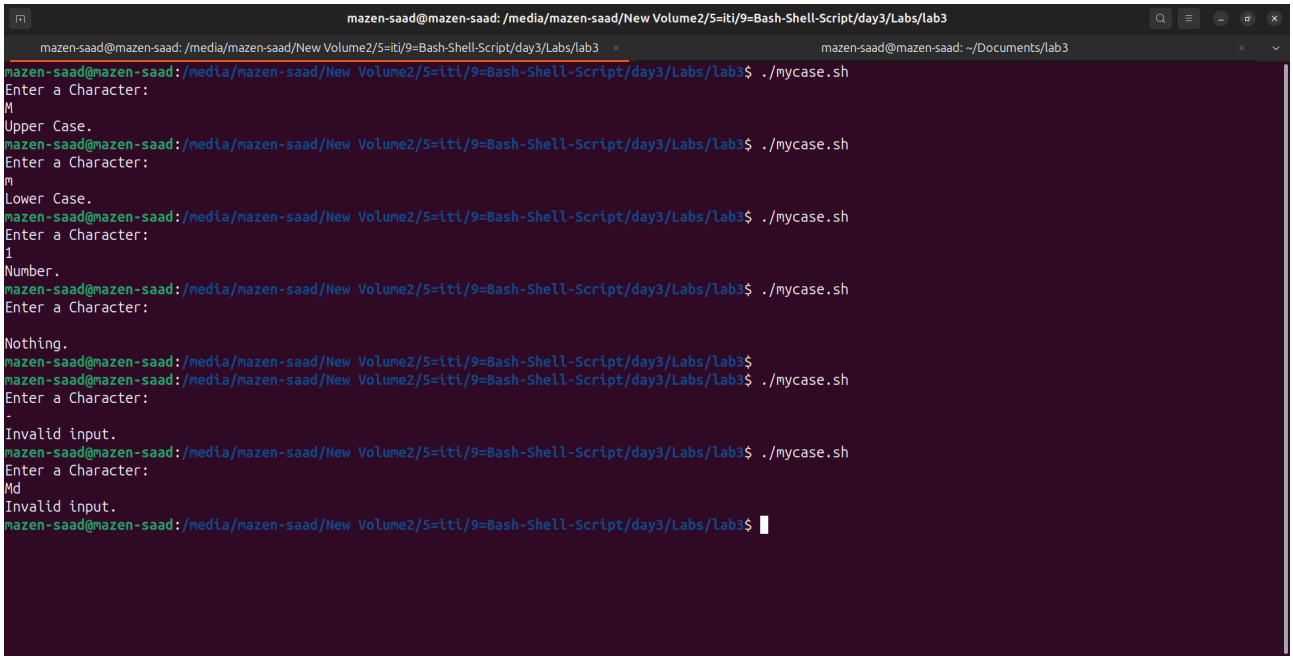
1. Write a script called mycase,
using the case utility to checks the type of character entered by a user:
   a. Upper Case.
   b. Lower Case.
   c. Number.
   d. Nothing.

touch mycase.sh

```
#! /usr/bin/bash
shopt -s extglob

echo "Enter a Character: "
read char

case $char in
   [A-Z])
      echo "Upper Case."
      ;;

   [a-z])
      echo "Lower Case."
      ;;

   [0-9])
      echo "Number."
      ;;

   "")
      echo "Nothing."
      ;;

   *)
      echo "Invalid input."
      ;;
esac



# Terminal =>
# ./mycase.sh
# M
# m
# 9
#
# -
```


mazen-saad@mazen-saad: /media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3
mazen-saad@mazen-saad: /media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3
mazen-saad@mazen-saad: ~/Documents/lab3
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
M
Upper Case.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
m
Lower Case.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
1
Number.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
Nothing.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
-
Invalid input.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mycase.sh
Enter a Character:
Md
Invalid input.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$

