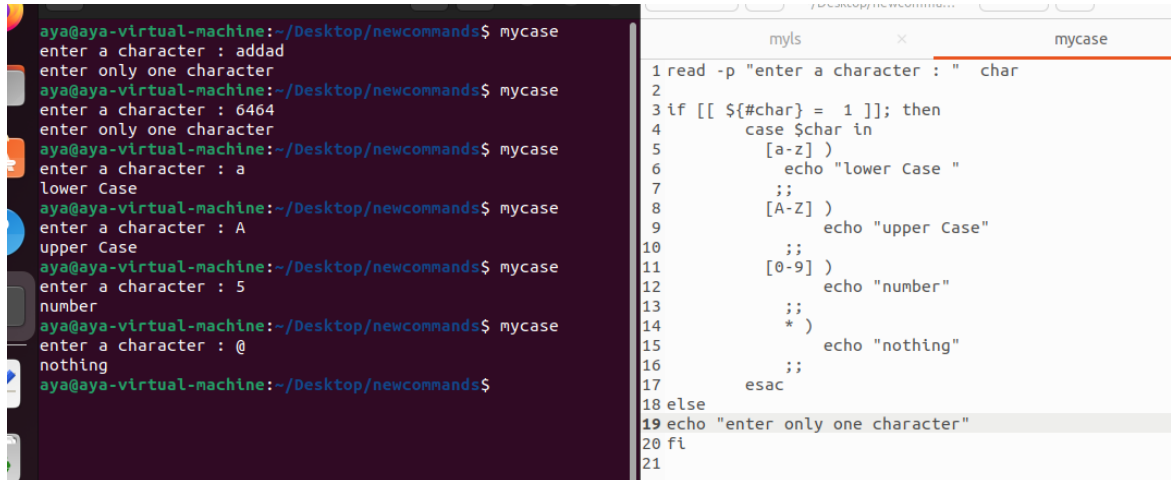


1. Write a script called mycase, using the case utility to checks the type of character

entered by a user:

- Upper Case.
- Lower Case.
- Number.
- Nothing.



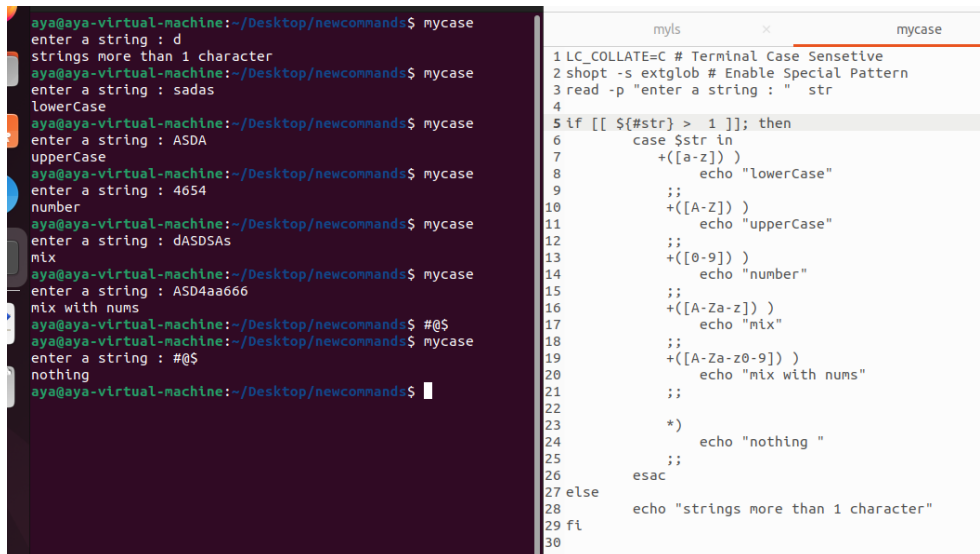
The image shows a terminal window on the left and a script editor on the right. The terminal window displays the execution of the 'mycase' script with various inputs and their corresponding outputs. The script editor shows the code for 'mycase', which uses a 'case' statement to check the type of character entered.

```
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : addad
enter only one character
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : 6464
enter only one character
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : a
lower Case
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : A
upper Case
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : 5
number
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a character : @
nothing
aya@aya-virtual-machine:~/Desktop/newcommands$
```

```
1 read -p "enter a character : " char
2
3 if [[ ${#char} = 1 ]]; then
4     case $char in
5         [a-z] )
6             echo "lower Case "
7             ;;
8         [A-Z] )
9             echo "upper Case"
10            ;;
11        [0-9] )
12            echo "number"
13            ;;
14        * )
15            echo "nothing"
16            ;;
17        esac
18 else
19     echo "enter only one character"
20 fi
21
```

