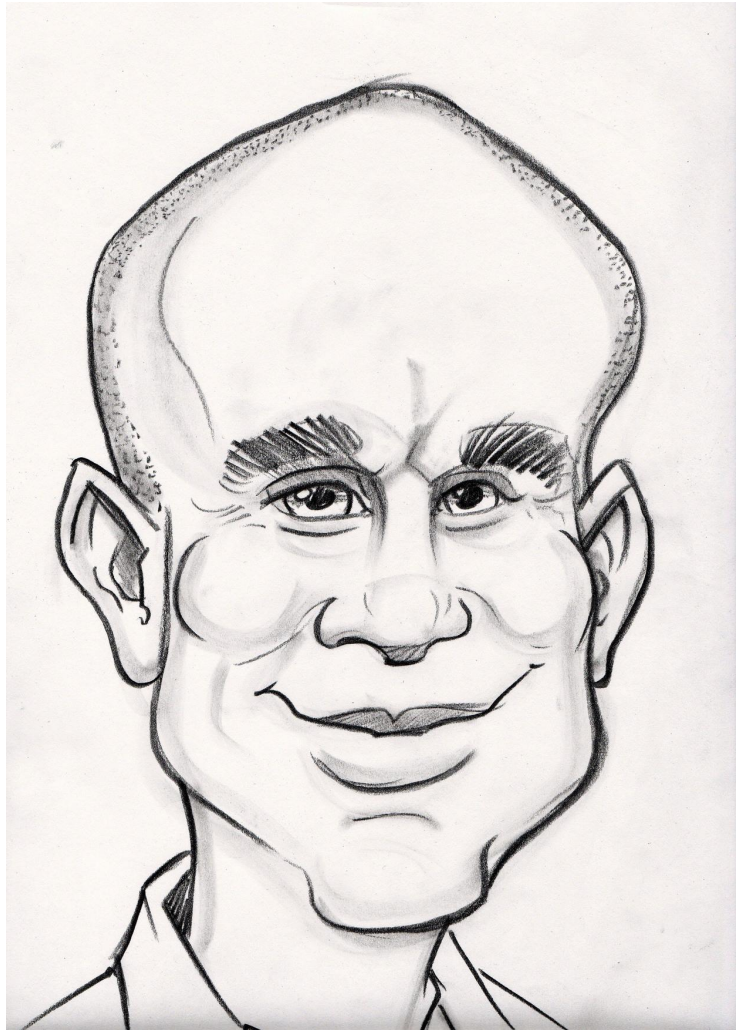


Google

Check Point ... June 2017



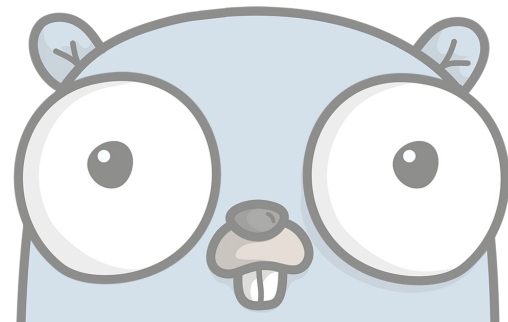
**Miki
Tebeka**



**CEO, CTO,
UFO ...**
353Solutions

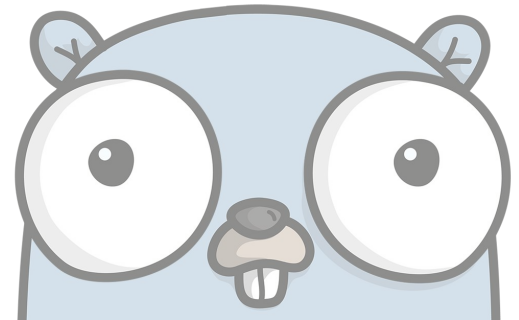
Background

- Developed at Google
 - Robert Griesemer, Rob Pike and Ken Thompson
- Open sourced November 2009
- Version 1 March 2012
 - Currently at 1.8



