

Go Piscine Go 03

Summary: THIS document is the subject for the Go 03 module of the Go Piscine @ 42 Tokyo.

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Chapter I

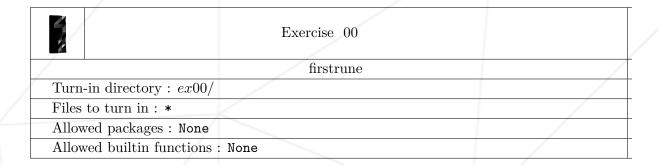
Instructions

- Only this page will serve as reference; do not trust rumors.
- Watch out! This document could potentially change up to an hour before submission.
- These exercises are carefully laid out by order of difficulty from easiest to hardest. We will not take into account a successfully completed harder exercise if an easier one is not perfectly functional.
- Make sure you have the appropriate permissions on your files and directories.
- You have to follow the submission procedures for every exercise.
- Your exercises will be checked and graded by your fellow classmates.
- You <u>cannot</u> leave <u>any</u> additional file in your directory than those specified in the subject.
- Got a question? Ask your peer on the right. Otherwise, try your peer on the left.
- Your reference guide is called Google / man / the Internet /
- Examine the examples thoroughly. They could very well call for details that are not explicitly mentioned in the subject...
- If no other explicit information is displayed, you must use the latest versions of Go.
- Your turn-in directory for each exercise should look something like this:

```
ex[XX]
|-- main.go
|-- vendor
|-- ft
|-- printrune.go
|-- piscine
|-- [excercisename].go
```

Chapter II

Exercise 00: firstrune



Write a function that returns the first rune of a string.

• Expected function

```
func FirstRune(s string) rune {
}
```

• Usage

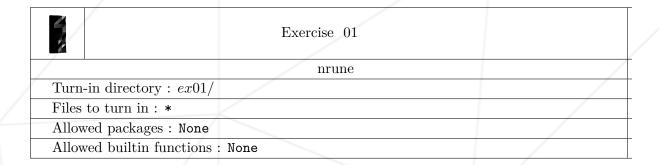
```
package main
import (
    "ft"
    "piscine"
)

func main() {
    ft.PrintRune(piscine.FirstRune("Hello!"))
    ft.PrintRune(piscine.FirstRune("Salut!"))
    ft.PrintRune(piscine.FirstRune("Ola!"))
    ft.PrintRune(piscine.FirstRune("Ola!"))
}
```

```
$ go mod init ex00
$ go run .
HSO
$
```

Chapter III

Exercise 01: nrune



Write a function that returns the nth rune of a string. If not possible, it returns 0.

• Expected function

```
func NRune(s string, n int) rune {
}
```

• Usage

```
package main

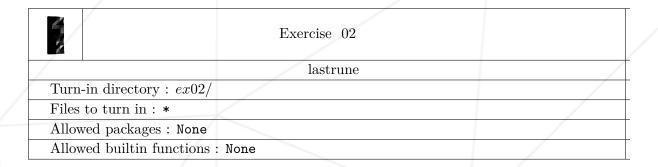
import (
    "ft"
    "piscine"
)

func main() {
    ft.PrintRune(piscine.NRune("Hello!", 3))
    ft.PrintRune(piscine.NRune("Salut!", 2))
    ft.PrintRune(piscine.NRune("Bye!", -1))
    ft.PrintRune(piscine.NRune("Bye!", 5))
    ft.PrintRune(piscine.NRune("Bye!", 5))
    ft.PrintRune(piscine.NRune("Ola!", 4))
    ft.PrintRune()
```

```
$ go mod init ex01
$ go run .
la!
$
```

Chapter IV

Exercise 02: lastrune



Write a function that returns the last rune of a string.

• Expected function

```
func LastRune(s string) rune {
}
```

• Usage

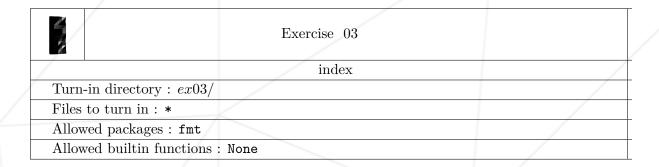
```
package main
import (
    "ft"
    "piscine"
)

func main() {
    ft.PrintRune(piscine.LastRune("Hello!"))
    ft.PrintRune(piscine.LastRune("Salut!"))
    ft.PrintRune(piscine.LastRune("Ola!"))
    ft.PrintRune(piscine.LastRune("Ola!"))
}
```

```
$ go mod init ex02
$ go run .
!!!
$
```

Chapter V

Exercice 03: index



Write a function that behaves like the Index function.