2. Enhanced the previous script, by checking the type of string entered by a user:

- Upper Cases.
- Lower Cases.
- Numbers.
- Mix.
- Nothing.



The image shows a terminal window on the left and a script editor on the right. The terminal window displays the execution of the enhanced 'mycase' script with various inputs and their corresponding outputs. The script editor shows the code for the enhanced 'mycase' script, which uses a 'case' statement to check the type of string entered.

```
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : d
strings more than 1 character
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : sadas
lowerCase
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : ASDA
upperCase
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : 4654
number
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : dASDSAs
mix
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : ASD4aa666
mix with nums
aya@aya-virtual-machine:~/Desktop/newcommands$ #@
aya@aya-virtual-machine:~/Desktop/newcommands$ mycase
enter a string : #@
nothing
aya@aya-virtual-machine:~/Desktop/newcommands$
```

```
1 LC_COLLATE=C # Terminal Case Sensitive
2 shopt -s extglob # Enable Special Pattern
3 read -p "enter a string : " str
4
5 if [[ ${#str} > 1 ]]; then
6     case $str in
7         +([a-z]) )
8             echo "lowerCase"
9             ;;
10        +([A-Z]) )
11            echo "upperCase"
12            ;;
13        +([0-9]) )
14            echo "number"
15            ;;
16        +([A-Za-z]) )
17            echo "mix"
18            ;;
19        +([A-Za-z0-9]) )
20            echo "mix with nums"
21            ;;
22        *)
23            echo "nothing "
24            ;;
25        esac
26 else
27     echo "strings more than 1 character"
28 fi
29
30
```

3. Write a script called mychmod using for utility to give execute permission to all files and

directories in your home directory.

```
aya@aya-virtual-machine:~/Desktop/newcommands$ ls -l ~/
total 76
-rw-rw-r-- 1 aya aya 13 16:01 28  في com
drwxr-xr-x 7 aya aya 4096 14:25 30  في Desktop
drw-r--r-- 2 aya aya 4096 14:51 12  في Documents
drw-r--r-- 2 aya aya 4096 14:51 12  في Downloads
-rw-rw-r-- 2 aya aya 0 19:41 19  في fi.txt
drw-r--r-- 2 aya aya 4096 19:02 30  في Music
drw-r--r-- 2 aya aya 4096 14:51 12  في Pictures
drw-r--r-- 2 aya aya 4096 14:51 12  في Public
drw-r--r-- 4 aya aya 4096 13:06 17  في snap
drw-r--r-- 2 aya aya 4096 14:51 12  في Templates
-rw-rw-r-- 1 aya aya 32768 16:14 30  في typescript
drw-r--r-- 2 aya aya 4096 14:51 12  في Videos
aya@aya-virtual-machine:~/Desktop/newcommands$ mychmod
total 76
-rwxrwxr-x 1 aya aya 13 16:01 28  في com
drwxr-xr-x 7 aya aya 4096 14:25 30  في Desktop
drwxr-xr-x 2 aya aya 4096 14:51 12  في Documents
drwxr-xr-x 2 aya aya 4096 14:51 12  في Downloads
-rwxrwxr-x 2 aya aya 0 19:41 19  في fi.txt
drwxr-xr-x 2 aya aya 4096 19:02 30  في Music
drwxr-xr-x 2 aya aya 4096 14:51 12  في Pictures
drwxr-xr-x 2 aya aya 4096 14:51 12  في Public
drwx--x--x 4 aya aya 4096 13:06 17  في snap
drwxr-xr-x 2 aya aya 4096 14:51 12  في Templates
-rwxrwxr-x 1 aya aya 32768 16:14 30  في typescript
drwxr-xr-x 2 aya aya 4096 14:51 12  في Videos
aya@aya-virtual-machine:~/Desktop/newcommands$
```