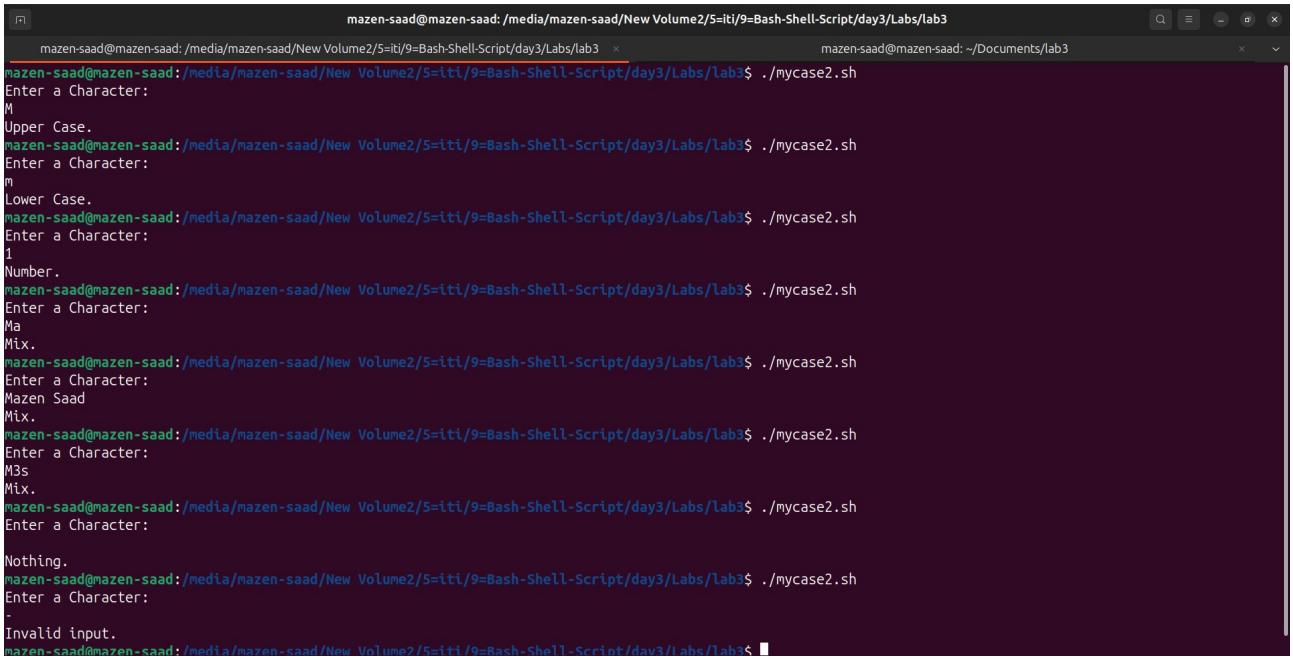
2. Enhanced the previous script,
by checking the type of string entered by a user:
   a. Upper Cases.
   b. Lower Cases.
   c. Numbers.
   d. Mix.
   e. Nothing.

touch mycase2.sh

```
#! /usr/bin/bash

shopt -s extglob

echo "Enter a Character: "
read char

case $char in
   "")
      echo "Nothing."
      ;;

   +([A-Z]||" "))
      echo "Upper Case."
      ;;

   +([a-z]||" "))
      echo "Lower Case."
      ;;

   +([0-9]||" "))
      echo "Number."
      ;;

   +([a-zA-Z0-9]||" "))
      echo "Mix."
      ;;

   *)
      echo "Invalid input."
      ;;
esac
```

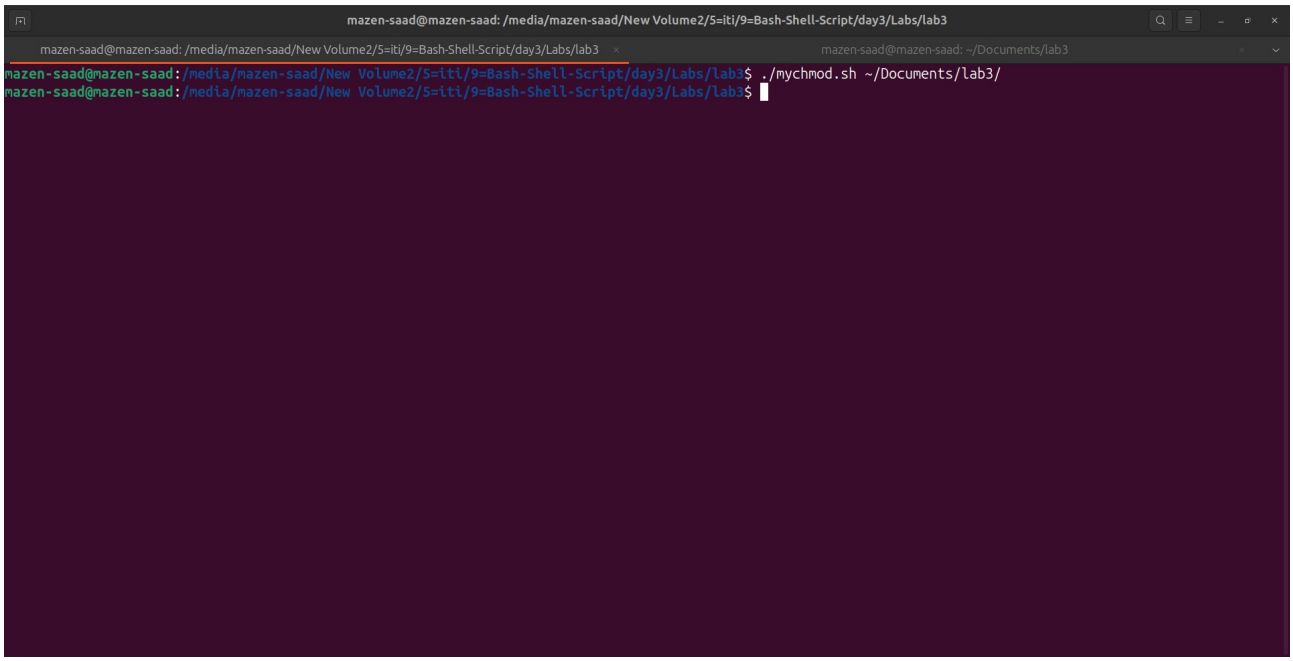
```
# Terminal =>
# ./mycase2.sh
# Mazen
# mazen
# 20
```