• Expected function

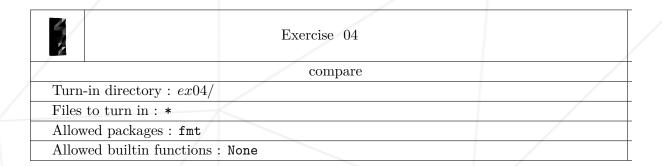
```
func Index(s string, toFind string) int {
}
```

• Usage

```
$ go mod init ex03
$ go run .
2
1
-1
$
```

Chapter VI

Exercise 04: compare



Write a function that behaves like the Compare function.

• Expected function

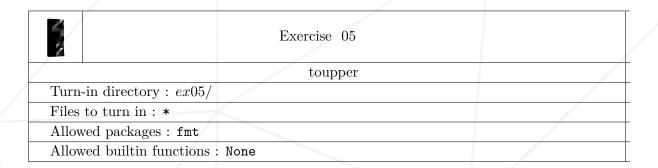
```
func Compare(a, b string) int {
}
```

• Usage

```
$ go mod init ex04
$ go run .
0
-1
1
```

Chapter VII

Exercise 05: toupper



Write a function that capitalizes each letter in a string.

• Expected function

```
func ToUpper(s string) string {
}
```

• Usage

```
package main

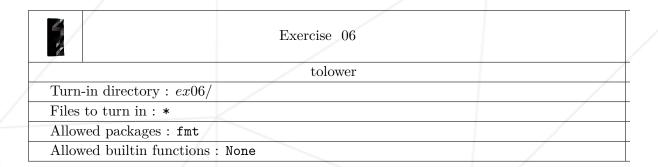
import (
        "fmt"
        "piscine"
)

func main() {
        fmt.Println(piscine.ToUpper("Hello! How are you?"))
}
```

```
$ go mod init ex05
$ go run .
HELLO! HOW ARE YOU?
$
```

Chapter VIII

Exercise 06: tolower



Write a function that lower cases for each letter in a string.

• Expected function

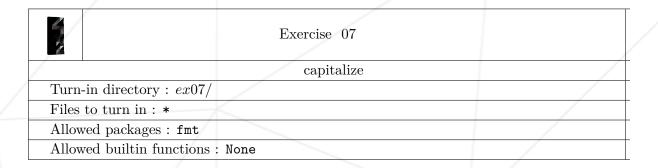
```
func ToLower(s string) string {
}
```

• Usage

```
$ go mod init ex06
$ go run .
hello! how are you?
$
```

Chapter IX

Exercise 07: capitalize



Write a function that capitalizes the first letter of each word and lowercases the rest.

- A word is a sequence of alphanumeric characters.
- Expected function

```
func Capitalize(s string) string {
}
```

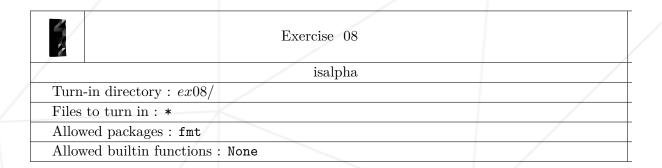
• Usage

```
package main
import (
    "fmt"
    "piscine"
)
func main() {
    fmt.Println(piscine.Capitalize("Hello! How are you? How+are+things+4you?"))
}
```

```
$ go mod init ex07
$ go run .
Hello! How Are You? How+Are+Things+4you?
$
```

Chapter X

Exercise 08: isalpha



Write a function that returns true if the string passed as the parameter only contains alphanumerical characters or is empty, otherwise, and returns false.

• Expected function

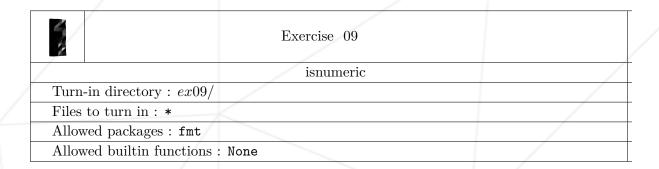
```
func IsAlpha(s string) bool {
}
```

• Usage

Go 03 Go Piscine • Output of usage \$ go mod init ex08 \$ go run . false true false true 12

Chapter XI

Exercise 09: isnumeric



Write a function that returns true if the string passed as a parameter contains only numerical characters or is empty, otherwise, returns false.

