

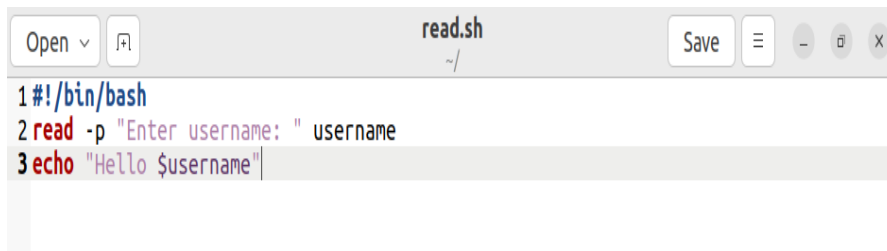
## MODULE 3

### ASSIGNMENT 1

- 1) Write a simple Bash shell script to display the message "Welcome to Bash learning" and "\*\*\*\*\*" on separate lines.

```
vboxuser@Ubuntu:~$ gedit learning.sh
vboxuser@Ubuntu:~$ ./learning.sh
bash: ./learning.sh: Permission denied
vboxuser@Ubuntu:~$ ./hello_world.sh
Hello World
/bin/bash
Monday 25 September 2023 06:36:58 PM IST
vboxuser@Ubuntu:~$ ./learning.sh
bash: ./learning.sh: Permission denied
vboxuser@Ubuntu:~$ chmod +x learning.sh
vboxuser@Ubuntu:~$ ./learning.sh
Welcome to Bash learning
*****
vboxuser@Ubuntu:~$
```

#### read.sh



```
1#!/bin/bash
2read -p "Enter username: " username
3echo "Hello $username"
```

## ASSIGNMENT 2

1) Write a simple Bash program to get the following system variables:

- a. pwd
- b. logname

2) Write a simple Bash program:

- a. To ask username from user
- b. Exit the program, if user does not enter anything within 10 seconds

Hint: read -t 10 -p

2.

```
vboxuser@Ubuntu:~$ gedit read1.sh
vboxuser@Ubuntu:~$ chmod +x read1.sh
vboxuser@Ubuntu:~$ ./read1.sh
Enter username: Hello
vboxuser@Ubuntu:~$ ./read1.sh
Enter username: jb
Hello jb
```

A screenshot of a code editor window titled 'read1.sh'. The editor shows three lines of code: 1. #!/bin/bash, 2. read -t 10 -p "Enter username: " username, and 3. echo "Hello \$username". The cursor is at the end of the third line.

```
1#!/bin/bash
2read -t 10 -p "Enter username: " username
3echo "Hello $username"
```

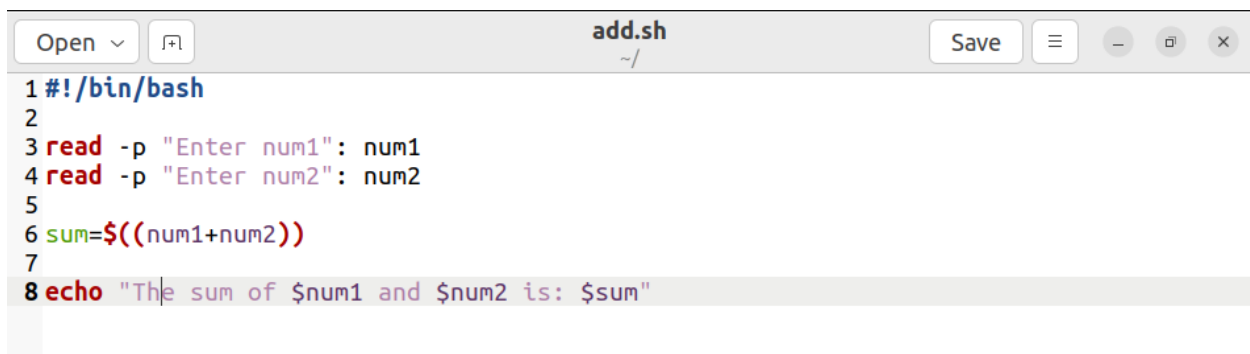
1.

```
vboxuser@Ubuntu:~$ echo "$PWD"
/home/vboxuser
vboxuser@Ubuntu:~$ echo "$LOGNAME"
vboxuser
vboxuser@Ubuntu:~$
```