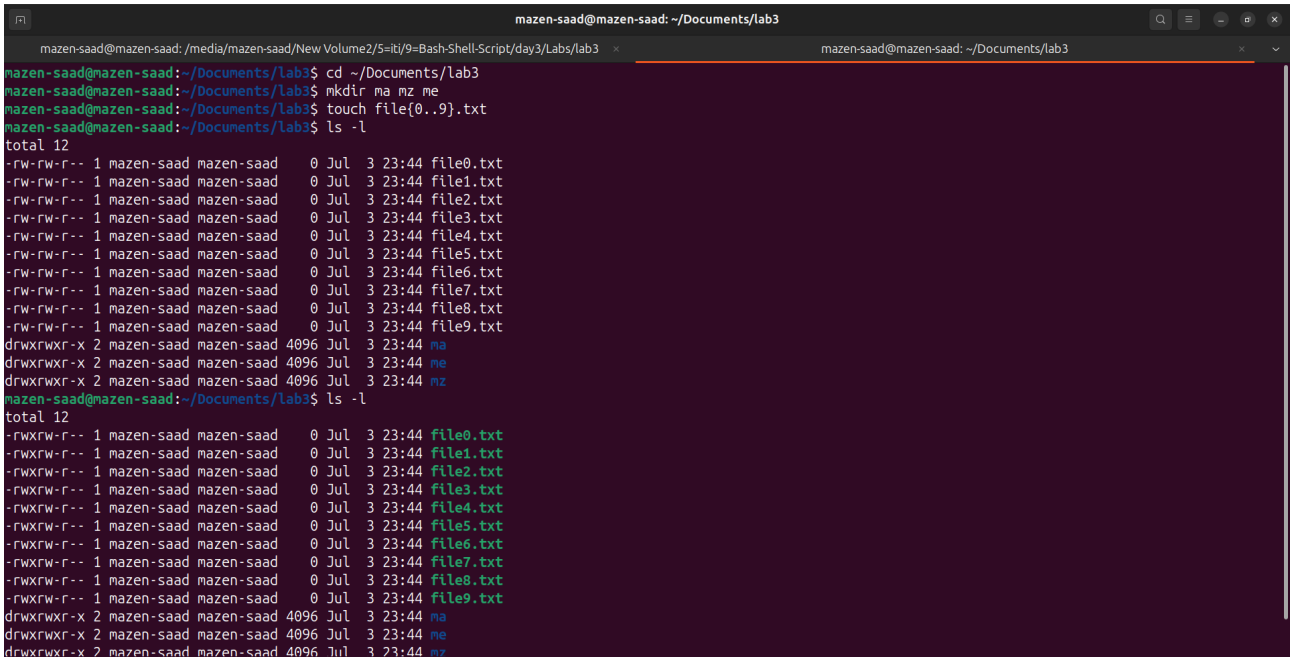
Mazen Saad
mAzEn20
#
-



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

```
touch mychmod.sh
cd ~/Documents/lab3
mkdir ma mz me
touch file{0..9}.txt
#! /usr/bin/bash
shopt -s extglob
for item in $1/*
do
    chmod u+x "$item"
done
# Terminal =>
# ./mychmod.sh ~/Documents/lab3/
```



