

**LAPORAN PRAKTIKUM ALGORITMA
DAN PEMROGRAMAN 2**

**MODUL 12
WHILE-LOOP**



Disusun oleh:

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**PROGRAM STUDI S1 INFORMATIKA
FAKULTAS INFORMATIKA
TELKOM UNIVERSITY PURWOKERTO**

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LATIHAN KELAS – GUIDED

1. Guided 1

Source Code

```
package main

import "fmt"

func main() {
    var n int
    fmt.Scan(&n)
    if n == 0 {
        fmt.Println(1)
    } else {
        for i := n; i >= 1; i-- {
            fmt.Print(i)

            if i != 1 {
                fmt.Print("x")
            }
        }
    }
}
```

Screenshoot program:

The screenshot shows a Go IDE with a file named `Guided1.go`. The code is as follows:

```
1 package main
2 import "fmt"
3
4 func main() {
5     var n int
6     fmt.Scan(&n)
7     if n == 0 {
8         fmt.Println(1)
9     } else {
10        for i := n; i >= 1; i-- {
11            fmt.Print(i)
12            if i != 1 {
13                fmt.Print("x")
14            }
15        }
16    }
17 }
```

Below the code editor, the terminal shows the execution of the program. The user enters `5`, and the output is `5x4x3x2x1`. The status bar at the bottom indicates the cursor is at line 1, column 26, with 42 characters, in plain text, at 100% zoom.

Deskripsi program : Program ini membaca input `n`. Jika `n` bernilai 0, langsung mencetak 1. Jika tidak, program mencetak deretan angka dari `n` sampai 1, dan setiap angka dipisahkan dengan tanda `x`, kecuali angka terakhir. Hasilnya menampilkan bentuk perkalian faktorial seperti `5x4x3x2x1`.

2. Guided 2

Source Code

```
package main

import "fmt"

func main() {
    var password string
    passwordValid := "12345abcde"

    fmt.Scan(&password)

    for password != passwordValid {
```

```

        fmt.Scan(&password)
    }

    fmt.Println("Selamat Anda Berhasil Masuk" )
}

```

ScreenshootProgram

The screenshot shows a Go program in VS Code. The code is as follows:

```

1 package main
2
3 import "fmt"
4 func main() {
5     var password string
6     passwordValid := "12345abcde"
7
8     fmt.Scan(&password)
9
10    for password != passwordValid {
11        fmt.Scan(&password)
12    }
13    fmt.Println("Selamat Anda Berhasil Masuk" )
14 }
15

```

The terminal output shows the program running and the user entering the password '12345abcde'.

```

PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided 2.go"
12345abcde
Welcome!
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided 2.go"
Qwe12312
231234
13213
12311jwe
12345abcde
Selamat Anda Berhasil Masuk
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided 2.go"
12345abcde
Selamat Anda Berhasil Masuk
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop>

```

Deskripsi program : Program ini meminta pengguna memasukkan password dan akan terus mengulang input selama password yang dimasukkan belum sama dengan "12345abcde". Jika password akhirnya cocok, program berhenti dan menampilkan pesan "Selamat Anda Berhasil Masuk".

3. Guided 3

Source Code

```
package main

import "fmt"

func main() {
    var n int
    fmt.Scan(&n)

    a, b := 0, 1
    i := 0

    for i = 0; i < n; i++ {
        fmt.Print(a, " ")
        a, b = b, a+b
    }
}
```

Screenshoot program

The screenshot shows a Go IDE with a file named `Guided3.go`. The code defines a `main` package and a `main` function. It imports the `fmt` package. Inside `main`, it declares `n` as an integer, scans it from standard input, and initializes `a` to 0 and `b` to 1. A `for` loop runs from `i = 0` to `i < n`, printing `a` and updating `a` and `b` to the next Fibonacci numbers. A separate window titled `namaprad` shows the input: `nama:praditya putra zaeni` and `nin:109082530013`. The terminal at the bottom shows the command `go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided3.go"` being executed, with the output: `0 1 1 2 3 5 8 13 21 34`.

```
1 package main
2
3 import "fmt"
4
5 func main() {
6     var n int
7     fmt.Scan(&n)
8
9     a, b := 0, 1
10    i := 0
11
12    for i = 0; i < n; i++ {
13        fmt.Print(a, " ")
14        a, b = b, a+b
15    }
16 }
```

```
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided3.go"
0 1 1 2 3
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided3.go"
0 1 1 2 3 5 8 13 21 34
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\Guided3.go"
0 1
```