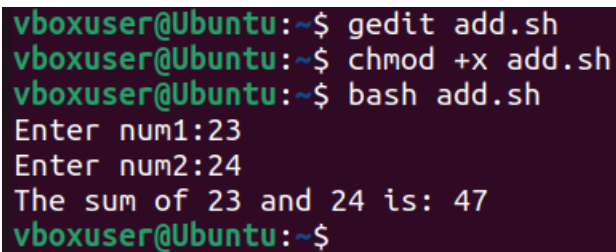
## ASSIGNMENT 3

### Command Line arguments and Quoting

1) Write a bash program for addition using command line arguments.

A screenshot of a gedit editor window titled 'add.sh' with a path indicator '~/'. The window contains a bash script with 8 lines of code. The code uses 'read' to get input for 'num1' and 'num2', calculates their sum, and uses 'echo' to display the result. The script is as follows:

```
1 #!/bin/bash
2
3 read -p "Enter num1": num1
4 read -p "Enter num2": num2
5
6 sum=$((num1+num2))
7
8 echo "The sum of $num1 and $num2 is: $sum"
```

A terminal window screenshot showing the execution of the script. The user runs 'gedit add.sh', 'chmod +x add.sh', and 'bash add.sh'. The script prompts for 'num1' (23) and 'num2' (24), then outputs 'The sum of 23 and 24 is: 47'.

```
vboxuser@Ubuntu:~$ gedit add.sh
vboxuser@Ubuntu:~$ chmod +x add.sh
vboxuser@Ubuntu:~$ bash add.sh
Enter num1:23
Enter num2:24
The sum of 23 and 24 is: 47
vboxuser@Ubuntu:~$
```

## ASSIGNMENT 4

### Globbing and Export statement

1) Write a Bash script to do all operations discussed under Globbing

#### Concepts under globbing:

```
vboxuser@Ubuntu:~$ ls *.sh
add.sh          hello_world.sh  local_variable.sh  read.sh
global_variable.sh  learning.sh      read1.sh
vboxuser@Ubuntu:~$ ls *.txt
alphabets.txt    error_log.txt   names.txt          somputer_student.txt
civil.txt        excercise.txt   notpass.txt        test_link.txt
comp.txt         exercise.txt    numbers.txt
conctenatedfile.txt  grepdemo.txt   number.txt
electro.txt      marks.txt       seddemo.txt
vboxuser@Ubuntu:~$ chmod +x civil.txt
vboxuser@Ubuntu:~$ ls *.txt
alphabets.txt    error_log.txt   names.txt          somputer_student.txt
civil.txt        excercise.txt   notpass.txt        test_link.txt
comp.txt         exercise.txt    numbers.txt
conctenatedfile.txt  grepdemo.txt   number.txt
electro.txt      marks.txt       seddemo.txt
vboxuser@Ubuntu:~$ ls [a-c]*.sh
add.sh
vboxuser@Ubuntu:~$ ls [a-c]*.txt
alphabets.txt  civil.txt  comp.txt  conctenatedfile.txt
vboxuser@Ubuntu:~$ ls [^a-c]*.sh
global_variable.sh  learning.sh      read1.sh
hello_world.sh      local_variable.sh  read.sh
vboxuser@Ubuntu:~$ ls [^a-c]*.txt
electro.txt  exercise.txt  names.txt    number.txt          test_link.txt
error_log.txt  grepdemo.txt  notpass.txt  seddemo.txt
excercise.txt  marks.txt    numbers.txt  somputer_student.txt
vboxuser@Ubuntu:~$ ls [Aa]*.sh
add.sh
```

