

# Homework2

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## Q1.1: Go Programming

### step.1 编写源码

```
package main

import (
    "fmt"
    "os"
    "strconv"
    "log"
    "math"
)

func main() {
    args_len := len(os.Args)
    if args_len == 2 { // is circle
        r, err := strconv.ParseFloat(os.Args[1], 64) // get radius

        if err != nil {
            fmt.Println("Args value ERROR")
            log.Fatal(err)
        } else {
            fmt.Println("This is a circle")
            perimeter := 2 * math.Pi * r
            area := math.Pi * math.Pow(r, 2)
            fmt.Printf("r = %.3f\nperimeter = %.3f\narea = %.3f\n", r, perimeter, area)
        }
    } else if args_len == 3 { // is rectangle
        a, err := strconv.ParseFloat(os.Args[1], 64)
        b, err := strconv.ParseFloat(os.Args[2], 64)

        if err != nil {
            fmt.Println("Args value ERROR")
            log.Fatal(err)
        } else {
            fmt.Println("This is a rectangle")
            perimeter := 2 * (a + b)
            area := a * b
            fmt.Printf("a = %.3f\nb = %.3f\nperimeter = %.3f\narea = %.3f\n", a, b,
perimeter, area)
        }
    }
}
```

```
} else {  
    fmt.Println("Args ERROR")  
}  
}
```

## step2. 编译

```
go build
```

## step3.运行

```
siliconx@Lenovo:~/go/src/calculate$ go build  
siliconx@Lenovo:~/go/src/calculate$ ./calculate  
Args ERROR  
siliconx@Lenovo:~/go/src/calculate$ ./calculate 2  
This is a circle  
r = 2.000  
perimeter = 12.566  
area = 12.566  
siliconx@Lenovo:~/go/src/calculate$ ./calculate 2 3  
This is a rectangle  
a = 2.000  
b = 3.000  
perimeter = 10.000  
area = 6.000
```

