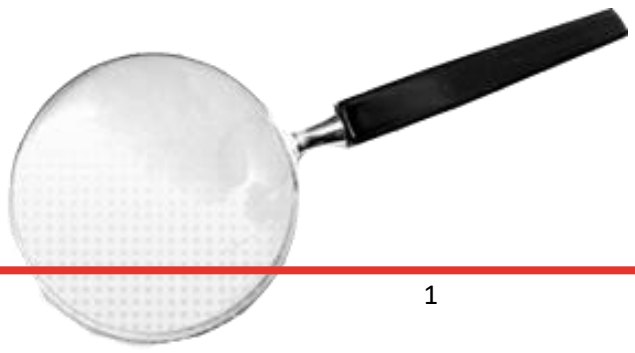
1. **Write a script called mycase, using the case utility to checks the type of character entered by a user:**
   a. **Upper Case.**
   b. **Lower Case.**
   c. **Number.**
   d. **Nothing.**

➔ **Script :**

```
#!/bin/bash

read -p "Enter a character: " ch

case $ch in
[A-Z]) echo "You entered an Upper Case character."
;;
[a-z]) echo "You entered a Lower Case character."
;;
[0-9]) echo "You entered a Number."
;;
*) echo "You entered something else or nothing."
;;
esac
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ vi mycase.sh
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a character: a
You entered a Lower Case character.
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a character: A
You entered an Upper Case character.
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a character: 5
You entered a Number.
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a character: @
You entered something else or nothing.
```



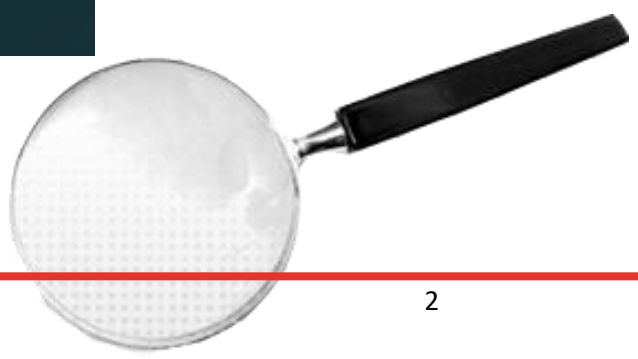
2. **Enhanced the previous script, by checking the type of string entered by a user:**
   a. **Upper Cases.**
   b. **Lower Cases.**
   c. **Numbers.**
   d. **Mix.**
   e. **Nothing.**

➔ **Script :**

```
#!/bin/bash

read -p "Enter a string: " str

case "$str" in
    *[A-Za-z]*[0-9]*)
        echo "You entered a Mixed String"
        ;;

    *[A-Z]*)
        echo "You entered an Upper Case String"
        ;;
    *[a-z]*)
        echo "You entered a Lower Case String"
        ;;
    *[0-9]*)
        echo "You entered a String with Numbers"
        ;;
    *)
        echo "You entered Nothing or a special character"
        ;;
esac
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a string: mohamed
You entered a Lower Case String
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a string: MOHAMED
You entered an Upper Case String
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a string: MOhamed123
You entered a Mixed String
gharabawy@gharabawy-virtual-machine:~$ ./mycase.sh
Enter a string: @#$
You entered Nothing or a special character
```



3. **Write a script called mychmod using for utility to give execute permission to all files and directories in your home directory.**

➔ **Script :**

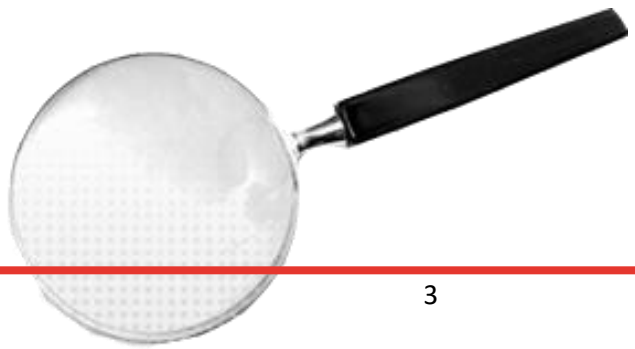
```
#!/bin/bash


for item in "$HOME"/*
do
    if [ -f "$item" ] || [ -d "$item" ]
    then
        chmod +x "$item"
        echo "Added execute permission to: $item"
    fi
done
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ls -l
total 44844
drwxrwxr-x 2 gharabawy gharabawy     4096 17:56 11 سبت d2
-rw------- 1 gharabawy gharabawy      173 14:25 19 نوف dead.letter
drwxr-xr-x 2 gharabawy gharabawy     4096 22:45 12 نوف Desktop
```

```
gharabawy@gharabawy-virtual-machine:~$ ./mychmod.sh
Added execute permission to: /home/gharabawy/d2
Added execute permission to: /home/gharabawy/dead.letter
Added execute permission to: /home/gharabawy/Desktop
Added execute permission to: /home/gharabawy/dir1
Added execute permission to: /home/gharabawy/dir2
```

```
gharabawy@gharabawy-virtual-machine:~$ ls -l
total 44844
drwxrwxr-x 2 gharabawy gharabawy     4096 17:56 11 سبت d2
-rwx--x--x 1 gharabawy gharabawy      173 14:25 19 نوف dead.letter
drwxr-xr-x 2 gharabawy gharabawy     4096 22:45 12 نوف Desktop
drwxrwxr-x 2 gharabawy gharabawy     4096 18:02 11 سبت dir1
drwxrwxr-x 2 gharabawy gharabawy     4096 18:03 11 سبت dir2
```