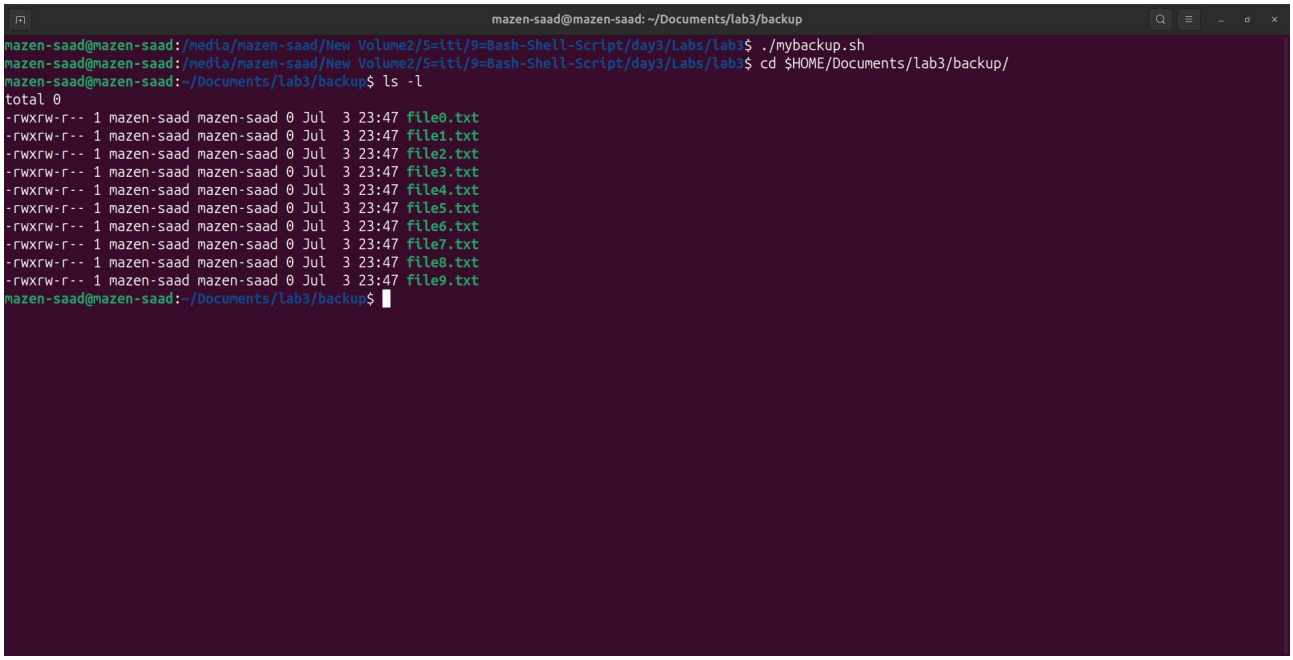


4. Write a script called mybackup
using for utility to create a backup of only files in your home directory.

touch mybackup.sh
cd ~/Documents/lab3
mkdir ma mz me
touch file{0..9}.txt

```
#! /usr/bin/bash
shopt -s extglob

backup_dir="$HOME/Documents/lab3/backup/"
mkdir -p $backup_dir

for file in ~/Documents/lab3/*
do
    if [[ -f $file ]]
    then
        cp "$file" "$backup_dir"
    fi
done
```

```
# Terminal =>
# ./mybackup.sh
# cd $HOME/Documents/lab3/backup/
# ls -l
```



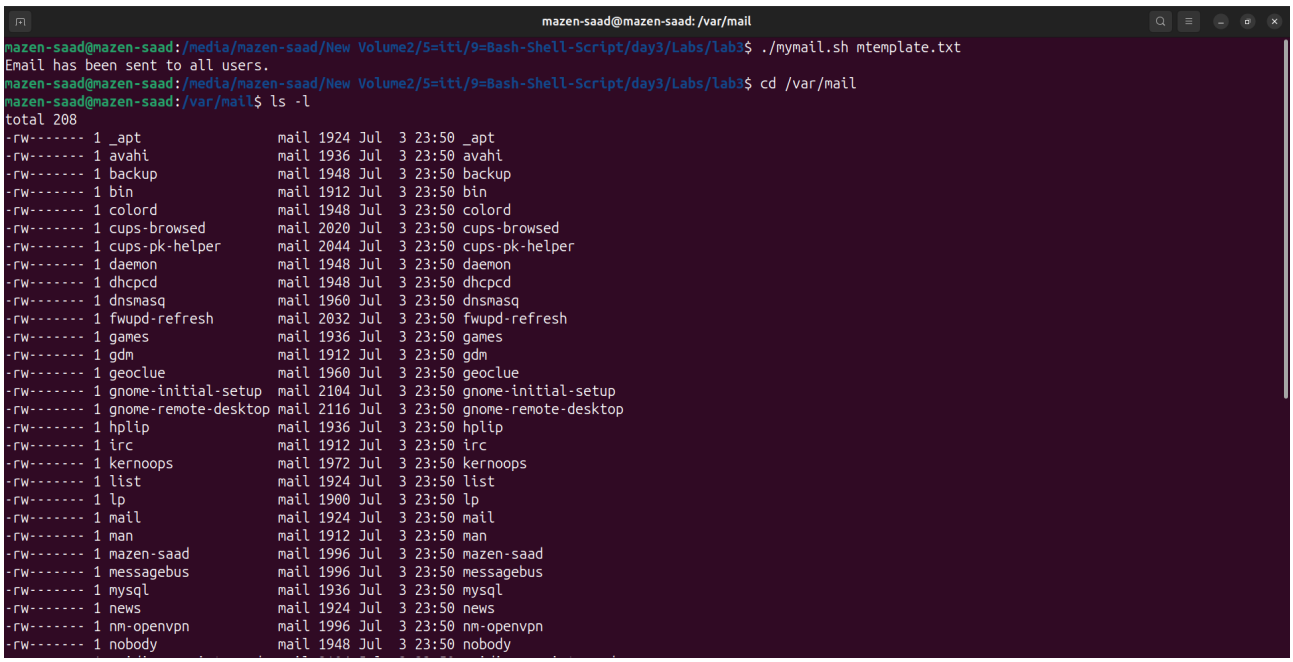
5. Write a script called mymail
using for utility to send a mail to all users in the system.
Note: write the mail body in a file called mtemplate.

sudo apt-get install mailutils
=> Local only

touch mymail.sh mtemplate.txt

```
#! /usr/bin/bash
shopt -s extglob

mtemplate=$1
if [ ! -f $mtemplate ]
then
   echo "mtemplate file not found!"
   exit 1
fi

email_body=$(cat $mtemplate)

user_list=$(cut -d: -f1 /etc/passwd)

for user in $user_list
do
   mail -s "Subject of the email" "$user" <<< "$email_body"
done

echo "Email has been sent to all users."
```

```
# Terminal =>
# ./mymail.sh mtemplate.txt
# cd /var/mail
# ls -l
```