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

home directory.

```
aya@aya-virtual-machine:~$ ls -l ~/
com Documents fi.txt Pictures snap typescript
Desktop Downloads Music Public Templates Videos
aya@aya-virtual-machine:~$ ls ~/Music/currentbackup
aya@aya-virtual-machine:~$ mybackup
done
done
aya@aya-virtual-machine:~$ ls ~/Music/currentbackup
com fi.txt typescript
aya@aya-virtual-machine:~$
```

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.

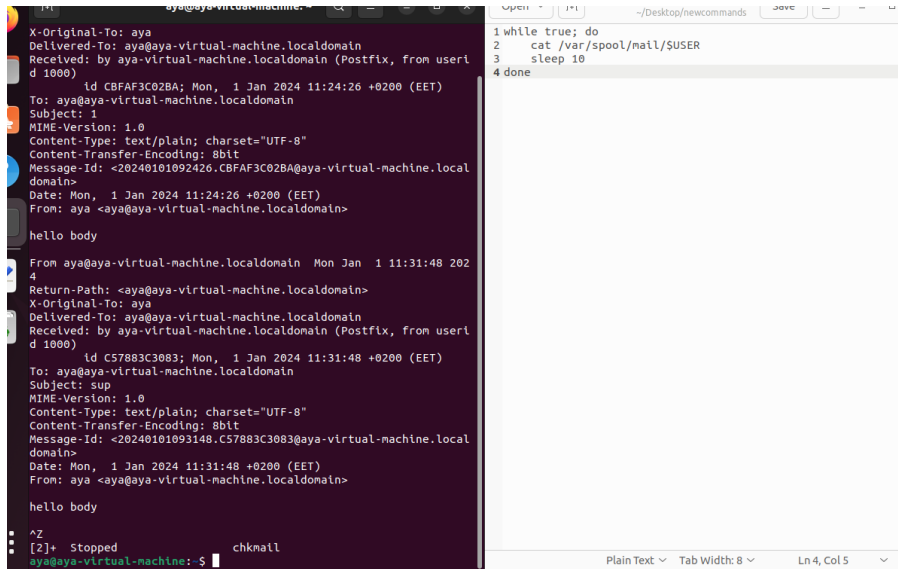
```
aya@aya-virtual-machine:~/Desktop/newc...
aya@aya-virtual-machine:~/Desktop/newcommands$ mymail
aya@aya-virtual-machine:~/Desktop/newcommands$ ls /var/spool/mail
/aya
/var/spool/mail/aya
aya@aya-virtual-machine:~/Desktop/newcommands$ cat /var/spool/mail/aya
From aya@aya-virtual-machine.localdomain Mon Jan 1 11:24:26 2024
Return-Path: <aya@aya-virtual-machine.localdomain>
X-Original-To: aya
Delivered-To: aya@aya-virtual-machine.localdomain
Received: by aya-virtual-machine.localdomain (Postfix, from user: d 1000)
id CBFAF3C02BA; Mon, 1 Jan 2024 11:24:26 +0200 (EET)
To: aya@aya-virtual-machine.localdomain
Subject: 1
MIME-Version: 1.0
Content-Type: text/plain; charset="UTF-8"
Content-Transfer-Encoding: 8bit
Message-Id: <20240101092426.CBFAF3C02BA@aya-virtual-machine.localdomain>
Date: Mon, 1 Jan 2024 11:24:26 +0200 (EET)
From: aya <aya@aya-virtual-machine.localdomain>

hello body

From aya@aya-virtual-machine.localdomain Mon Jan 1 11:31:48 2024
Return-Path: <aya@aya-virtual-machine.localdomain>
X-Original-To: aya
Delivered-To: aya@aya-virtual-machine.localdomain
Received: by aya-virtual-machine.localdomain (Postfix, from user: d 1000)
id C57883C3083; Mon, 1 Jan 2024 11:31:48 +0200 (EET)
To: aya@aya-virtual-machine.localdomain
Subject: 100
MIME-Version: 1.0
Content-Type: text/plain; charset="UTF-8"
```