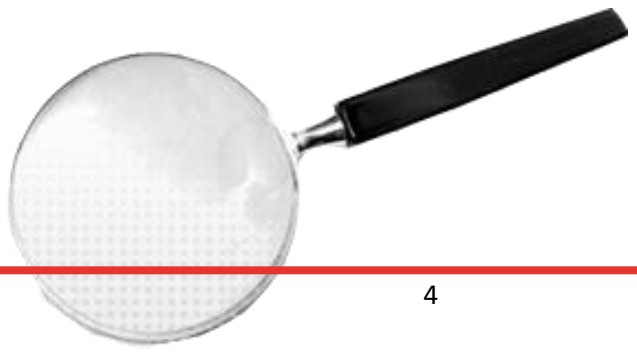
4. **Write a script called mybackup using for utility to create a backup of only files in your home directory.**

➔ **Script :**

```
#!/bin/bash
      Home

dir="$HOME/backup"
mkdir "$dir"

for file in "$HOME"/*;
do
    if [ -f "$file" ];
    then
        cp "$file" "$dir"
        echo "File backed up: $file"
    fi
done
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ./mybackup.sh
File backed up: /home/gharabawy/dead.letter
File backed up: /home/gharabawy/errors.txt
File backed up: /home/gharabawy/error.txt
File backed up: /home/gharabawy/file1
File backed up: /home/gharabawy/file2
File backed up: /home/gharabawy/mbox
File backed up: /home/gharabawy/mybackup.sh
File backed up: /home/gharabawy/mycase.sh
File backed up: /home/gharabawy/mycd.sh
File backed up: /home/gharabawy/mychmod.sh
File backed up: /home/gharabawy/mycp.sh
File backed up: /home/gharabawy/mycv
File backed up: /home/gharabawy/myls.sh
File backed up: /home/gharabawy/my-system-state
File backed up: /home/gharabawy/oldpasswd
File backed up: /home/gharabawy/output.txt
File backed up: /home/gharabawy/passwd_copy
File backed up: /home/gharabawy/s1.sh
File backed up: /home/gharabawy/s2.sh
File backed up: /home/gharabawy/script1.sh
File backed up: /home/gharabawy/sort
File backed up: /home/gharabawy/sortuser.txt
File backed up: /home/gharabawy/way2.sh
File backed up: /home/gharabawy/way3.sh
gharabawy@gharabawy-virtual-machine:~$ ls
backup       Desktop  Documents   error.txt  mbox   mybackup.sh  mychmod.sh  myls.sh         output.txt   Public  script1.sh  sortuser.txt  way2.sh
d2           dir1     Downloads   file1      medo   mycase.sh    mycp.sh     my-system-state  passwd_copy  s1.sh   snap        Templates     way3.sh
dead.letter  dir2     errors.txt  file2      Music  mycd.sh      mycv        oldpasswd        Pictures     s2.sh   sort        Videos
gharabawy@gharabawy-virtual-machine:~$ cd backup
gharabawy@gharabawy-virtual-machine:~/backup$ ls
dead.letter  error.txt  file2  mybackup.sh  mycd.sh     mycp.sh  myls.sh         oldpasswd   passwd_copy  s2.sh       sort          way2.sh
errors.txt   file1      mbox   mycase.sh    mychmod.sh  mycv     my-system-state  output.txt  s1.sh        script1.sh  sortuser.txt  way3.sh
gharabawy@gharabawy-virtual-machine:~/backup$
```