Deskripsi program Program ini membaca input `n`, lalu mencetak deret Fibonacci sebanyak `n` angka. Nilai awal Fibonacci diset `a = 0` dan `b = 1`. Pada setiap perulangan, program mencetak nilai `a`, lalu memperbarui `a` dan `b` menjadi `b` dan `a + b`. Dengan cara ini, deret Fibonacci ditampilkan mulai dari 0 seterusnya hingga jumlah yang diminta.

TUGAS

1. Tugas 1

Source Code

```
package main

import "fmt"

func main() {
    const benarUser = "Admin"
    const benarPass = "Admin"

    var user, pass string
    percobaanGagal := 0
    for {
        fmt.Scan(&user, &pass)
        if user == benarUser && pass == benarPass {
            break
        } else {
            percobaanGagal++
        }
    }
    fmt.Printf("%d percobaan gagal login\n", percobaanGagal)
}
```

Screenshoot program

```
soal1.go > main
1 package main
2
3 import "fmt"
4
5 func main() {
6     const benarUser = "Admin"
7     const benarPass = "Admin"
8
9     var user, pass string
10    percobaanGagal := 0
11
12    for {
13        fmt.Scan(&user, &pass)
14
15        if user == benarUser && pass == benarPass {
16            break
17        } else {
18            percobaanGagal++
19        }
20    }
21
22    fmt.Printf("%d percobaan gagal login\n", percobaanGagal)
23 }
24
```

```
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\soal1.go"
user123 user123
user: Admin
Admin admin
Admin Admin123
Admin Admin
4 percobaan gagal login
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\soal1.go"
Admin Admin
0 percobaan gagal login
```

Deskripsi program: program memaksa pengguna memasukkan username & password berulang sampai cocok dengan kredensial yang telah ditetapkan, menghitung setiap kegagalan, dan setelah berhasil menampilkan berapa kali percobaan gagal terjadi.

Tugas 2 .

Source code

```
package main

import "fmt"

func main() {

    var bilangan int

    fmt.Scan(&bilangan)

    for bilangan > 0 {

        digit := bilangan % 10
```



```

    fmt.Println(digit)

    bilangan = bilangan / 10
}
}

```

Screenshoot Code :

The screenshot shows a Go program in a text editor (VS Code) and its execution in a terminal. The source code is as follows:

```

1 package main
2
3 import "fmt"
4
5 func main() {
6     var bilangan int
7     fmt.Scan(&bilangan)
8
9     for bilangan > 0 {
10        digit := bilangan % 10
11        fmt.Println(digit)
12        bilangan = bilangan / 10
13    }
14 }
15

```

The terminal output shows the program being run with the command `go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\soal2.go"`. The input `2544` is scanned, and the digits `4`, `4`, `5`, and `2` are printed in sequence, each on a new line.

Below the terminal, a small window titled "nama:praditya putra zaeni" and "nim:109082530011" is visible, along with a status bar showing "Ln 1, Col 26, 42 character, Plain text, 100%, Wind, UTF-8".

Deskripsikan Program: Program ini membaca sebuah bilangan, lalu selama bilangan masih lebih dari 0, program mengambil dan mencetak digit terakhir dengan `bilangan % 10`, kemudian menghapus digit tersebut dengan `bilangan = bilangan / 10`. Hasilnya, setiap digit ditampilkan satu per satu mulai dari digit paling belakang.

Tugas 3.