## Q1.2将上述go程序部署成http服务

### step1.修改代码

```
package main  
  
import (  
    "fmt"  
    "os"  
    "strconv"  
    "log"  
    "math"  
    "net/http"  
)  
  
var msg string  
func main() {  
    args_len := len(os.Args)  
  
    if args_len == 2 { // is circle
```

```

    r, err := strconv.ParseFloat(os.Args[1], 64) // get radius

    if err != nil {
        msg = fmt.Sprintf("Args value ERROR")
        log.Fatal(err)
    } else {
        perimeter := 2 * math.Pi * r
        area := math.Pi * math.Pow(r, 2)
        msg = fmt.Sprintf("This is a circle\nr = %.3f\nperimeter = %.3f\narea = %.3f", r, perimeter, area)
    }
} else if args_len == 3 { // is rectangle
    a, err := strconv.ParseFloat(os.Args[1], 64)
    b, err := strconv.ParseFloat(os.Args[2], 64)

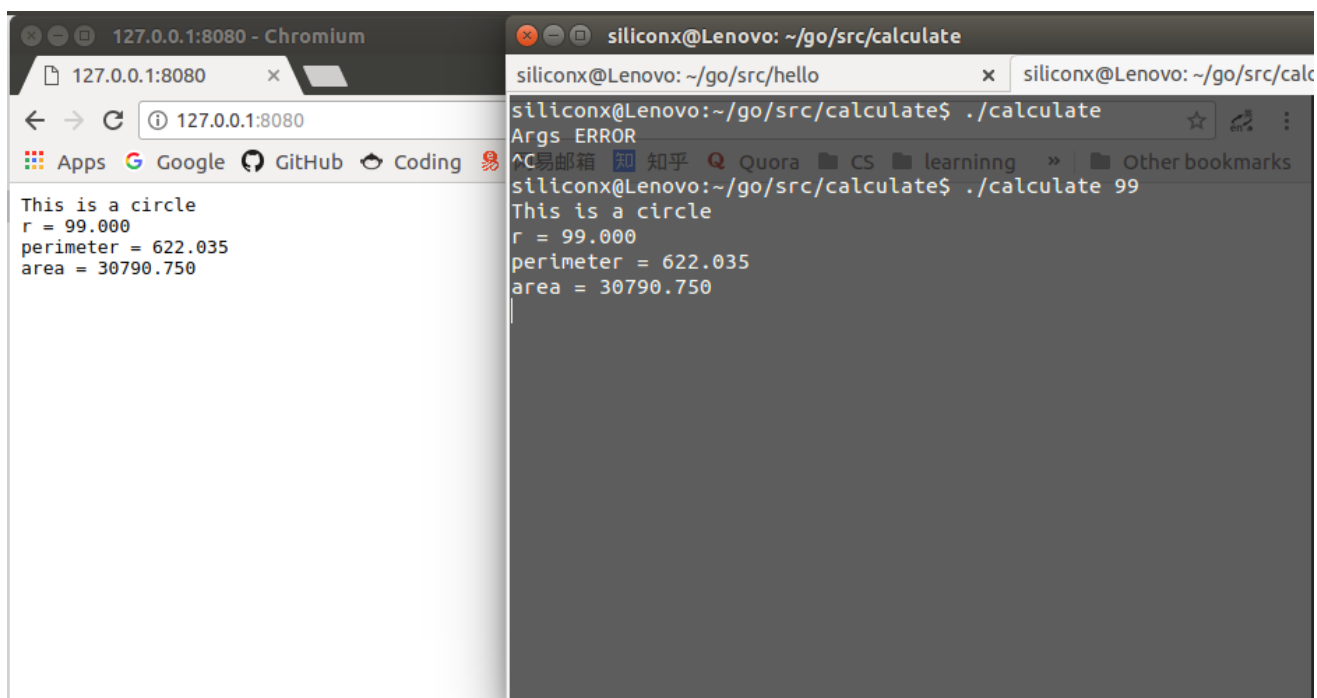
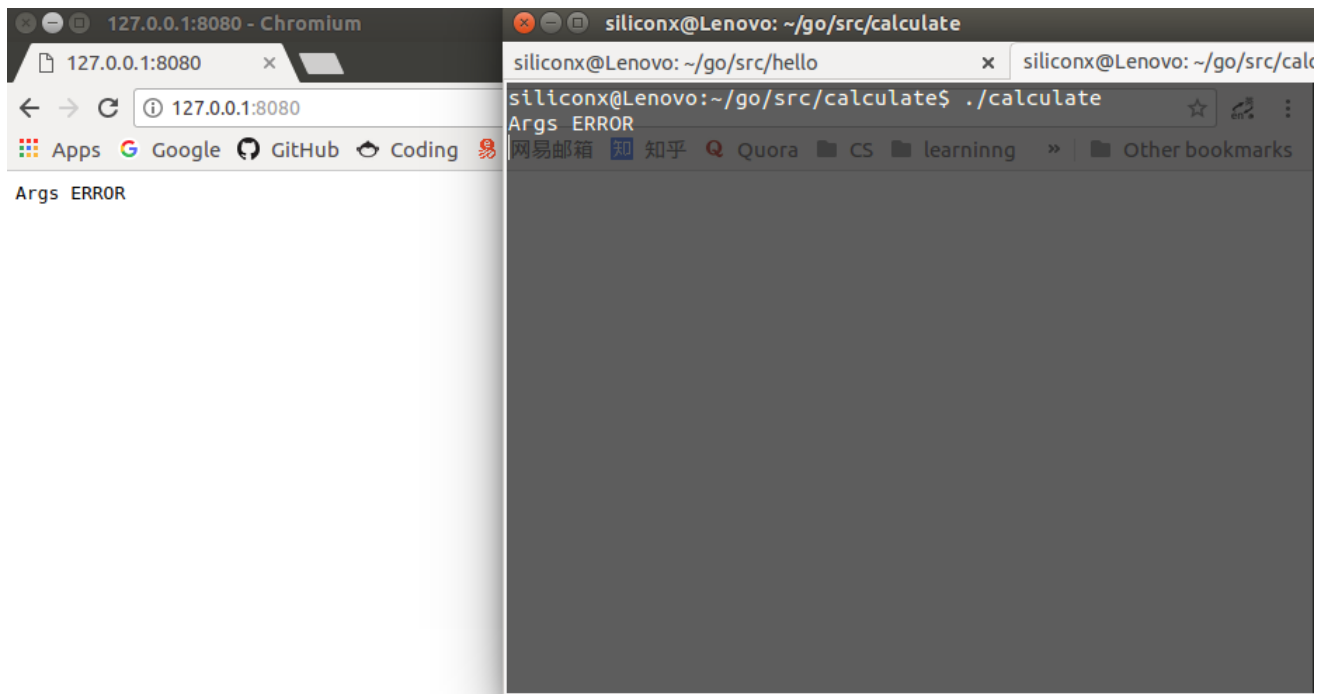
    if err != nil {
        msg = fmt.Sprintln("Args value ERROR")
        log.Fatal(err)
    } else {
        perimeter := 2 * (a + b)
        area := a * b
        msg = fmt.Sprintf("This is a rectangle\na = %.3f\nb = %.3f\nperimeter = %.3f\narea = %.3f", a, b, perimeter, area)
    }
} else {
    msg = fmt.Sprintf("Args ERROR")
}

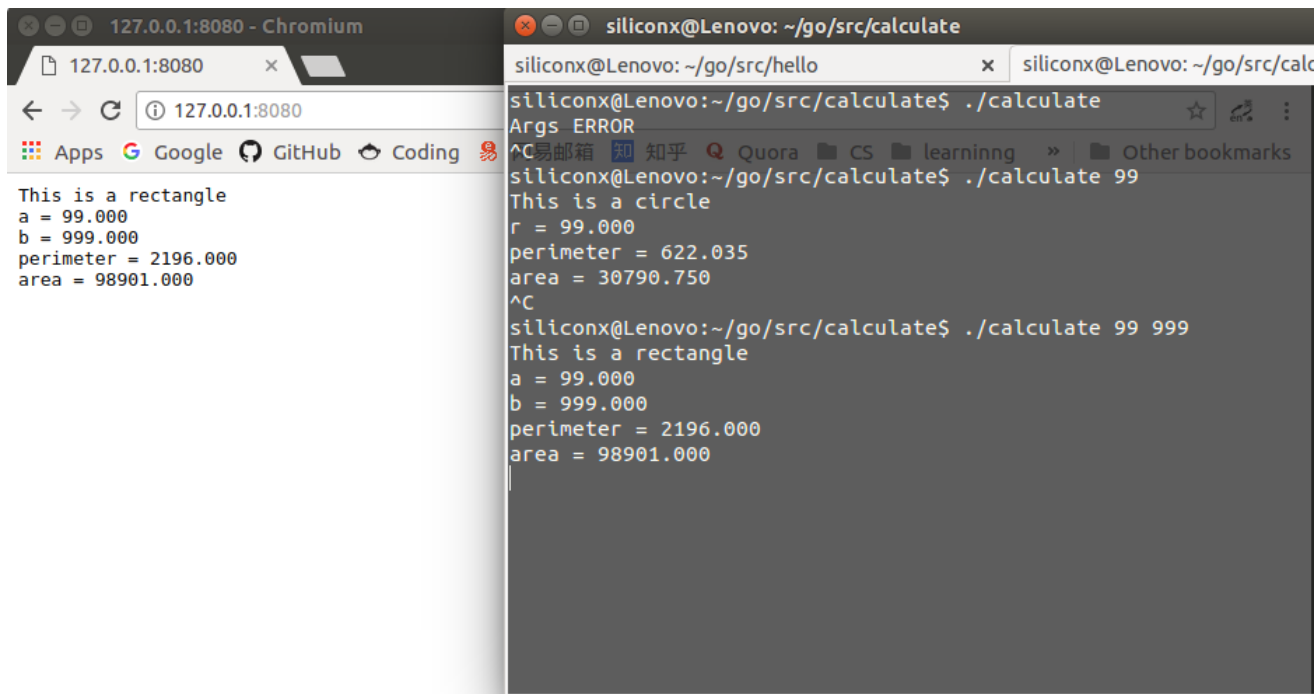
fmt.Println(msg)
http.HandleFunc("/", http_server)
http.ListenAndServe(":8080", nil)
}

func http_server(response http.ResponseWriter, request *http.Request) {
    fmt.Fprintf(response, msg)
}

