



Download and install Go (According to whatever OS you have)
(Installation process is pretty straightforward)

Add the the location of the bin folder to PATH environment variable as we have done in case of C/C++ and Java

All the examples in this book can be executed by
`go run name_of_file.go`

Happy going

**If you have learned
C, C++ & J2EE
from me then, type, compile,
run and understanding Go
Programming will be easier
than reading**

The Three Musketeers

- Some examples won't compile. They have been written to explain some rules.

eg1.go

```
package main
import "fmt"
func main(){
fmt.Print("God is great")
fmt.Println("We are thankful to god")
fmt.Println("I live in the city of gods")
}
```

eg2.go

```
package main
import "fmt"
func main(){
var i1 int8=10
var i2 int16=-20
var i3 int32 = 30
var i4 int64 = -40
var u1 uint8=10
var u2 uint16= 20
var u3 uint32 = 30
var u4 uint64 = 40
var f1 float32 =2.3
var f2 float64=3.3
var i int = 4
var ui uint=20
var s string="God is great"
var b bool=true
fmt.Print(i1,i2,i3,i4,u1,u2,u3,u4,f1,f2,i,ui,s,b)
}
```

eg3.go

```
package main
import "fmt"
var x int
func main(){
sam()
fmt.Println(x)
}
func sam(){
x=100
}
```

eg4.go

```
package main
import "fmt"
func main(){
var a string="Great"
b:"good"
fmt.Println(a,b)
```

```
}
```

eg5.go

```
package main
import "fmt"
func main(){
const x int=10
fmt.Println(x)
x=20
}
```

eg6.go

```
package main
import "fmt"
func main(){
var (
x=10
y=20
z=x+y
)
fmt.Println(x,y,z)
}
```

eg7.go

```
package main
import "fmt"
func main(){
var x int
var y int
var z int
fmt.Print("Enter a number : ");
fmt.Scanf("%d",&x)
fmt.Print("Enter another number : ")
fmt.Scanf("%d",&y)
z=x+y
fmt.Print("Total of ",x," and ",y," is ",z)
}
```

eg8.go

```
package main
import "fmt"
func main(){
var x int
var y int
var z int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x)
fmt.Print("Enter another number : ")
fmt.Scanf("%d\n",&y)
z=x+y
```

```
fmt.Print("Total of ",x," and ",y," is ",z)
}
```

eg9.go

```
package main
import "fmt"
func main(){
var x int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x)
if x>50 {
fmt.Println("Greater than 50")
} else {
fmt.Println("Less than 50")
}
}
```

eg10.go

```
package main
import "fmt"
func main(){
var x int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x)
if x>50 {
fmt.Println("Greater than 50")
} else {
if x<50 {
fmt.Println("Less than 50")
} else {
fmt.Println("Equal to 50")
}
}
}
```

eg11.go

```
package main
import "fmt"
func main(){
var x int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x)
if x>50 {
fmt.Println("Greater than 50")
} else if x<50 {
fmt.Println("Less than 50")
} else {
fmt.Println("Equal to 50")
}
}
```

```
}
```

eg12.go

```
package main
import "fmt"
func main(){
fmt.Println(1)
fmt.Println(2)
fmt.Println(3)
fmt.Println(4)
fmt.Println(5)
}
```

eg13.go

```
package main
import "fmt"
func main(){
fmt.Println(`1
2
3
4
5`)
}
```

eg14.go

```
package main
import "fmt"
func main(){
var x int
x=1
for x<=5 {
fmt.Println(x)
x++
}
}
```

eg15.go

```
package main
import "fmt"
func main(){
var i int
for i=1;i<=5;i++ {
fmt.Println(i)
}
}
```

eg16.go

```
package main
import "fmt"
func main(){
var x int
```

```
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x);
switch x {
case 10: fmt.Println("Great")
case 20: fmt.Println("Good")
default : fmt.Println("Whatever")
}
}
```

eg17.go

```
package main
import "fmt"
func main(){
var x int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x);
switch x {
case 10: fmt.Println("Great")
case 20: fmt.Println("Good")
case 30 : fmt.Println("Cool")
}
}
```

eg18.go

```
package main
import "fmt"
func main(){
var x int
fmt.Print("Enter a number : ");
fmt.Scanf("%d\n",&x);
switch x {
case 10: fmt.Println("Great")
fmt.Println("Cool")
case 20: fmt.Println("Good")
default : fmt.Println("Whatever")
}
}
```