Source code:

```
package main

import "fmt"

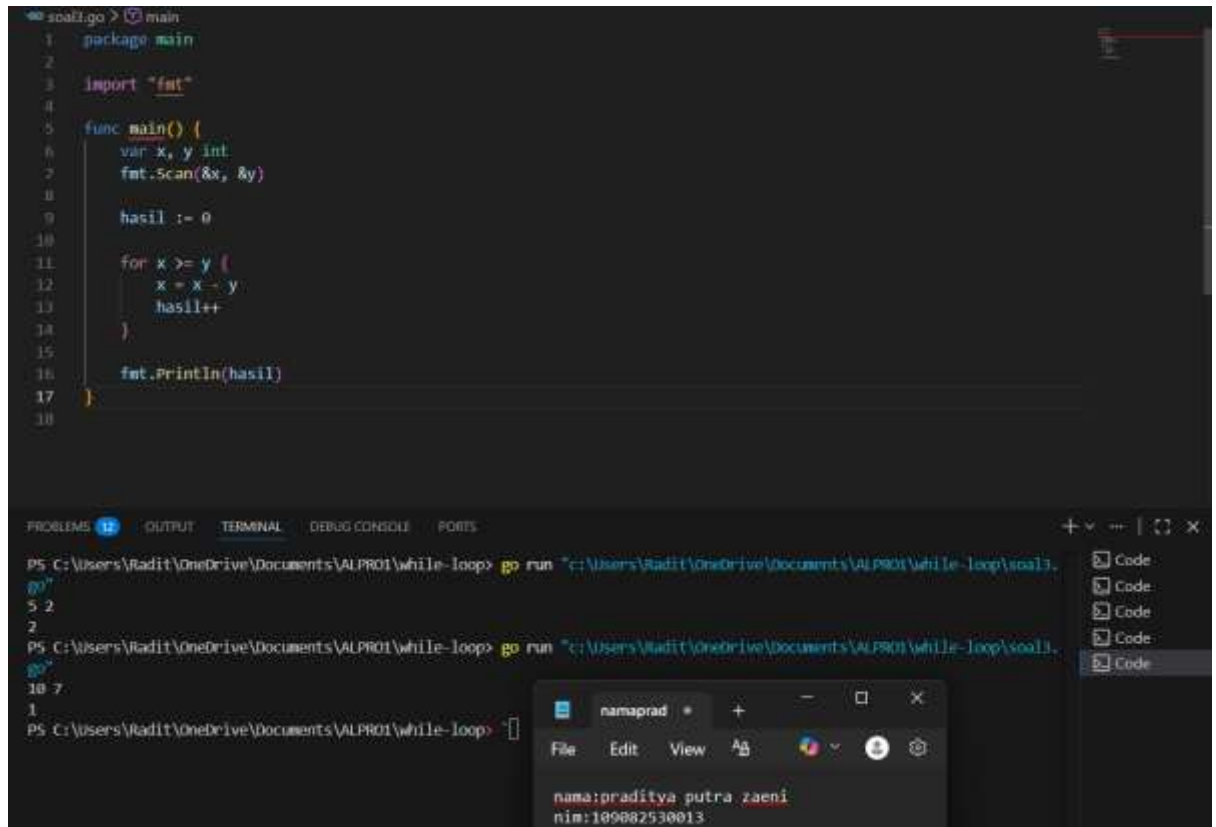
func main() {
    var x, y int
    fmt.Scan(&x, &y)

    hasil := 0

    for x >= y {
        x = x - y
        hasil++
    }

    fmt.Println(hasil)
}
```

Screenshoot program :



The screenshot shows a Go program in a code editor and its execution in a terminal. The code defines a `main` function that reads two integers `x` and `y` from standard input. It then enters a `for` loop that runs as long as `x` is greater than or equal to `y`. Inside the loop, `x` is decreased by `y` (`x = x - y`) and a counter `hasil` is incremented. After the loop, the value of `hasil` is printed.

```
1 package main
2
3 import "fmt"
4
5 func main() {
6     var x, y int
7     fmt.Scan(&x, &y)
8
9     hasil := 0
10
11     for x >= y {
12         x = x - y
13         hasil++
14     }
15
16     fmt.Println(hasil)
17 }
18
```

The terminal shows the program being run with inputs `5 2` and `10 7`. The output for `5 2` is `2`, and for `10 7` is `1`.

```
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\soal3.go"
5 2
2
PS C:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop> go run "c:\Users\Radit\OneDrive\Documents\ALPRO1\while-loop\soal3.go"
10 7
1
```

Deskripsi program : Program ini menghitung pembagian bulat tanpa memakai operator `/`. Caranya adalah terus mengurangi `x` dengan `y` sambil menghitung berapa kali pengurangan itu terjadi. Jumlah pengurangan tersebut kemudian menjadi hasil pembagian, dan itulah yang dicetak oleh program.