Homework2

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Q1: Go Programming

step.1 编写源码

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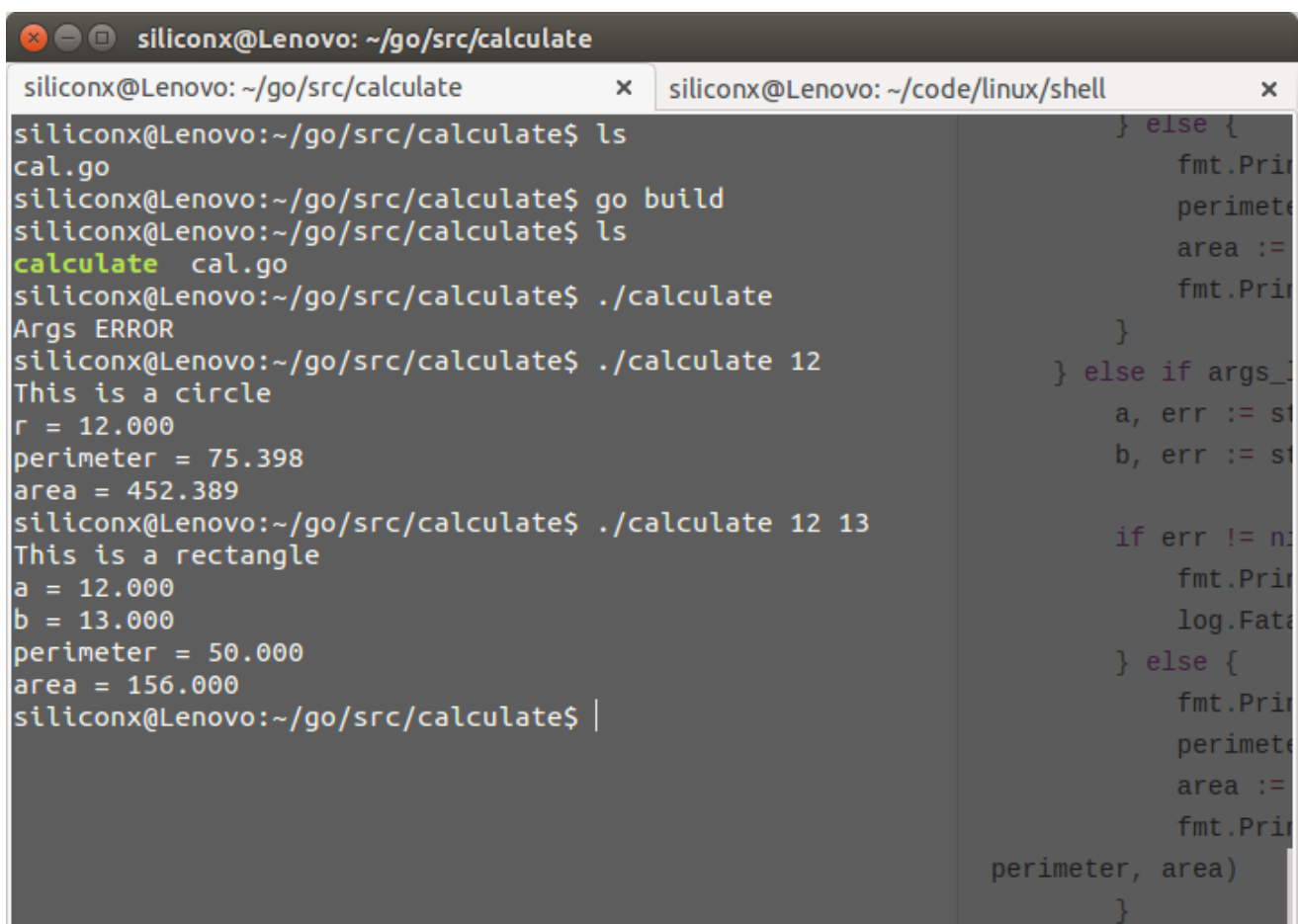
```
    } else {
        fmt.Println("Args ERROR")
    }
}
```

step2. 编译

```
go build
```

step3.运行

===

Q2 (Bash, and Bash Hard)

step1.编写代码

```sh
#!/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

# 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

```
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$ ./diskusage.sh -n 10 /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 -a /etc/
/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
24K     /etc/mime.types
4.0K    /etc/firefox/syspref.js
4.0K    /etc/firefox/pref/apturl.js
8.0K    /etc/firefox/pref
16K     /etc/firefox
siliconx@Lenovo:~/code/linux/shell$
```

```
siliconx@Lenovo:~/code/linux/shell$ ./diskusage.sh -a -n 5 /etc/
/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$ |
```