• Expected function

```
func IsNumeric(s string) bool {
}
```

• Usage

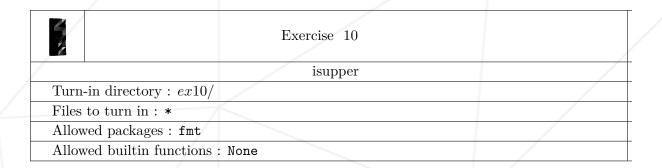
```
package main
import (
    "fmt"
    "piscine"
)

func main() {
    fmt.Println(piscine.IsNumeric("010203"))
    fmt.Println(piscine.IsNumeric("01,02,03"))
}
```

```
$ go mod init ex09
$ go run .
true
false
$
```

Chapter XII

Exercise 10: isupper



Write a function that returns true if the string passed as parameter contains only uppercase characters or is empty, otherwise, returns false.

• Expected function

```
func IsUpper(s string) bool {
}
```

• Usage

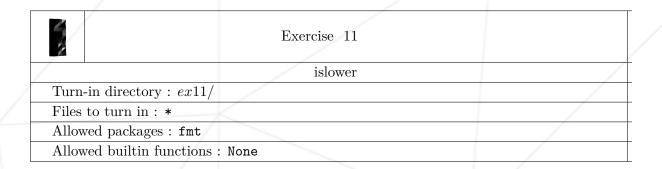
```
package main
import (
    "fmt"
    "piscine"
)

func main() {
    fmt.Println(piscine.IsUpper("HELLO"))
    fmt.Println(piscine.IsUpper("HELLO!"))
}
```

```
$ go mod init ex10
$ go run .
true
false
$
```

Chapter XIII

Exercise 11: islower



Write a function that returns true if the string passed as the parameter contains only lowercase characters or is empty, otherwise, returns false.

• Expected function

```
func IsLower(s string) bool {
}
```

Usage

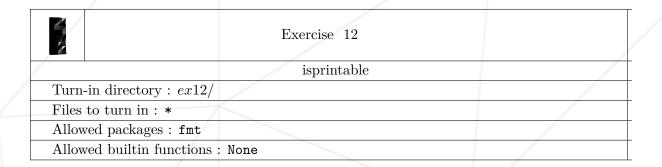
```
package main
import (
    "fmt"
    "piscine"
)

func main() {
    fmt.Println(piscine.IsLower("hello"))
    fmt.Println(piscine.IsLower("hello!"))
}
```

```
$ go mod init ex11
$ go run .
true
false
$
```

Chapter XIV

Exercise 12: isprintable



Write a function that returns true if the string passed as the parameter contains only printable characters or is empty, otherwise returns false.

• Expected function

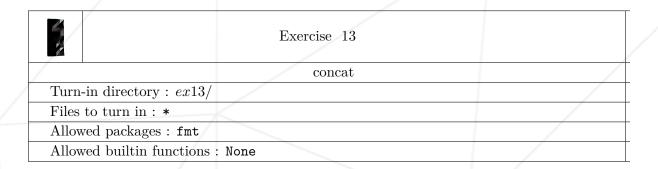
```
func IsPrintable(s string) bool {
}
```

• Usage

```
$ go mod init ex12
$ go run .
true
false
$
```

Chapter XV

Exercise 13: concat



Write a function that returns the concatenation of two string passed in arguments.

• Expected function

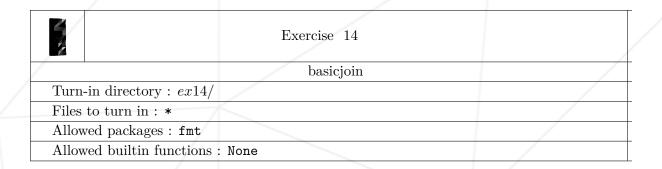
```
func Concat(str1 string, str2 string) string {
}
```

• Usage

```
$ go mod init ex13
$ go run .
Hello! How are you?
$
```

Chapter XVI

Exercise 14: basicjoin



Write a function that returns a concatenated string from the 'strings' passed as arguments.