```

## step2.运行结果





## Q2 (Bash, and Bash Hard)

### step1.编写代码

```
#!/bin/sh

if [ $# = 0 ]; then
    echo "usage: $0 [-a -n N] directory"
    exit 1
fi

A="" # 参数-a
N=10 # 参数-n的值

while getopts ":an:" opt; do # 通过getopts获取参数
    case $opt in
        a)
            A="-a"
            ;;
        n)
            N=$OPTARG
            ;;
        \?)
            echo "Invalid args"
    esac
done
```

```

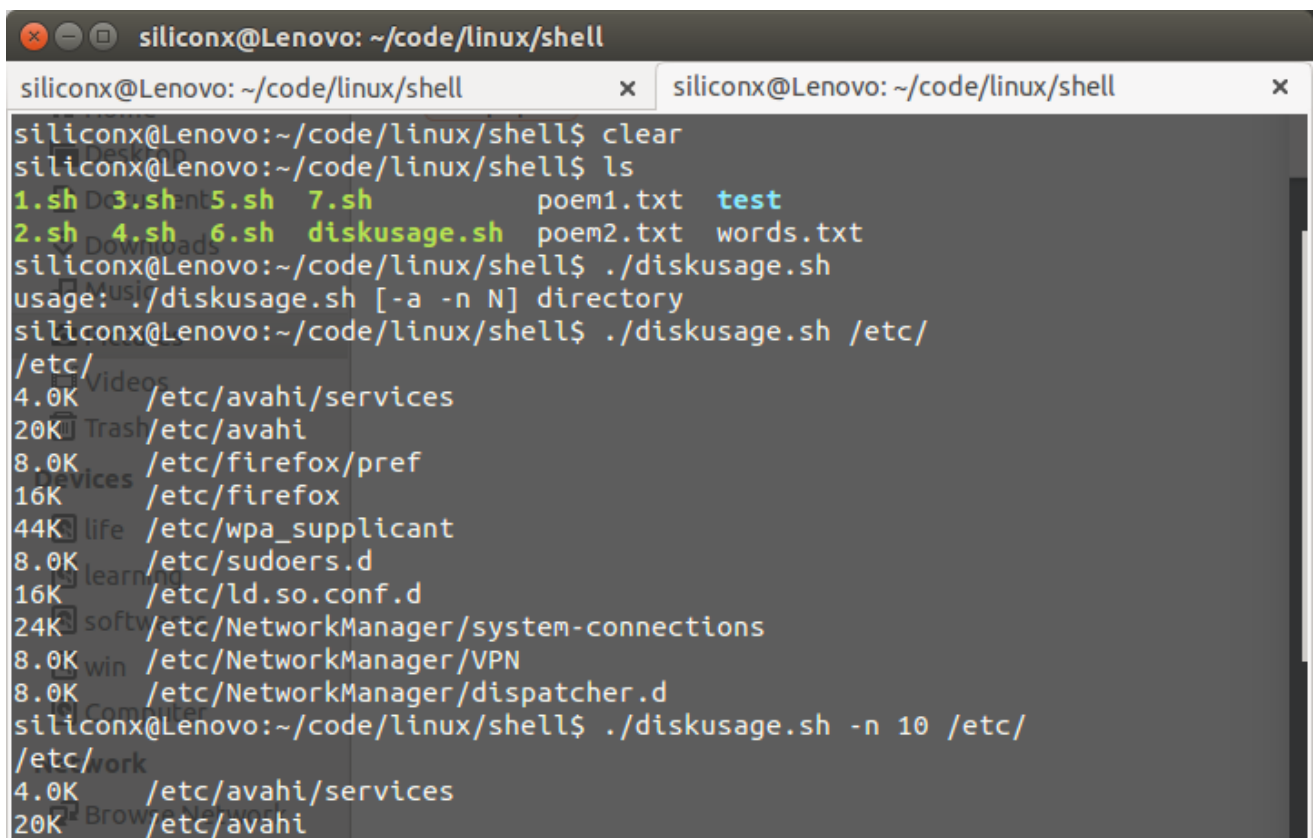
;;
esac
done

# shift参数以便获取路径值
shift $((OPTIND - 1))

# 遍历路径
for var in "$@"
do
    echo "$var"
    du -h $A $var | head -n $N
done