## ASSIGNMENT 5

### Array Operations in BASH

#### 1) Declare an Array names of length 7 and find

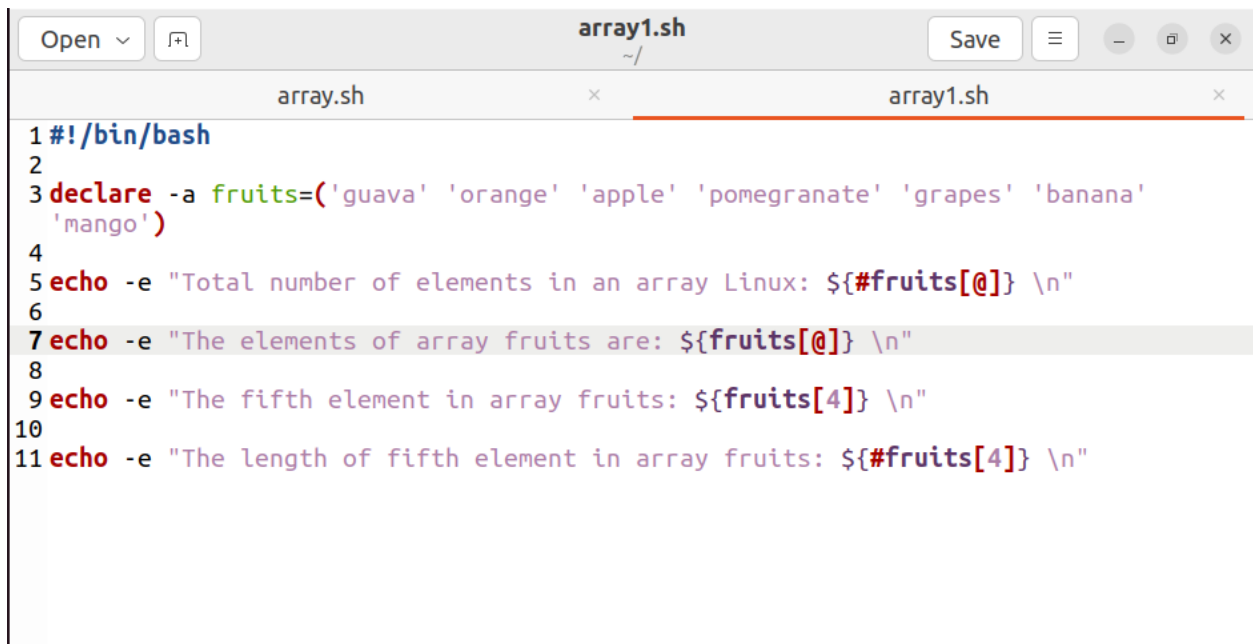
- The total number of elements
- Print all the elements
- Print the 5th element

```
vboxuser@Ubuntu:~$ bash array1.sh
Total number of elements in an array Linux: 7

The elements of array fruits are: guava orange apple pomegranate grapes banana mang
o

The fifth element in array fruits: grapes

The length of fifth element in array fruits: 6
```



```
array1.sh
~/
Save
array.sh x array1.sh x
1 #!/bin/bash
2
3 declare -a fruits=('guava' 'orange' 'apple' 'pomegranate' 'grapes' 'banana'
  'mango')
4
5 echo -e "Total number of elements in an array Linux: ${#fruits[@]} \n"
6
7 echo -e "The elements of array fruits are: ${fruits[@]} \n"
8
9 echo -e "The fifth element in array fruits: ${fruits[4]} \n"
10
11 echo -e "The length of fifth element in array fruits: ${#fruits[4]} \n"
```