6. Write a script called chkmail to check for new mails every 10 seconds. Note: mails are

saved in /var/mail/username.



```
X-Original-To: aya
Delivered-To: aya@aya-virtual-machine.localdomain
Received: by aya-virtual-machine.localdomain (Postfix, from userl
d 1800)
    id CBFAF3C02BA; Mon, 1 Jan 2024 11:24:26 +0200 (EET)
To: aya@aya-virtual-machine.localdomain
Subject: 1
MIME-Version: 1.0
Content-Type: text/plain; charset="UTF-8"
Content-Transfer-Encoding: 8bit
Message-Id: <20240101092426.CBFAF3C02BA@aya-virtual-machine.local
domain>
Date: Mon, 1 Jan 2024 11:24:26 +0200 (EET)
From: aya <aya@aya-virtual-machine.localdomain>

hello body

From aya@aya-virtual-machine.localdomain Mon Jan 1 11:31:48 202
4
Return-Path: <aya@aya-virtual-machine.localdomain>
X-Original-To: aya
Delivered-To: aya@aya-virtual-machine.localdomain
Received: by aya-virtual-machine.localdomain (Postfix, from userl
d 1800)
    id C57883C3083; Mon, 1 Jan 2024 11:31:48 +0200 (EET)
To: aya@aya-virtual-machine.localdomain
Subject: sup
MIME-Version: 1.0
Content-Type: text/plain; charset="UTF-8"
Content-Transfer-Encoding: 8bit
Message-Id: <20240101093148.C57883C3083@aya-virtual-machine.local
domain>
Date: Mon, 1 Jan 2024 11:31:48 +0200 (EET)
From: aya <aya@aya-virtual-machine.localdomain>

hello body

^Z
[2]+  Stopped
aya@aya-virtual-machine:~$ chkmail

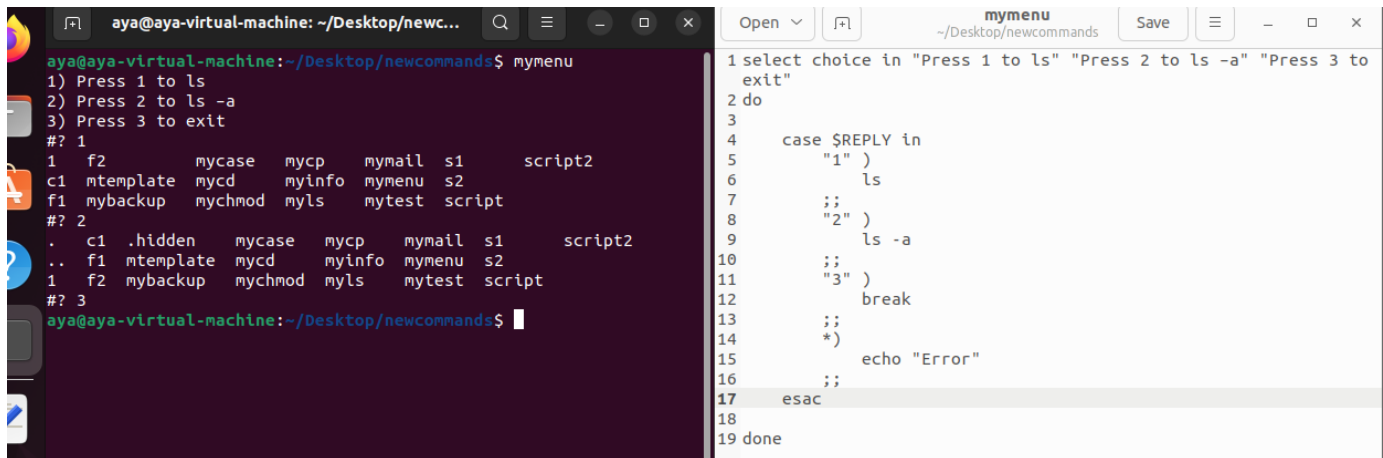
1 while true; do
2   cat /var/spool/mail/$USER
3   sleep 10
4 done
```