Notable Users

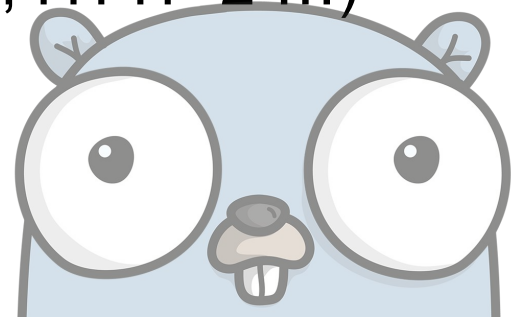
- Google
 - dl.google.com
- Docker is written in Go
- Dropbox
- Facebook
- Netflix
- And more ... (see [here](#))
 - More than 20 Israeli companies



Why Go?

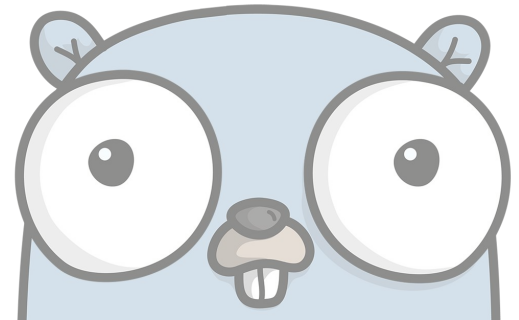
Built for Modern Hardware

- The free lunch is over
 - goroutines
 - channels
- The C10k problem
 - goroutines
 - Production ready HTTP server (TLS, HTTP 2 ...)



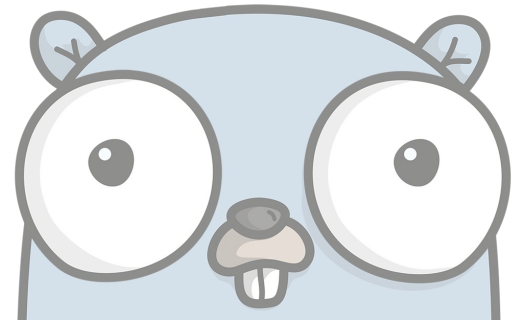
Built for Large Teams

- **Small language**
 - C based syntax
- **Simple language**
 - Easy to understand
- **Module system**
 - Reusability
- **Interfaces**
 - Modularity



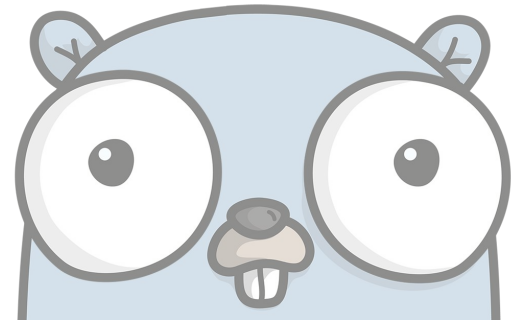
Robust & Productive

- Static types
 - Yet feels dynamic
- Garbage collector
 - But have “unsafe” package :)
- Easy integration with C
- Fast compilation
- Forces you to check errors



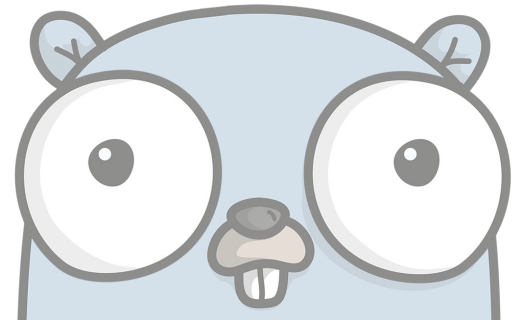
Will Save You Money

- Compiles to static executable
 - Easy deployment
 - Efficient (iron.io went down from 30 servers to 2)
- Stable API
- “go” tool for project management
 - And the upcoming “dep” tool
- Easy to cross compile