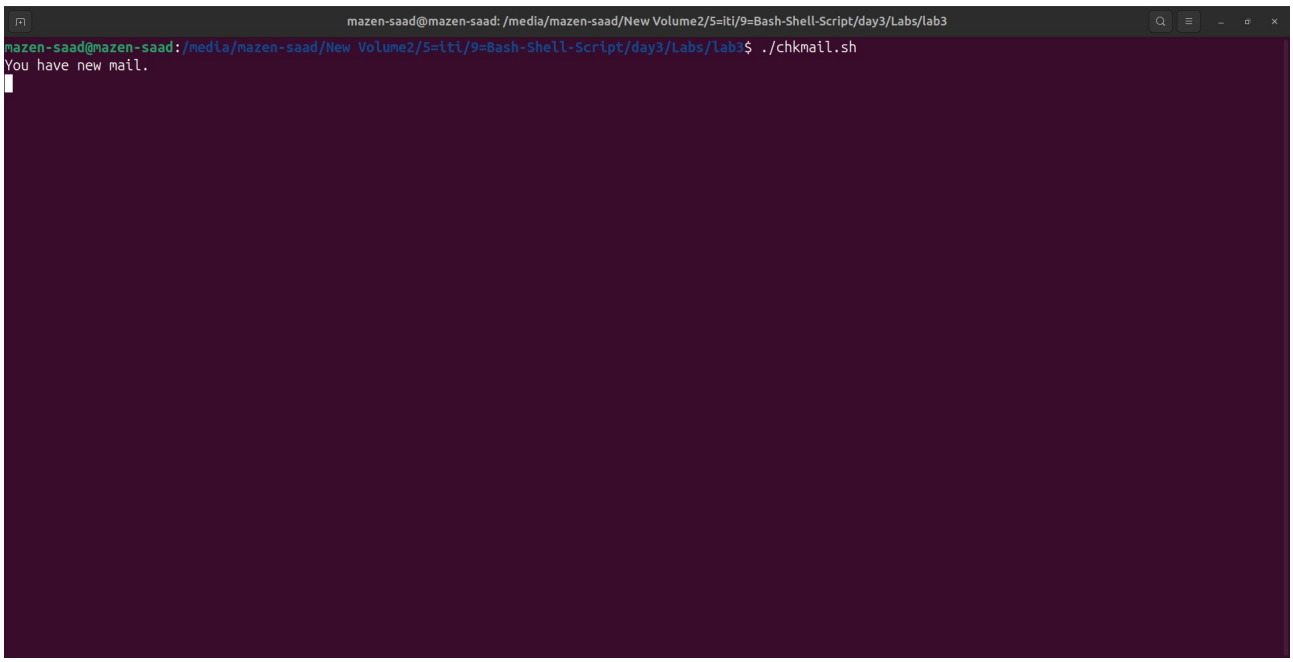

mazen-saad@mazen-saad: /var/mail
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ ./mymail.sh mtemplate.txt
Email has been sent to all users.
mazen-saad@mazen-saad:/media/mazen-saad/New Volume2/5=iti/9=Bash-Shell-Script/day3/Labs/lab3$ cd /var/mail
mazen-saad@mazen-saad:/var/mail$ ls -l
total 208
-rw------- 1 _apt mail 1924 Jul 3 23:50 _apt
-rw------- 1 avahi mail 1936 Jul 3 23:50 avahi
-rw------- 1 backup mail 1948 Jul 3 23:50 backup
-rw------- 1 bin mail 1912 Jul 3 23:50 bin
-rw------- 1 colord mail 1948 Jul 3 23:50 colord
-rw------- 1 cups-browsed mail 2020 Jul 3 23:50 cups-browsed
-rw------- 1 cups-pk-helper mail 2044 Jul 3 23:50 cups-pk-helper
-rw------- 1 daemon mail 1948 Jul 3 23:50 daemon
-rw------- 1 dhcpcd mail 1948 Jul 3 23:50 dhcpcd
-rw------- 1 dnsmasq mail 1960 Jul 3 23:50 dnsmasq
-rw------- 1 fwupd-refresh mail 2032 Jul 3 23:50 fwupd-refresh
-rw------- 1 games mail 1936 Jul 3 23:50 games
-rw------- 1 gdm mail 1912 Jul 3 23:50 gdm
-rw------- 1 geoclue mail 1960 Jul 3 23:50 geoclue
-rw------- 1 gnome-initial-setup mail 2104 Jul 3 23:50 gnome-initial-setup
-rw------- 1 gnome-remote-desktop mail 2116 Jul 3 23:50 gnome-remote-desktop
-rw------- 1 hplip mail 1936 Jul 3 23:50 hplip
-rw------- 1 irc mail 1912 Jul 3 23:50 irc
-rw------- 1 kernoops mail 1972 Jul 3 23:50 kernoops
-rw------- 1 list mail 1924 Jul 3 23:50 list
-rw------- 1 lp mail 1900 Jul 3 23:50 lp
-rw------- 1 mail mail 1924 Jul 3 23:50 mail
-rw------- 1 man mail 1912 Jul 3 23:50 man
-rw------- 1 mazen-saad mail 1996 Jul 3 23:50 mazen-saad
-rw------- 1 messagebus mail 1996 Jul 3 23:50 messagebus
-rw------- 1 mysql mail 1936 Jul 3 23:50 mysql
-rw------- 1 news mail 1924 Jul 3 23:50 news
-rw------- 1 nm-openvpn mail 1996 Jul 3 23:50 nm-openvpn
-rw------- 1 nobody mail 1948 Jul 3 23:50 nobody