7. What is the output of the following script

It will print the value of n1 one time which is 1

8. Create the following menu:

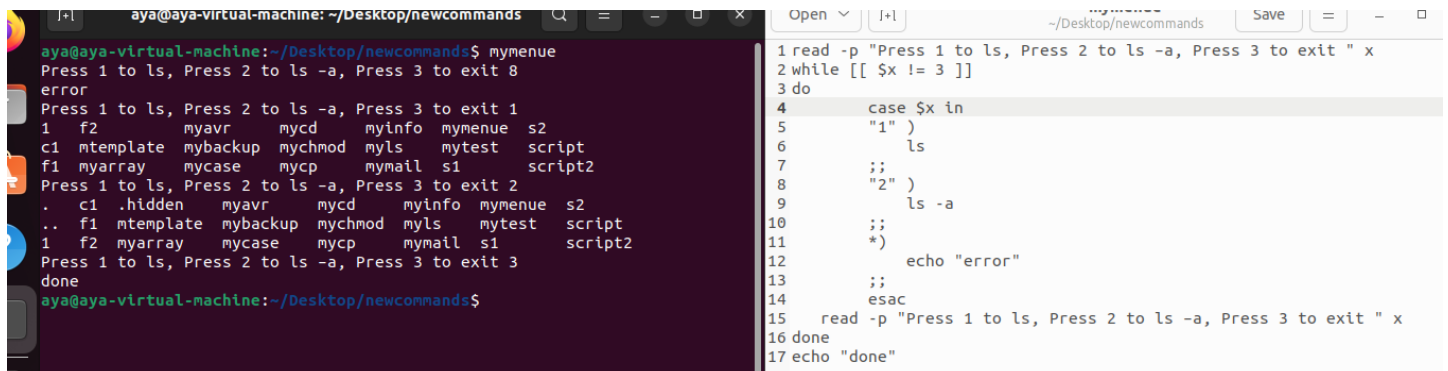
- a. Press 1 to ls
- b. Press 2 to ls -a
- c. Press 3 to exit



```
aya@aya-virtual-machine: ~/Desktop/newc...
aya@aya-virtual-machine:~/Desktop/newcommands$ mymenu
1) Press 1 to ls
2) Press 2 to ls -a
3) Press 3 to exit
#? 1
1 f2 mycase mycp mymail s1 script2
c1 mtemplate mycd myinfo mymenu s2
f1 mybackup mychmod myls mytest script
#? 2
. c1 .hidden mycase mycp mymail s1 script2
.. f1 mtemplate mycd myinfo mymenu s2
1 f2 mybackup mychmod myls mytest script
#? 3
aya@aya-virtual-machine:~/Desktop/newcommands$

1 select choice in "Press 1 to ls" "Press 2 to ls -a" "Press 3 to
exit"
2 do
3
4   case $REPLY in
5     "1" )
6       ls
7     ;;
8     "2" )
9       ls -a
10    ;;
11    "3" )
12      break
13    ;;
14    *)
15      echo "Error"
16    ;;
17  esac
18
19 done
```

Using select utility then while utility.