• Expected function

```
func BasicJoin(elems []string) string {
}
```

• Usage

```
package main

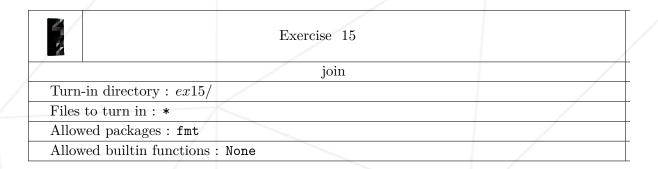
import (
        "fmt"
        "piscine"
)

func main() {
        elems := []string{"Hello!", " How", " are", " you?"}
        fmt.Println(piscine.BasicJoin(elems))
}
```

```
$ go mod init ex14
$ go run .
Hello! How are you?
$
```

Chapter XVII

Exercise 15: join



Write a function that returns a concatenated string from the 'strings' passed as arguments.

• Expected function

```
func Join(strs []string, sep string) string {
}
```

• Usage

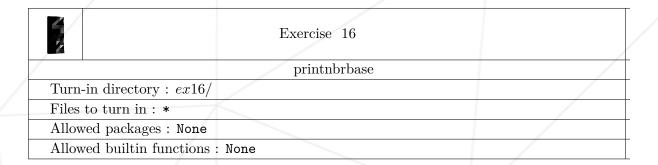
```
package main
import (
    "fmt"
    "piscine"
)

func main() {
    toConcat := []string{"Hello!", " How", " are", " you?"}
    fmt.Println(piscine.Join(toConcat, ":"))
}
```

```
$ go mod init ex15
$ go run .
Hello!: How: are: you?
$
```

Chapter XVIII

Exercise 16: printnbrbase



Write a function that prints an int in a string base passed as parameters.

- If the base is not valid, the function prints NV (Not Valid):
- Validity rules for a base :
 - A base must contain at least 2 characters.
 - Each character of a base must be unique.
 - \circ A base should not contain + or characters.
- The function has to manage negative numbers. (as shown in the example)
- Expected function

```
func PrintNbrBase(nbr int, base string) {
}
```

- Usage
- Output of usage

```
$ go mod init ex16
$ go run .
125
-1111101
7D
-uoi
NV
$
```

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```
package main
import (
    "fmt"
    "github.com/42tokyo/ft"
    "piscine"
)

func main() {
    piscine.PrintNbrBase(125, "0123456789")
    ft.PrintRune('\n')
    piscine.PrintNbrBase(-125, "01")
    ft.PrintRune('\n')
    piscine.PrintNbrBase(125, "0123456789ABCDEF")
    ft.PrintRune('\n')
    piscine.PrintNbrBase(125, "choumi")
    ft.PrintRune('\n')
    piscine.PrintNbrBase(125, "choumi")
    ft.PrintRune('\n')
    piscine.PrintNbrBase(125, "aa")
    ft.PrintRune('\n')
}
```

Chapter XIX

Exercise 17: atoibase

	Exercise 17	
/	atoibase	
Turn-in directory	ex17/	
Files to turn in : *		
Allowed packages: fmt		
Allowed builtin functions : None		

Write a function that does the following:

- The function that takes two arguments:
 - s: a numeric string in a given base.
 - base: a string representing all the different digits that can represent a numeric value.
- And returns the integer value of s in the given base.
- If the base is not valid it returns 0.
- Validity rules for a base :
 - A base must contain at least 2 characters.
 - Each character of a base must be unique.
 - \circ A base should not contain + or characters.
- String number must contain only elements that are in base.
- Only valid string numbers will be tested.
- The function does not have to manage negative numbers.
- Expected function
- Usage

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```
func AtoiBase(s string, base string) int {
}
```

```
package main

import (
    "fmt"
    "piscine"
)

func main() {
    fmt.Println(piscine.AtoiBase("125", "0123456789"))
    fmt.Println(piscine.AtoiBase("1111101", "01"))
    fmt.Println(piscine.AtoiBase("7D", "0123456789ABCDEF"))
    fmt.Println(piscine.AtoiBase("uoi", "choumi"))
    fmt.Println(piscine.AtoiBase("bbbbbab", "-ab"))
}
```

```
$ go mod init ex17
$ go run .
125
125
125
125
0
```