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

touch chkmail.sh

```
#! /usr/bin/bash
shopt -s extglob

username=$(whoami)
mail_file="/var/mail/$username"

while true
do
    if [ -s "$mail_file" ]
    then
        echo "You have new mail."
    else
        echo "No new mail."
    fi
    sleep 10
done

# Terminal =>
# ./chkmail.sh
```

Bonus:
Open a talk session to a certain user when she/he logs into the system.



7. What is the output of the following script

```
typeset –i n1
typeset –i n2
n1=1
n2=1

while test $n1 –eq $n2
do
   n2=$n2+1
   print $n1
if [ $n1 –gt $n2 ]
then
   break
else
   continue
fi
n1=$n1+1
print $n2
done
```

touch output.sh

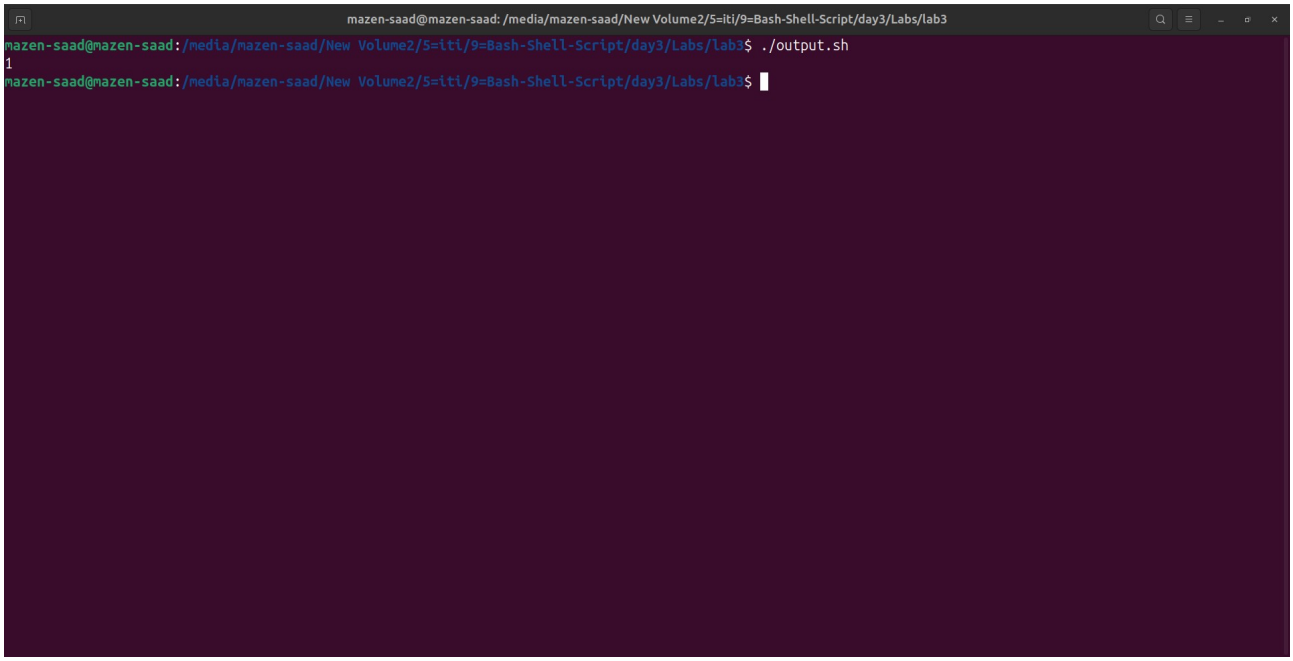
```
#! /usr/bin/bash
shopt -s extglob
typeset -i n1
typeset -i n2
n1=1
n2=1

while test $n1 -eq $n2
do
   n2=$n2+1
   echo $n1

   if [ $n1 -gt $n2 ]
   then
      break
   else
      continue
   fi

   n1=$n1+1
   echo $n2
done

# 1 => Error
# ./output: line 1: typeset: `–i': not a valid identifier
```

./output: line 2: typeset: `–i': not a valid identifier
./output: line 5: test: –eq: binary operator expected
Fix =>
Replace –i with -i