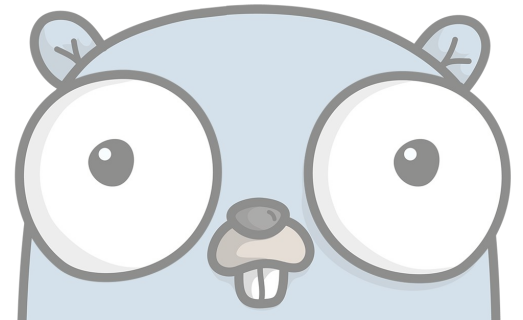


Great Community

- People will help you
- A lot of reference material
- Conventions



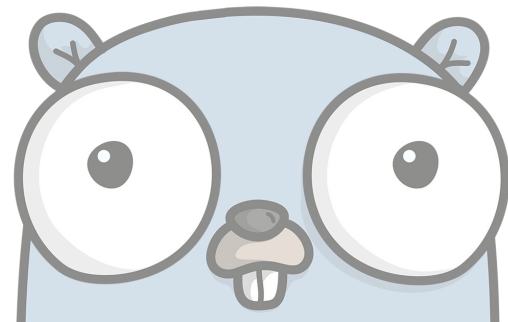
**Show Me
Some Code**



```
package main
```

```
import "fmt"
```

```
func main() {  
    fmt.Println("Check Point שלום")  
}
```

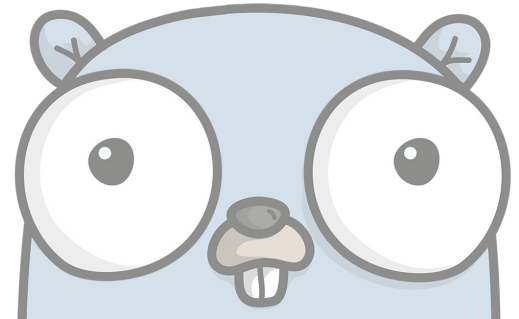


```
package main
```

```
import (  
    "fmt"  
    "net/http"  
)
```

```
func handler(w http.ResponseWriter, r *http.Request) {  
    fmt.Fprintln(w, "Check Point שלום")  
}
```

```
func main() {  
    http.HandleFunc("/", handler)  
    http.ListenAndServe(":8080", nil)  
}
```

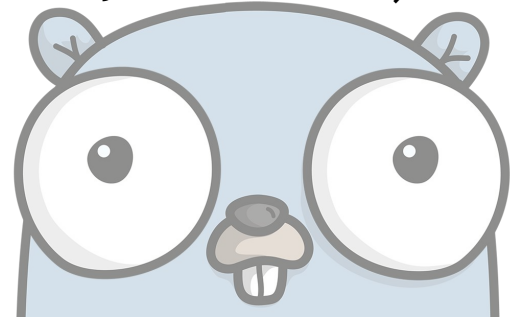


```
package io
```

```
type Reader interface {  
    Read(p []byte) (n int, err error)  
}
```

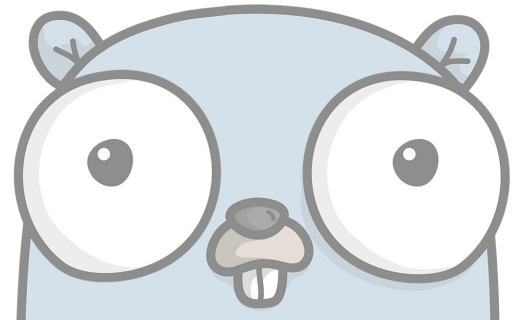
```
type Writer interface {  
    Write(p []byte) (n int, err error)  
}
```

```
func Copy(dst Writer, src Reader) (written int64, err error)
```



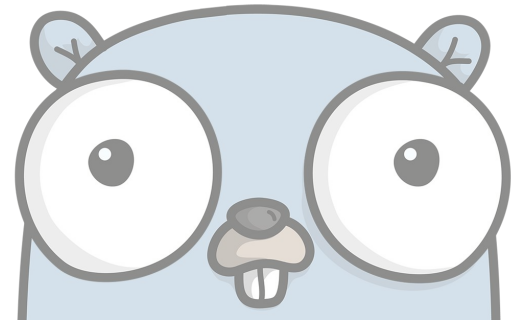
```
file, err := os.Open("hash.go")
if err != nil {
    log.Fatal(err)
}
defer file.Close()

hash := sha256.New()
io.Copy(hash, file)
fmt.Printf("%x\n", hash.Sum(nil))
```