```

## step2.运行



The screenshot shows a terminal window titled 'siliconx@Lenovo: ~/code/linux/shell'. The user runs 'clear' and 'ls', showing files 'poem1.txt', 'test', 'poem2.txt', and 'words.txt'. Then, they run './diskusage.sh' with usage information: 'usage: ./diskusage.sh [-a -n N] directory'. They then run './diskusage.sh /etc/' which lists disk usage for various files in /etc/. Finally, they run './diskusage.sh -n 10 /etc/' which shows the top 10 largest files in /etc/.

```

siliconx@Lenovo: ~/code/linux/shell
siliconx@Lenovo: ~/code/linux/shell$ clear
siliconx@Lenovo: ~/code/linux/shell$ ls
1.sh 3.sh 5.sh 7.sh      poem1.txt  test
2.sh 4.sh 6.sh diskusage.sh poem2.txt  words.txt
siliconx@Lenovo: ~/code/linux/shell$ ./diskusage.sh
usage: ./diskusage.sh [-a -n N] directory
siliconx@Lenovo: ~/code/linux/shell$ ./diskusage.sh /etc/
/etc/
4.0K /etc/avahi/services
20K /etc/avahi
8.0K /etc/firefox/pref
16K /etc/firefox
44K /etc/wpa_supplicant
8.0K /etc/sudoers.d
16K /etc/ld.so.conf.d
24K /etc/NetworkManager/system-connections
8.0K /etc/NetworkManager/VPN
8.0K /etc/NetworkManager/dispatcher.d
siliconx@Lenovo: ~/code/linux/shell$ ./diskusage.sh -n 10 /etc/
/etc/
4.0K /etc/avahi/services
20K /etc/avahi

```

```
siliconx@Lenovo: ~/code/linux/shell
siliconx@Lenovo: ~/code/linux/shell x siliconx@Lenovo: ~/code/linux/shell x
siliconx@Lenovo:~/code/linux/shell$ ./diskusage.sh -n 5 /etc/2 22:34:02.
/etc/
4.0K /etc/avahi/services
4.0K /etc/avahi/hosts
4.0K /etc/avahi/avahi-autoipd.action
4.0K /etc/avahi/avahi-daemon.conf
20K /etc/avahi
siliconx@Lenovo:~/code/linux/shell$ sudo su
root@Lenovo:/home/siliconx/code/linux/shell# ./diskusage.sh -n 2 /etc /var
/etc
4.0K /etc/avahi/services
20K /etc/avahi
/var
4.0K /var/mail
4.0K /var/spool/cron/crontabs
root@Lenovo:/home/siliconx/code/linux/shell# exit
exit
siliconx@Lenovo:~/code/linux/shell$ |
```

**Network**

- Browse Network
- Connect to Server