2 => Error
./output: line 9: print: command not found
Fix =>
Replace print with echo

result => 1

Terminal =>
./output.sh

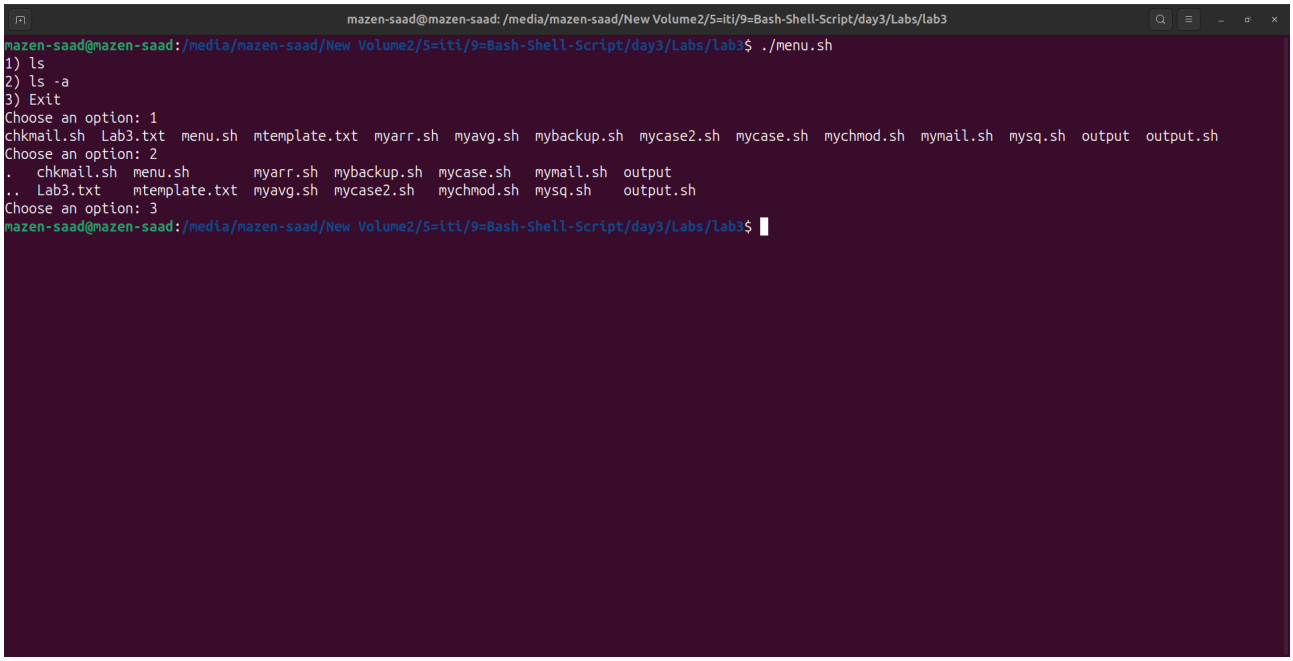


8. Create the following menu:
   a. Press 1 to ls
   b. Press 2 to ls –a
   c. Press 3 to exit

Using select utility then while utility.

touch menu.sh

```
#! /usr/bin/bash
shopt -s extglob

PS3="Choose an option: "

select option in "ls" "ls -a" "Exit"
do
    case $option in
        "ls")
            ls
            ;;

        "ls -a")
            ls -a
            ;;

        "Exit")
            break
            ;;

        *)
            echo "Invalid option."
            ;;
    esac
done
# Terminal =>
# ./menu.sh
```



9. Write a script called myarr
that ask a user how many elements he wants to enter in an array,
fill the array and then print it.

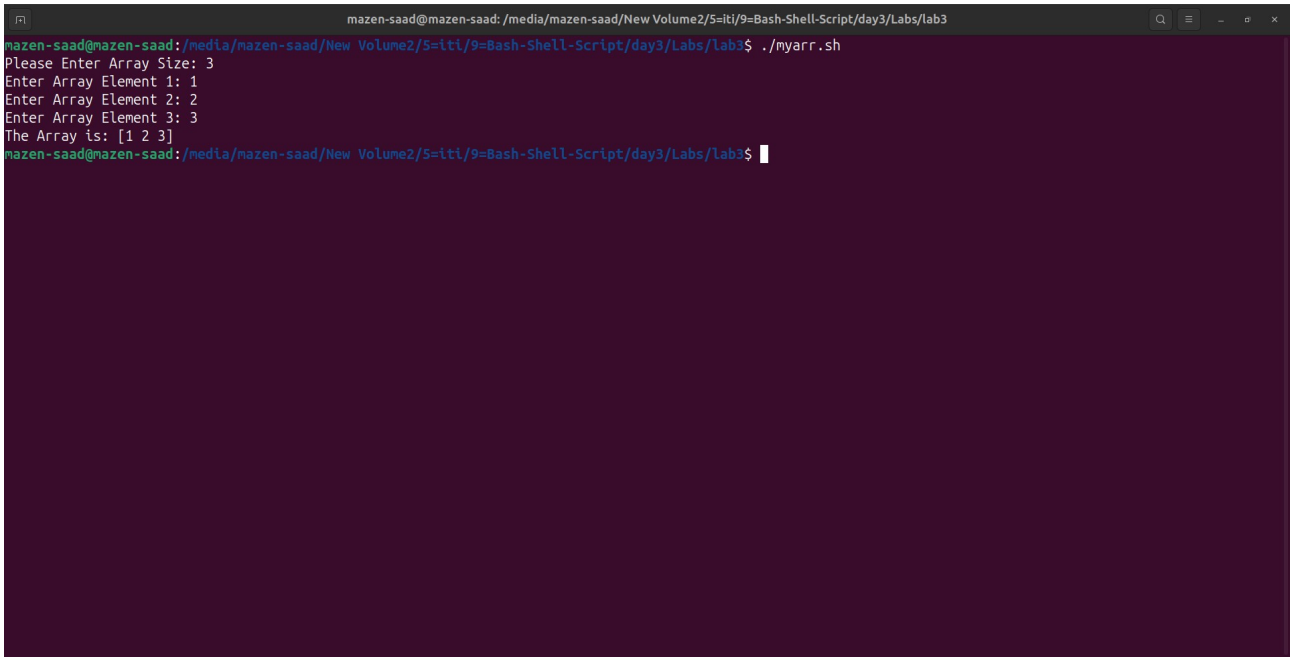
touch myarr.sh

```
#! /usr/bin/bash
shopt -s extglob
```


```
#! /usr/bin/bash
shopt -s extglob
```


```
read -p "Please Enter Array Size: " size

for ((i=0;i<$size;i++))
do

    read -p "Enter Array Element $(($i+1)): " arr[$i]

done

echo "The Array is: [${arr[@]}]"
```