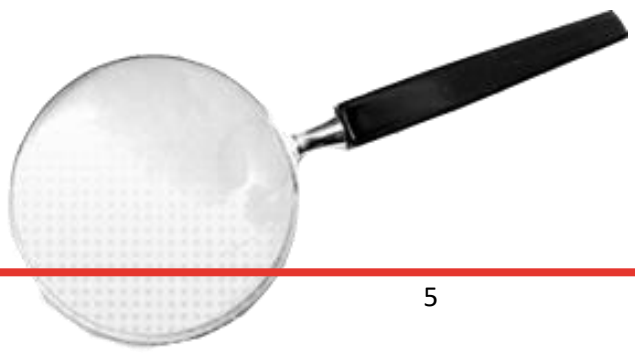
5. **Write a script called mymail using for utility to send a mail to all users in the system.**
   Note: write the mail body in a file called mtemplate.

➔ **Script :**

```
#!/bin/bash

template="Mailbody"

if [ ! -f "$template" ]; then
    echo "File '$template' is not found!"
    exit 1
fi

for user in $(awk -F: '{print $1}' /etc/passwd); do
    mail $user < $template
    echo "Mail sent to: $user"
done
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ vi Mailbody
gharabawy@gharabawy-virtual-machine:~$ cat Mailbody
Welcome, I'm Mohamed Algharabawy :)
gharabawy@gharabawy-virtual-machine:~$ ./mymail.sh
Mail sent to: root
Mail sent to: daemon
Mail sent to: bin
Mail sent to: sys
Mail sent to: sync
Mail sent to: games
Mail sent to: man
Mail sent to: lp
Mail sent to: mail
Mail sent to: news
Mail sent to: uucp
Mail sent to: proxy
Mail sent to: www-data
Mail sent to: backup
Mail sent to: list
Mail sent to: irc
```



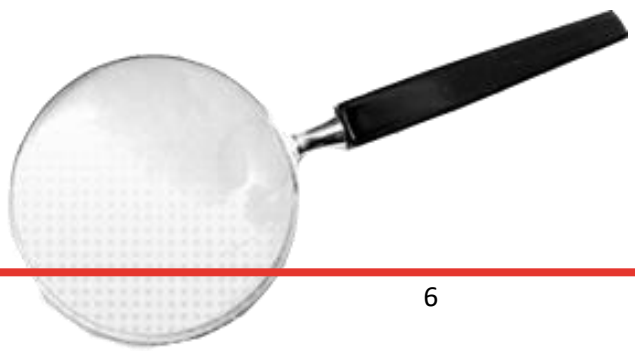
6. **Write a script called chkmail to check for new mails every 10 seconds. Note: mails are saved in /var/mail/username.**

➔ **Script :**

```
#!/bin/bash

username=$(whoami)

while true; do
    echo "Checking for new mail at $(date)."

    count=$(mail -e -u "$username" | wc -l)

    if [ "$count" -gt 0 ]; then
        echo "New mail received for $username at $(date)."
    else
        echo "No new mail for $username."
    fi

    sleep 10
done
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ./chkmail.sh
Checking for new mail at 12 2023 ,س EET 03:23:15 م.
No new mail for gharabawy.
Checking for new mail at 12 2023 ,س EET 03:23:25 م.
No new mail for gharabawy.
Checking for new mail at 12 2023 ,س EET 03:23:35 م.
No new mail for gharabawy.
Checking for new mail at 12 2023 ,س EET 03:23:45 م.
No new mail for gharabawy.
```



Bonus

7. **Create a script called mytest where:**
   a. **It check the type of the given argument (file/directory)**
   b. **It check the permissions of the given argument (read/write/execute)**