eg19.go

```
package main
import "fmt"
func main(){
var x[5] int
t:=0
for i:=0;i<=4;i++ {
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x[i])
t+=x[i]
}
}
```



```
fmt.Print("Total is ",t)
}
```

eg20.go

```
package main
import "fmt"
func main(){
var x[5] int
fmt.Println(x)
}
```

eg21.go

```
package main
import "fmt"
func main(){
var x[5] int
x[10]=20
fmt.Println(x[10])
fmt.Println("Bye")
}
```

eg22.go

```
package main
import "fmt"
func main(){
var x[5] int
x[2]=100
x[4]=200
for i,v:= range x {
fmt.Println("Value at index : ",i," is ",v)
}
}
```

eg23.go

```
package main
import "fmt"
func main(){
var x int
var y int
y=20
fmt.Println(y)
}
```

eg24.go

```
package main
import "fmt"
func main(){
var x[5] int
x[2]=100
x[4]=200
for i,v:= range x {
```

```
fmt.Println(v)
}
}
```

eg25.go

```
package main
import "fmt"
func main(){
var x[5] int
x[2]=100
x[4]=200
for _,v:= range x {
fmt.Println(v)
}
}
```

eg26.go

```
package main
import "fmt"
func main(){
x:=[5]int{10,20,30,40}
for i,v:=range x {
fmt.Println("x[" ,i,"]=" ,v)
}
fmt.Println("one" ,"two" ,"three")
}
```

eg27.go

```
package main
import "fmt"
func main(){
x:=[5]int{
10,
20,
30,
40,
50
}
for i,v:=range x {
fmt.Println(i,v)
}
}
```

eg28.go

```
package main
import "fmt"
func main(){
x:=[5]int{
10,
20,
```

```
30,  
40,  
50,  
}  
for i,v:=range x {  
fmt.Println(i,v)  
}  
}
```

eg29.go

```
package main  
import "fmt"  
func main(){  
var x []int  
fmt.Println(x)  
}
```

eg30.go

```
package main  
import "fmt"  
func main(){  
x:=make([]int,5)  
for i,v:=range x {  
fmt.Println(i,v)  
}  
}
```

eg31.go

```
package main  
import "fmt"  
func main(){  
x:=make([]int,5,10)  
for i,v:=range x {  
fmt.Println(i,v)  
}  
}
```

eg32.go

```
package main  
import "fmt"  
func main(){  
x:= [10]int { 100,200,300,400,500,600,700,800,900,1000}  
y:=x[0:5]  
for i,v:=range y {  
fmt.Println(i,v)  
}  
fmt.Println("Length of array y is ",len(y))  
z:=x[5:10]  
for i,v:=range z{  
fmt.Println(i,v)
```

```
}
fmt.Println("Length of array z is ",len(z))
k:=x[:5]
for i,v:=range k {
fmt.Println(i,v)
}
fmt.Println("Length of array k is ",len(k))
m:=x[5:]
for i,v:=range m {
fmt.Println(i,v)
}
fmt.Println("Length of array m is ",len(m))
}
```

eg33.go

```
package main
import "fmt"
func main(){
x:=[]int { 10,20,30,40,50 }
y:=append(x,60,70)
fmt.Println(x)
fmt.Println(y)
}
```

eg34.go

```
package main
import "fmt"
func main(){
x:=[]int {100,200,300,400,500}
y:=make([]int,3)
copy(y,x)
fmt.Println(x)
fmt.Println(y)
}
```

eg35.go

```
package main
import "fmt"
func main(){
x:=make(map[int]string)
x[101]="Gopal"
x[102]="Ramesh"
x[103]="Lokesh"
for i,v:=range x {
fmt.Println(i,v)
}
fmt.Println("Size of map is ",len(x))
y:=make(map[string]string)
y["UJJAIN"]="M.P."
```

```

y["INDORE"]="M.P."
y["PUNE"]="Maharashtra"
for i,v:=range y{
fmt.Println(i,v)
}
fmt.Println("Length of map y is ",len(y))
y["MUMBAI"]="Maharashtra"
for i,v:=range y{
fmt.Println(i,v)
}
fmt.Println("Length of map y is ",len(y))
}

```

eg36.go

```

package main
import "fmt"
func main(){
x:=make(map[int]string)
x[101]="Ramesh"
x[102]="Lokesh"
x[103]="Puneet"
fmt.Println(x[120])
if x[120]=="" {
fmt.Println("120 does not exist")
}
var y int
fmt.Print("Enter roll number : ");
fmt.Scanf("%d\n",&y)
name,found:=x[y]
fmt.Println(name,found)
if(!found) {
fmt.Println(y,"does not exist")
}else {
fmt.Println(y,"Exists with name as ",name)
}
}
}