## ASSIGNMENT 6

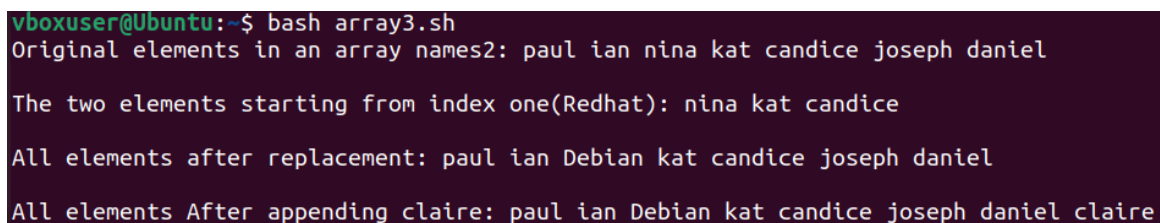
### More on Arrays

1) Declare an Array names2 of length 7 and perform following operations-

- Extract three elements starting from index two.
- Replace third element with 'Debian' and display.
- Append any new name at the end of Array.



```
1 #!/bin/bash
2
3 declare -a names2=('paul' 'ian' 'nina' 'kat' 'candice' 'joseph' 'daniel' )
4
5 echo -e "Original elements in an array names2: ${names2[@]} \n"
6
7 echo -e "The two elements starting from index one(Redhat): ${names2[@]:2:3}\n"
8
9 names2[2]='Debian'
10
11 echo -e "All elements after replacement: ${names2[@]} \n"
12
13 names2=("${names2[@]}" "claire")
14
15 echo -e "All elements After appending claire: ${names2[@]} \n"
16
```



```
vboxuser@Ubuntu:~$ bash array3.sh
Original elements in an array names2: paul ian nina kat candice joseph daniel

The two elements starting from index one(Redhat): nina kat candice

All elements after replacement: paul ian Debian kat candice joseph daniel

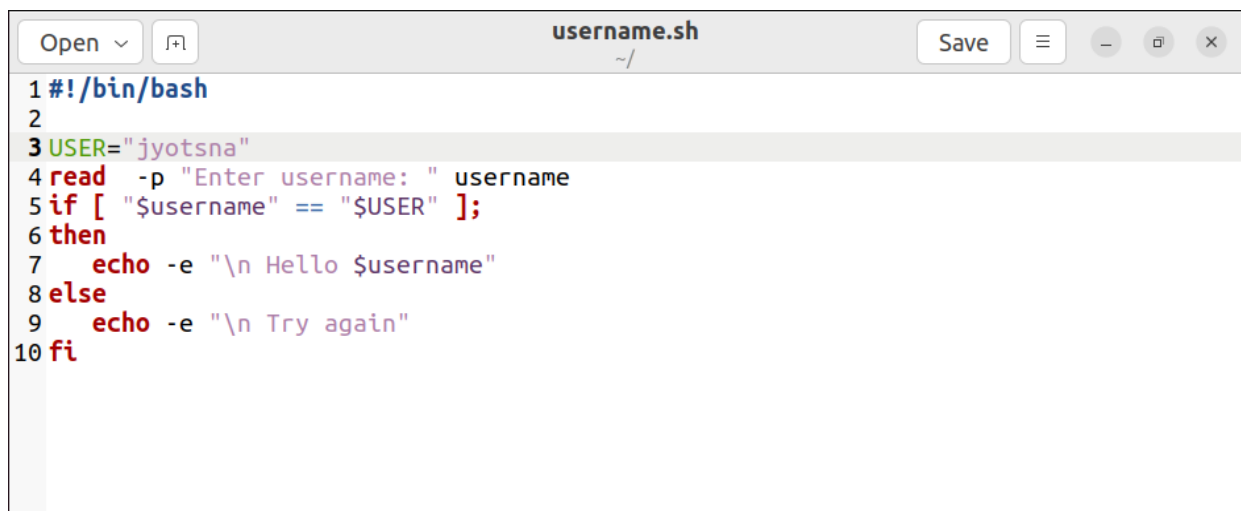
All elements After appending claire: paul ian Debian kat candice joseph daniel claire
```