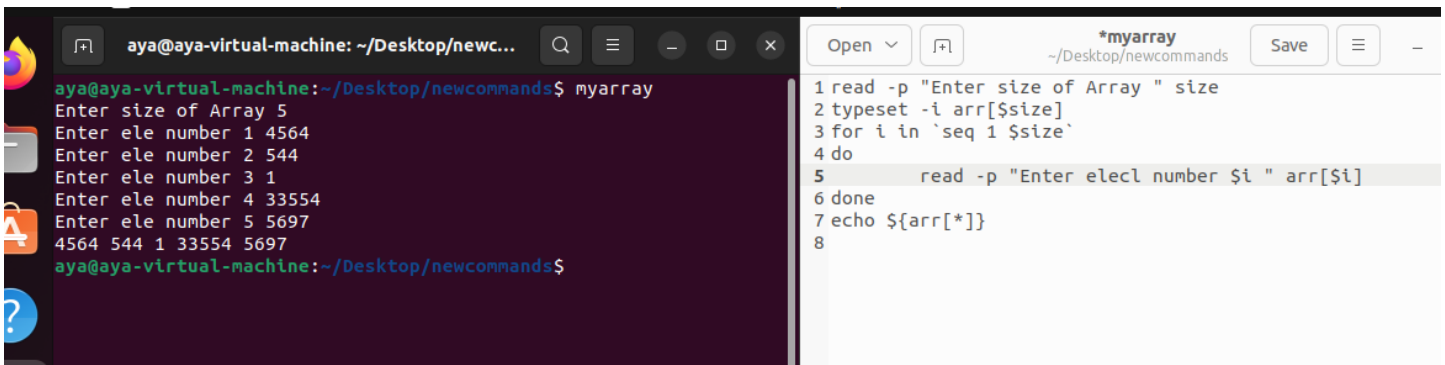


```
aya@aya-virtual-machine:~/Desktop/newcommands$ mymenu
Press 1 to ls, Press 2 to ls -a, Press 3 to exit 8
error
Press 1 to ls, Press 2 to ls -a, Press 3 to exit 1
1 f2 myavr mycd myinfo mymenu s2
c1 mtemplate mybackup mychmod myls mytest script
f1 myarray mycase mycp mymail s1 script2
Press 1 to ls, Press 2 to ls -a, Press 3 to exit 2
. c1 .hidden myavr mycd myinfo mymenu s2
.. f1 mtemplate mybackup mychmod myls mytest script
1 f2 myarray mycase mycp mymail s1 script2
Press 1 to ls, Press 2 to ls -a, Press 3 to exit 3
done
aya@aya-virtual-machine:~/Desktop/newcommands$

1 read -p "Press 1 to ls, Press 2 to ls -a, Press 3 to exit " x
2 while [[ $x != 3 ]]
3 do
4   case $x in
5     "1" )
6     ls
7     ;;
8     "2" )
9     ls -a
10    ;;
11    *)
12      echo "error"
13    ;;
14    esac
15  read -p "Press 1 to ls, Press 2 to ls -a, Press 3 to exit " x
16 done
17 echo "done"
```

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.