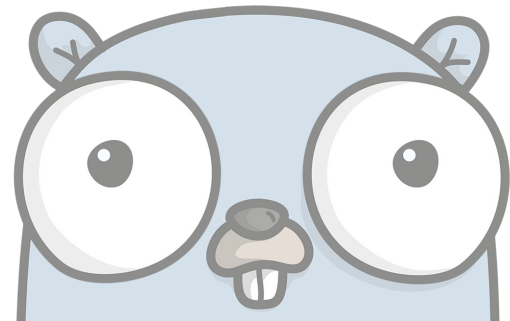


```
resp, err := http.Get("https://www.checkpoint.com/")
if err != nil {
    log.Fatal(err)
}
defer resp.Body.Close()

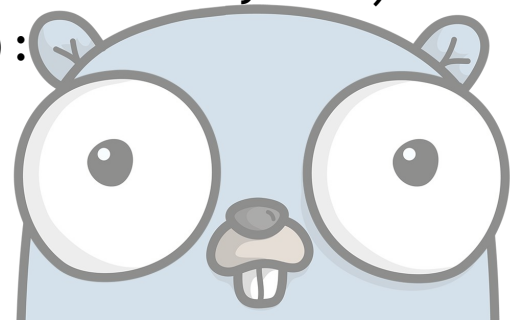
out, err := os.Create("checkpoint.html.gz")
if err != nil {
    log.Fatal(err)
}
defer out.Close()
gz := gzip.NewWriter(out)
defer gz.Close()
io.Copy(gz, resp.Body)
```




```
// forward proxies traffic between local socket and remote  
// backend  
func forward(local net.Conn, remoteAddr string) {  
    remote, err := net.Dial("tcp", remoteAddr)  
    if err != nil {  
        log.Printf("remote dial failed: %v\n", err)  
        local.Close()  
        return  
    }  
    go io.Copy(local, remote)  
    go io.Copy(remote, local)  
}
```



```
func main() {  
    url := "https://www.checkpoint.com"  
    out := make(chan *http.Response)  
    go fetch(url, out)  
  
    select {  
    case resp, ok := <-out:  
        if !ok {  
            break  
        }  
        fmt.Printf("got %d from %s\n", resp.StatusCode, url)  
    case <-time.After(300 * time.Millisecond):  
        fmt.Printf("timeout")  
    }  
}
```



```
package main
```

```
import "fmt"
```

```
// #include <math.h>
```

```
// #cgo LDFLAGS: -lm
```

```
import "C"
```

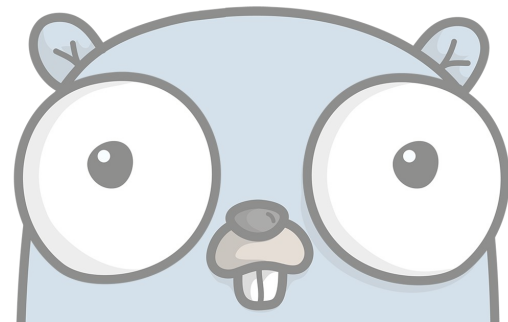
```
func main() {
```

```
    v := 16.0
```

```
    s := C.sqrt(C.double(v))
```

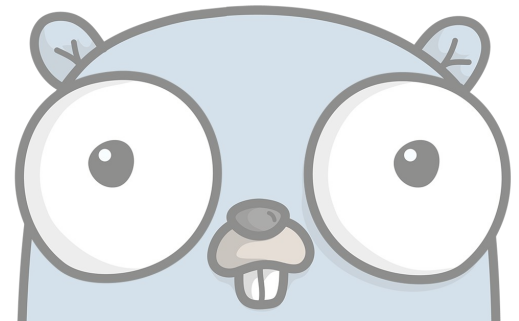
```
    fmt.Printf("sqrt(%f) = %f\n", v, s)
```

```
}
```



7 BOOM

[code](#)