➔ **Script :**

```
#!/bin/bash

arg=$1

if [ -e "$arg" ]; then
    echo "$arg exists."

    if [ -f "$arg" ]; then
        echo "$arg is a regular file."
    elif [ -d "$arg" ]; then
        echo "$arg is a directory."
    fi

    # Check permissions
    if [ -r "$arg" ]; then
        echo "$arg has read permission."
    fi

    if [ -w "$arg" ]; then
        echo "$arg has write permission."
    fi

    if [ -x "$arg" ]; then
        echo "$arg has execute permission."
    fi
else
    echo "$arg does not exist."
fi
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ./mytest.sh
 does not exist.
gharabawy@gharabawy-virtual-machine:~$ ls
backup      dead.letter  dir2       errors.txt  file2     medo         mycase.sh   mycp.sh  mymail.sh        oldpasswd    Pictures  s2.sh       sort         Videos
chkmail.sh  Desktop      Documents  error.txt   Mailbody  Music        mycd.sh     mycv     my-system-state  output.txt   Public    script1.sh  sortuser.txt  way2.sh
d2          dir1         Downloads  file1       mbox      mybackup.sh  mychmod.sh  myls.sh  mytest.sh        passwd_copy  s1.sh     snap        Templates    way3.sh
gharabawy@gharabawy-virtual-machine:~$ ./mytest.sh file2
file2 exists.
file2 is a regular file.
file2 has read permission.
file2 has write permission.
file2 has execute permission.
gharabawy@gharabawy-virtual-machine:~$ ls -l file2
-rwxrwxrwx 1 gharabawy gharabawy 12 18:03 11 نبس file2
gharabawy@gharabawy-virtual-machine:~$ ./mytest.sh d2
d2 exists.
d2 is a directory.
d2 has read permission.
d2 has write permission.
d2 has execute permission.
gharabawy@gharabawy-virtual-machine:~$ ls -l d2
total 24
-rw-rw-r-- 1 gharabawy gharabawy 456 23:23 28 نف compfiley
-rw-rw-r-- 1 gharabawy gharabawy  12 17:56 11 نبس file1
-rwxrwxr-x 1 gharabawy gharabawy 100 15:40 11 نبس mycd.sh
-rw-rw-r-- 1 gharabawy gharabawy 286 17:55 11 نبس mycp.sh
-rwxrwxr-x 1 gharabawy gharabawy 133 16:05 11 نبس myls.sh
-rw-rw-r-- 1 gharabawy gharabawy 227 15:01 16 نف newfile.zip
```

8. **Create a script called myinfo where:**
   a. **It asks the user about his/her logname.**
   b. **It print full info about files and directories in his/her home directory**
   c. **Copy his/her files and directories as much as you can in /tmp directory.**
   d. **Gets his current processes status.**

➔ **Script :**

```
#!/bin/bash

read -p "Enter your logname: " uname

if grep -qw ^$uname /etc/passwd; then
    ls -al "$(awk -F: -v name=$uname '{if ($1==name) print $6}' /etc/passwd)"
    newdir="/home/gharabawy/tmp"
    mkdir -p "$newdir"
    cp -r /home/$uname/* $newdir
    ps aux
else
    echo "Unknown user"
fi
```

➔ **Output :**

```
gharabawy@gharabawy-virtual-machine:~$ ./myinfo.sh
Enter your logname: gharaba
Unknown user
gharabawy@gharabawy-virtual-machine:~$ ./myinfo.sh
Enter your logname: gharabawy
total 44988
drwxr-x--- 24 gharabawy gharabawy     4096 16:41 12 س .
drwxr-xr-x  6 root      root          4096 12:49 14 ق ..
drwxrwxr-x  2 gharabawy gharabawy     4096 13:35 12 س backup
```

```
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.3 166912 11932 ?        Ss   02:50   0:03 /sbin/init auto noprompt splash
root           2  0.0  0.0      0     0 ?        S    02:50   0:00 [kthreadd]
root           3  0.0  0.0      0     0 ?        I<   02:50   0:00 [rcu_gp]
root           4  0.0  0.0      0     0 ?        I<   02:50   0:00 [rcu_par_gp]
root           5  0.0  0.0      0     0 ?        I<   02:50   0:00 [slub_flushwq]
root           6  0.0  0.0      0     0 ?        I<   02:50   0:00 [netns]
```

```
gharabawy@gharabawy-virtual-machine:~$ ls
backup      dead.letter  dir2       errors.txt  file2     medo         mycase.sh  mycp.sh    myls.sh          mytest.sh   passwd_copy  s1.sh       snap          Templates  way2.sh
chkmail.sh  Desktop      Documents  error.txt   Mailbody  Music        mycd.sh    mycv       mymail.sh        oldpasswd   Pictures     s2.sh       sort          tmp        way3.sh
d2          dir1         Downloads  file1       mbox      mybackup.sh  mychmod.sh mynfo.sh   my-system-state  output.txt  Public       script1.sh  sortuser.txt  Videos
gharabawy@gharabawy-virtual-machine:~$ ls tmp
backup      dead.letter  dir2       errors.txt  file2     medo         mycase.sh  mycp.sh    myls.sh          mytest.sh   passwd_copy  s1.sh       snap          Templates  way2.sh
chkmail.sh  Desktop      Documents  error.txt   Mailbody  Music        mycd.sh    mycv       mymail.sh        oldpasswd   Pictures     s2.sh       sort          tmp        way3.sh
d2          dir1         Downloads  file1       mbox      mybackup.sh  mychmod.sh mynfo.sh   my-system-state  output.txt  Public       script1.sh  sortuser.txt  Videos
gharabawy@gharabawy-virtual-machine:~$
```