```

eg37.go

```

package main
import "fmt"
func main(){
courses:=map[string]int {
"Developer" : 20000,
"Hadoop" : 10000,
}
for i,v:=range courses {
fmt.Println("Fee of",i,"course is",v)
}
}

```

```
if fee,found:=courses["msoffice"]; found {
fmt.Println(fee)
} else {
fmt.Println("Thinking machines doesn't teach MS Office")
}
var c string
fmt.Print("Enter title of course : ")
fmt.Scanf("%s\n",&c)
if fee,found:=courses[c]; found {
fmt.Println("Fee of course",c,"is",fee)
} else {
fmt.Println("Thinking machines doesn't teach ",c)
}
}
```

eg38.go

```
package main
import "fmt"
func main(){
add(10,20)
}
func add(x int,y int){
fmt.Println("Total is ",x+y)
}
}
```

eg39.go

```
package main
import "fmt"
func main(){
t:=add(10,20)
fmt.Println("Total is",t)
}
func add(x int,y int) int{
return x+y
}
}
```

eg40.go

```
package main
import "fmt"
func main(){
t:=add(10,20)
fmt.Println("Total is",t)
}
func add(x int,y int) (z int){
z=x+y
return
}
}
```

eg41.go

```
package main
import "fmt"
func getTemperature() (float32,float32) {
return 23.0,40.0
}
func main(){
min,max:=getTemperature()
fmt.Println("Max",max,"Min",min)
}
```

eg42.go

```
package main
import "fmt"
func add(x ...int) int {
t:=0
for _,v:=range x {
t+=v
}
return t
}
func main(){
fmt.Println(add(10,20,30))
fmt.Println(add(1,2,3,4,5))
}
```

eg43.go

```
package main
import "fmt"
func add(x ...int) int {
t:=0
for _,v:=range x {
t+=v
}
return t
}
func main(){
a:=[]int {10,20,30}
b:=[]int {10,20,30,40,50}
fmt.Println(add(a...))
fmt.Println(add(b...))
}
```

eg44.go

```
package main
import "fmt"
func main(){
var z int
add:=func(x int,y int){
```

```
z=x+y
}
add(10,20)
fmt.Println(z)
}
```

eg45.go

```
package main
import "fmt"
func tableGenerator(n int) func() int {
multiplyBy:=1
return func() int {
generatedNum:=n*multiplyBy
multiplyBy++
return generatedNum
}
}
```

```
func main(){
table:=tableGenerator(5)
fmt.Println(table())
fmt.Println(table())
fmt.Println(table())
fmt.Println(table())
fmt.Println(table())
}
```

eg46.go

```
package main
import "fmt"
func main(){
fmt.Println("Factorial of ",5,"is",getFactorial(5))
}
func getFactorial(num int) int {
if(num==1) {
return num;
}
return getFactorial(num-1)*num;
}
```

eg47.go

```
package main
import "fmt"
func sam(){
fmt.Println("Cool")
}
func tom(){
fmt.Println("Great")
}
```



```
func main(){
defer sam()
tom()
}
```

eg48.go

```
package main
import "fmt"
func sam(){
fmt.Println("Great")
}
func main(){
defer sam()
var x int
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x)
if x==10 { return }
fmt.Println("One")
if x==20 { return }
fmt.Println("Two")
}
```

eg49.go

```
package main
import "fmt"
func main(){
var x int
var y int
var z int
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x)
fmt.Print("Enter another number : ")
fmt.Scanf("%d\n",&y)
z=calculate(x,y)
fmt.Println(z)
}
func calculate(e int,f int) int {
return e/f
}
```

eg50.go

```
package main
import "fmt"
func main(){
var x int
var y int
var z int
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x)
```

```
fmt.Print("Enter another number : ")
fmt.Scanf("%d\n",&y)
z=calculate(x,y)
fmt.Println(z)
}
func calculate(e int,f int) int {
if f==0 { panic(f) }
return e/f
}
```

eg51.go

```
package main
import "fmt"
func main(){
a:=func(){
divisor:=recover();
if divisor!=nil {
fmt.Println("Divisor cannot be",divisor)
}
}
defer a()
var x int
var y int
var z int
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x)
fmt.Print("Enter another number : ")
fmt.Scanf("%d\n",&y)
z=calculate(x,y)
fmt.Println(z)
}
func calculate(e int,f int) int {
if f==0 { panic(f) }
return e/f
}
```