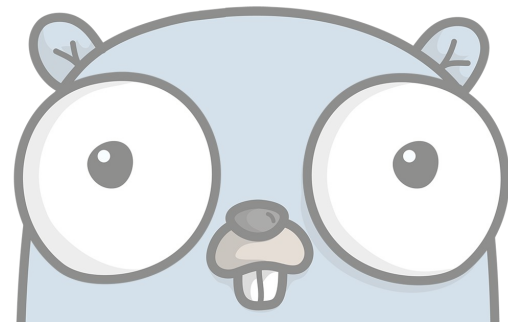


```
// Player is a player in the 7boom game
```

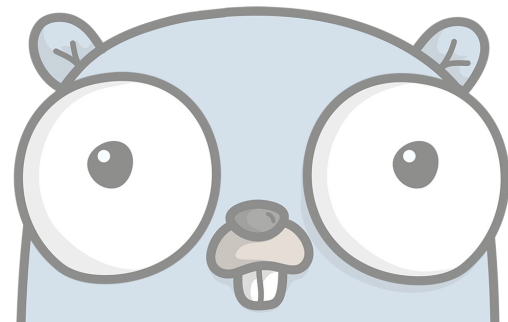
```
type Player struct {  
    ID    int  
    in    chan int  
    out   chan int  
    done  chan bool  
}
```

```
// NewPlayer return a new player
```

```
func NewPlayer(id int, done chan bool) *Player {  
    return &Player{  
        ID:    id,  
        out:   make(chan int, 1),  
        done:  done,  
    }  
}
```



```
// Play is the player game loop
func (p *Player) Play() {
    for {
        select {
        case v := <-p.in:
            // Simulate work
            time.Sleep(1 * time.Second)
            if isBoom(v) {
                fmt.Printf("Player %d: BOOM\n", p.ID)
            } else {
                fmt.Printf("Player %d: %d\n", p.ID, v)
            }
            p.out <- v + 1
        case <-p.done:
            fmt.Printf("Player %d: QUIT\n", p.ID)
            return
        }
    }
}
```



```
// makeChain creates a chain of players, return the 1st player and done channel  
// It will also invode the Play method of each player in a gouroutine
```

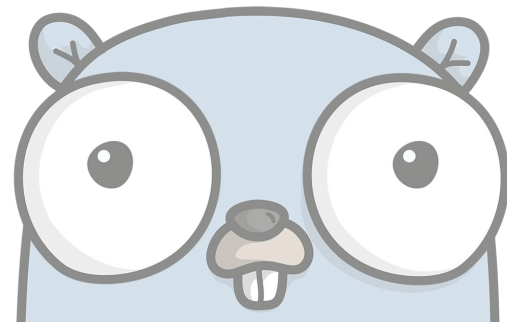
```
func makeChain(n int) (*Player, chan bool) {  
    var prev *Player  
    var first *Player  
    done := make(chan bool)
```

```
// Create chain of players
```

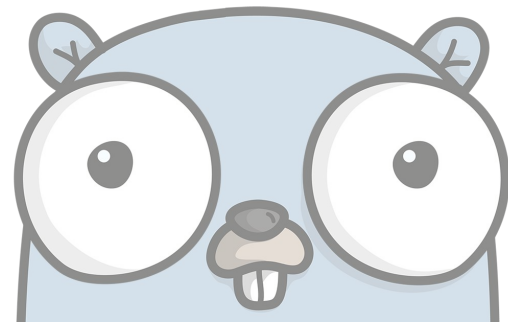
```
for i := 0; i < n; i++ {  
    player := NewPlayer(i, done)  
    if prev != nil {  
        player.in = prev.out  
    }  
}
```

```
    if first == nil {  
        first = player  
    } else {  
        go player.Play()  
    }  
    prev = player
```

```
}  
first.in = prev.out  
go first.Play()  
return first, done
```



```
func main() {  
    first, done := makeChain(3)  
  
    fmt.Println("Play time!")  
    first.in <- 1  
    time.Sleep(70 * time.Second) // Let them play  
  
    fmt.Println("Stopping Game")  
    close(done)  
    time.Sleep(200 * time.Millisecond) // for QUIT prints  
}
```



Thank You!

miki@353solutions.com