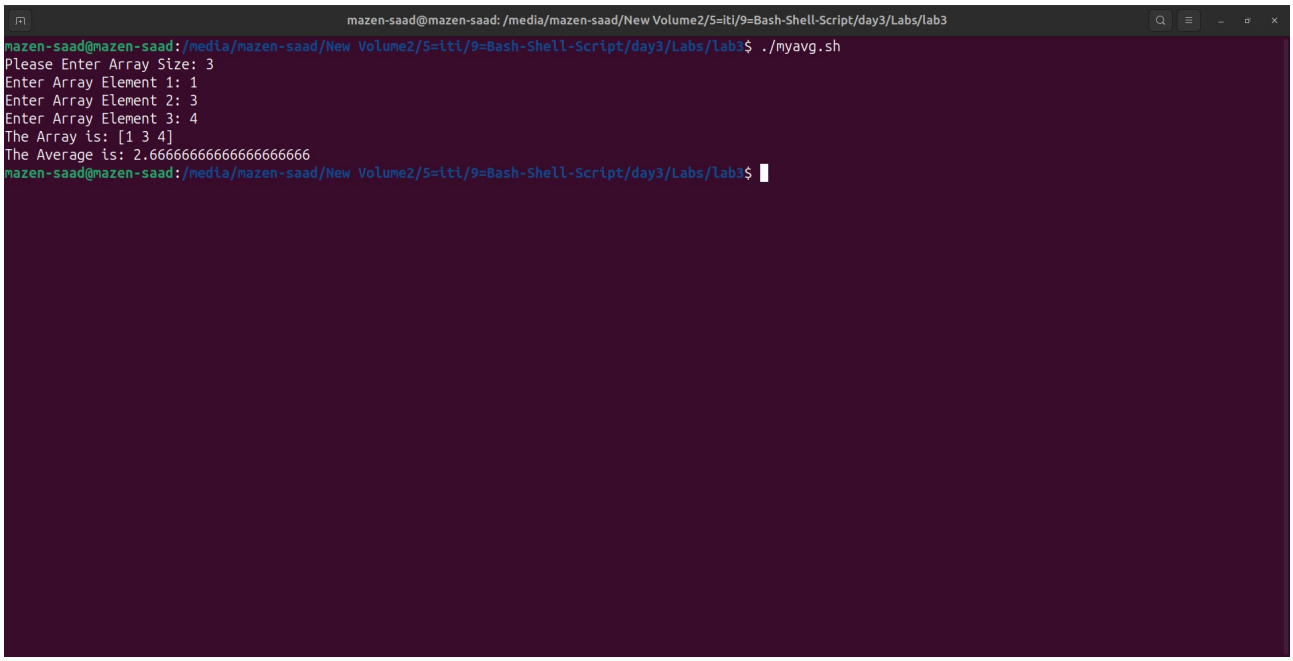
```
# Terminal =>
# ./myarr.sh
```



10.Write a script called myavg
that calculate average of all numbers entered by a user.
Note: use arrays

touch myavg.sh

```
#! /usr/bin/bash
shopt -s extglob

read -p "Please Enter Array Size: " size
declare -i sum=0

for ((i=0;i<$size;i++))
do

    read -p "Enter Array Element $(($i+1)): " arr[$i]
    sum+=${arr[$i]}

done

echo "The Array is: [${arr[@]}]"
avg=$(echo "$sum / $size" | bc -l)
echo The Average is: $avg

# Terminal =>
# ./myavg.sh
```



11.Write a function called mysq
that calculate square if its argument.

touch mysq.sh

```
#! /usr/bin/bash
shopt -s extglob

# =>1
function mysq(){
    echo $(( $1 * $1 ))
}
echo "Square of 4 is: $(mysq 4)"


# =>2
read -p "Enter number: " number
function mysq(){
    echo $(( $1 * $1 ))
}
echo "Square of ($number) is: $(mysq $number)"

# Terminal =>
# ./mysq.sh
```