eg52.go

```
package main
import "fmt"
func lmn(x int){
x=100
}
func main() {
var x int
x=20
lmn(x)
fmt.Println(x)
}
```

eg53.go

```
package main
import "fmt"
func lmn(x *int){
*x=100
}
func main() {
var x int
x=20
lmn(&x)
fmt.Println(x)
}
```

eg54.go

```
package main
import "fmt"
func main(){
var x *int
fmt.Println(x)
x=new(int)
fmt.Println(x)
fmt.Println(*x)
*x=100
fmt.Println(*x)
}
```

eg55.go

```
package main
import "fmt"
type Rectangle struct{
length int
breadth int
}
func main(){
var g,t Rectangle
g.length=10
g.breadth=20
fmt.Println("Length",g.length,"Breadth",g.breadth,"Area",g.length*g.breadth)
fmt.Print("Enter length : ")
fmt.Scanf("%d\n",&t.length)
fmt.Print("Enter breadth : ")
fmt.Scanf("%d\n",&t.breadth)
fmt.Println("Length",t.length,"Breadth",t.breadth,"Area",t.length*t.breadth)
}
```

eg56.go

```
package main
import "fmt"
type Rectangle struct{
```

```
length int
breadth int
}
func main(){
var g Rectangle
var p *Rectangle
p=&g
g.length=10
p->breadth=20
fmt.Println("Length",p->length,"Breadth",p->breadth,"Area",p->length*p->breadth)
}
```

eg57.go

```
package main
import "fmt"
type Rectangle struct{
length int
breadth int
}
func main(){
var g Rectangle
var p *Rectangle
p=&g
g.length=10
p.breadth=20
fmt.Println("Length",p.length,"Breadth",p.breadth,"Area",p.length*p.breadth)
}
```

eg58.go

```
package main
import "fmt"
type Rectangle struct{
length int
breadth int
}
func main(){
var g Rectangle
var p *Rectangle
p=&g
g.length=10
(*p).breadth=20
fmt.Println("Length",(*p).length,"Breadth",(*p).breadth,"Area",(*p).length*(*p).breadth)
}
```

eg59.go

```
package main
import "fmt"
func main(){
x:=[5]int {10,20,30,40,50}
```

```

sam(x)
}
func sam(x *int){
fmt.Println(x)
}

```

eg60.go

```

package main
import "fmt"
func main(){
x:=[5]int {10,20,30,40,50}
sam(x[:])
}
func sam(x []int){
fmt.Println(x)
}

```

eg61.go

```

package main
import "fmt"
func main(){
var x [10]int
var y int
for y=0;y<=9;y++ {
fmt.Print("Enter a number : ")
fmt.Scanf("%d\n",&x[y])
}
sortIt(x[:],0,9)
y=0
for y<=9 {
fmt.Println(x[y])
y++
}
}
func sortIt(x []int,lb int,ub int){
if lb>=ub {
return
}
p:=splitIt(x[:],lb,ub)
sortIt(x[:],lb,p-1)
sortIt(x[:],p+1,ub)
}
func splitIt(x []int,lb int,ub int) int {
e:=lb
f:=ub
for {
for {
if(e==ub || x[e]>x[lb]) {

```

```
break
}
e++
}
for {
if x[f]<=x[lb] {
break
}
f--
}
var g int
if e<f {
g=x[e]
x[e]=x[f]
x[f]=g
} else {
g=x[lb]
x[lb]=x[f]
x[f]=g
return f
}
}
}
```

eg62.go

```
package main
import "fmt"
type Rectangle struct {
length int
breadth int
}
func (r *Rectangle) getArea() int {
return r.length*r.breadth
}
func main(){
var g Rectangle
g.length=10
g.breadth=3
fmt.Println("Length",g.length,"Breadth",g.breadth,"Area",g.getArea())
}
```

eg63.go

```
package main
import "fmt"
type HardDisk struct {
capacity int
}
type CPU struct {
```

```
hardDisk HardDisk
speed int
}
func main(){
var c CPU
fmt.Print("Enter size of Hard disk : ")
fmt.Scanf("%d\n",&c.hardDisk.capacity)
fmt.Print("Enter speed of CPU : ")
fmt.Scanf("%d\n",&c.speed)
}
```

eg64.go

```
package main
import "fmt"
type Rectangle struct {
length int
breadth int
}
type Box struct {
Rectangle
height int
}
func main(){
var b Box
b.length=10
b.breadth=3
b.height=5
fmt.Println("Length",b.length,"Breadth",b.breadth,"Height",b.height,"Volume",b.length*b.breadth*b.height)
}
```

Proceed to Book Two