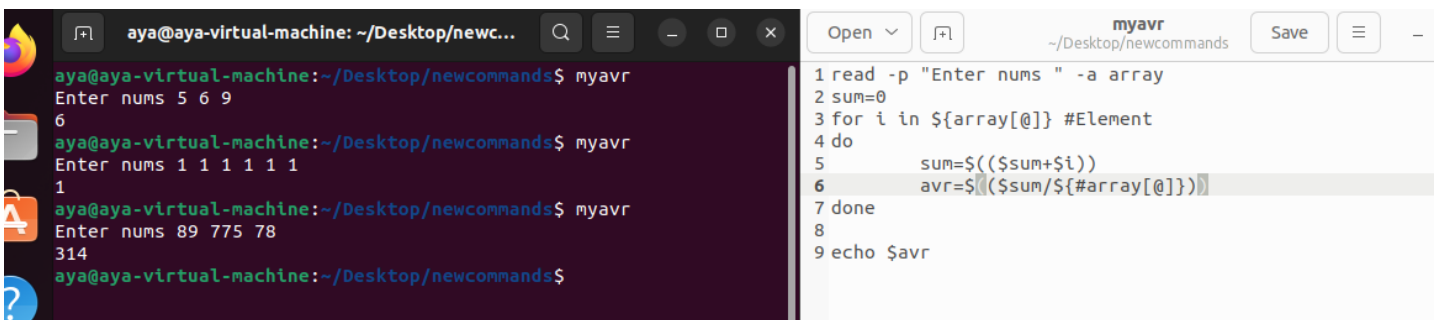


The screenshot shows a terminal window on the left and a code editor on the right. The terminal window title is 'aya@aya-virtual-machine: ~/Desktop/newc...'. It shows the execution of the 'myarray' script. The user is prompted to enter the size of the array (5), then five elements (4564, 544, 1, 33554, 5697). The script then prints these elements. The code editor window title is '*myarray ~/Desktop/newcommands'. It contains the following script:

```
1 read -p "Enter size of Array " size
2 typeset -i arr[$size]
3 for i in `seq 1 $size`
4 do
5     read -p "Enter elecl number $i " arr[$i]
6 done
7 echo ${arr[*]}
8
```

10. Write a script called myavr that calculate average of all numbers entered by a user.

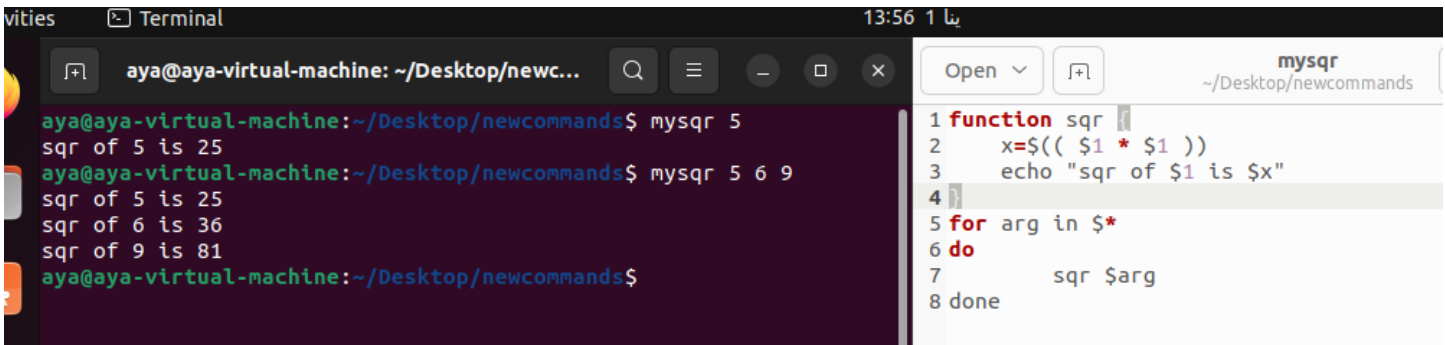
Note: use arrays



The screenshot shows a terminal window on the left and a code editor on the right. The terminal window title is 'aya@aya-virtual-machine: ~/Desktop/newc...'. It shows the execution of the 'myavr' script. The user enters the number of elements (6) and then six numbers (1, 1, 1, 1, 1, 1). The script calculates the average (1). The code editor window title is 'myavr ~/Desktop/newcommands'. It contains the following script:

```
1 read -p "Enter nums " -a array
2 sum=0
3 for i in ${array[@]} #Element
4 do
5     sum=$((sum+$i))
6     avr=$((sum/${#array[@]}))
7 done
8
9 echo $avr
```

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



The screenshot shows a terminal window on the left and a code editor on the right. The terminal window title is 'aya@aya-virtual-machine: ~/Desktop/newc...'. It shows the execution of the 'mysqr' function. The user enters '5' and '5 6 9'. The function prints 'sqr of 5 is 25', 'sqr of 5 is 25', 'sqr of 6 is 36', and 'sqr of 9 is 81'. The code editor window title is 'mysqr ~/Desktop/newcommands'. It contains the following script:

```
1 function sqr {
2     x=$(( $1 * $1 ))
3     echo "sqr of $1 is $x"
4 }
5 for arg in $*
6 do
7     sqr $arg
8 done
```