## ASSIGNMENT 7

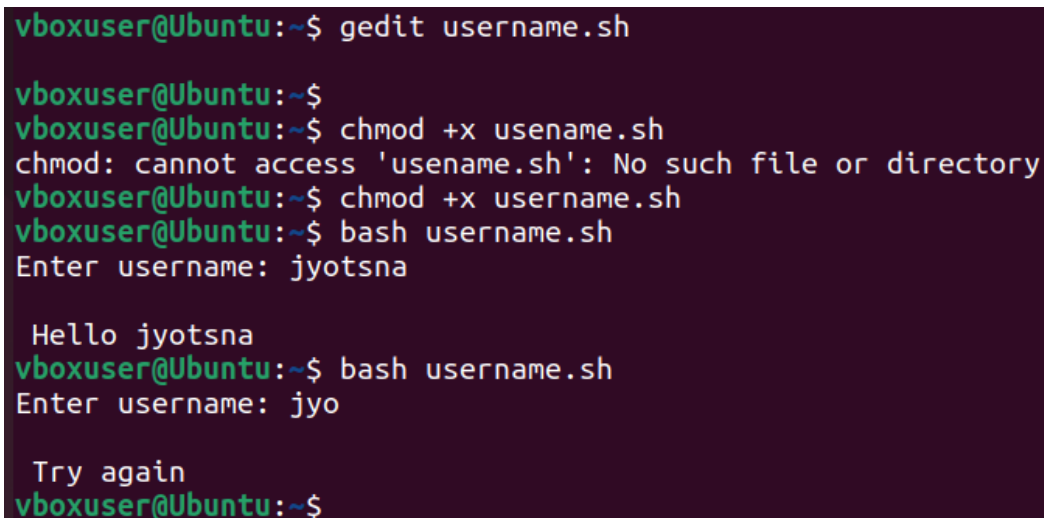
### Conditional execution

- 1) Write a script which will take your name as an input.
- 2) It should check this name with your system's username.
- 3) If the username matches, it should greet you by displaying "Hello".
- 4) Else, it should display "Try again"

HINT: Your system's username is stored in a variable \$USER

A screenshot of a text editor window titled 'username.sh' with a path indicator '~/'. The window contains a shell script with 10 lines of code. The code is as follows:

```
1 #!/bin/bash
2
3 USER="jyotsna"
4 read -p "Enter username: " username
5 if [ "$username" == "$USER" ];
6 then
7     echo -e "\n Hello $username"
8 else
9     echo -e "\n Try again"
10 fi
```

A screenshot of a terminal window showing the execution of the 'username.sh' script. The terminal output is as follows:

```
vboxuser@Ubuntu:~$ gedit username.sh

vboxuser@Ubuntu:~$
vboxuser@Ubuntu:~$ chmod +x username.sh
chmod: cannot access 'username.sh': No such file or directory
vboxuser@Ubuntu:~$ chmod +x username.sh
vboxuser@Ubuntu:~$ bash username.sh
Enter username: jyotsna

Hello jyotsna
vboxuser@Ubuntu:~$ bash username.sh
Enter username: jyo

Try again
vboxuser@Ubuntu:~$
```

## ASSIGNMENT 8

### Nested and multilevel if elseif statements

1) Write a program to output different messages when number is:

- a. Greater than 3
- b. Lesser than 3
- c. Or equal to 3
- d. Or when the user input is empty

```
Open  ifelse2.sh  Save  -  +  x
1 #!/bin/bash
2 n=3
3 read -p "Enter a Number: " num
4 if [ "$num" -gt "$n" ];
5 then
6     echo "Greater than 3"
7 elif [ "$num" -lt "$n" ];
8 then
9     echo "Lesser than 3"
10 elif [ "$num" -eq "$n" ];
11 then
12     echo "Equal to 3"
13 else
14     echo "the user input is empty"
15 fi
```

```
vboxuser@Ubuntu:~$ gedit ifelse2.sh
vboxuser@Ubuntu:~$ chmod +x ifelse2.sh
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number: 4
Greater than 3
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number: 5
Greater than 3
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number: 2
Lesser than 3
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number: 3
Equal to 3
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number:
ifelse2.sh: line 4: [: : integer expression expected
ifelse2.sh: line 7: [: : integer expression expected
ifelse2.sh: line 10: [: : integer expression expected
the user input is empty
vboxuser@Ubuntu:~$ bash ifelse2.sh
Enter a Number: -1
Lesser than 3
vboxuser@Ubuntu:~$
```