

## Linux Assignment 3 – Shell Scripts

1. Write a shell script to print the numbers from 1 to 10.

```
vaibhav@VK:~/Assignment3$ cat 1.sh
for((i=1 ; i<=10 ; i++))
do
    echo "$i"
done
vaibhav@VK:~/Assignment3$ bash 1.sh
1
2
3
4
5
6
7
8
9
10
vaibhav@VK:~/Assignment3$ |
```

2. Write a shell script to ask the user for their name and print a greeting message.

```
vaibhav@VK:~/Assignment3$ cat 2.sh
echo "enter your name = "
read name
echo "$name have a good day!"
vaibhav@VK:~/Assignment3$ bash 2.sh
enter your name =
sayali
sayali have a good day!
vaibhav@VK:~/Assignment3$ |
```

3. Write a shell script to check if a file exists in the current directory and print a message accordingly.

```

vaibhav@VK:~/Assignment3$ cat 3.sh
echo "enter any file name = "
read fname
if [ -f "$fname" ]
then
    echo "$fname file is exist."
else
    echo "$fname file is not exist"
fi
vaibhav@VK:~/Assignment3$ bash 3.sh
enter any file name =
3.sh
3.sh file is exist.
vaibhav@VK:~/Assignment3$ bash 3.sh
enter any file name =
76.sh
76.sh file is not exist
vaibhav@VK:~/Assignment3$ |

```

4. Write a shell script to calculate the sum of two numbers entered by the user.

```

vaibhav@VK:~/Assignment3$ cat 4.sh
echo "enter number 1 = "
read n1
echo "enter number 2 = "
read n2
sum=$(( $n1 + $n2 ))
echo "sum = $sum"
vaibhav@VK:~/Assignment3$ bash 4.sh
enter number 1 =
12
enter number 2 =
13
sum = 25
vaibhav@VK:~/Assignment3$ |

```

5. Write a shell script to find the largest number among three numbers entered by the user.

```

vaibhav@VK:~/Assignment3$ cat 5.sh
echo "enter number 1 = "
read n1
echo "enter number 2 = "
read n2
echo "enter number 3 = "
read n3
if [ $n1 -gt $n2 ]
then
    if [ $n1 -gt $n3 ]
    then
        echo "$n1 is a largest number"
    else
        echo "$n3 is a largest number"
    fi
elif [ $n2 -gt $n3 ]
then
    echo "$n2 is a largest number"
else
    echo "$n3 is a largest number"
fi
vaibhav@VK:~/Assignment3$ bash 5.sh
enter number 1 =
21
enter number 2 =
43
enter number 3 =
76
76 is a largest number
vaibhav@VK:~/Assignment3$ |

```

6. Write a shell script to check if a number is odd or even.

```

vaibhav@VK:~/Assignment3$ cat 6.sh
echo "enter any number"
read n
if [ `expr $n % 2 == 0` ]
then
    echo "$n is a even number"
else
    echo "$n is a odd number"
fi
vaibhav@VK:~/Assignment3$ bash 6.sh
enter any number
12
12 is a even number
vaibhav@VK:~/Assignment3$ bash 6.sh
enter any number
17
17 is a even number
vaibhav@VK:~/Assignment3$

```

7. Write a shell script to display the contents of a file line by line.

```

vaibhav@VK:~/Assignment3$ cat 7.sh
echo "enter file name = "
read fname
if [ -f $fname ]
then
    while read line;
    do
        echo $line
    done < $fname
else
    echo "$fname file does not exists."
fi
vaibhav@VK:~/Assignment3$ bash 7.sh
enter file name =
demo.txt
hello everyone
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$

```

8. Write a shell script to count the number of files in a directory.

```
vaibhav@VK:~/Assignment3$ cat 8.sh
ls | wc -l
vaibhav@VK:~/Assignment3$ bash 8.sh
16
vaibhav@VK:~/Assignment3$ |
```

9. Write a shell script to print the current date and time.

```
vaibhav@VK:~/Assignment3$ cat 9.sh
echo "current date & time = "
date
vaibhav@VK:~/Assignment3$ bash 9.sh
current date & time =
Mon Mar 27 10:53:33 IST 2023
vaibhav@VK:~/Assignment3$ |
```

10. Write a shell script to rename all files with a certain extension in a directory.

11. Write a shell script to print the even numbers from 1 to 20.

```
vaibhav@VK:~/Assignment3$ cat 11.sh
echo "Printing even numbers from 1 to 20"
for(( i=1 ; i<=20 ; i++))
do
    if [ $(( $i % 2 )) -eq 0 ]
    then
        echo $i
    fi
done
vaibhav@VK:~/Assignment3$ bash 11.sh
Printing even numbers from 1 to 20
2
4
6
8
10
12
14
16
18
20
vaibhav@VK:~/Assignment3$ |
```

12. Write a shell script to find the factorial of a number entered by the user.

```
vaibhav@VK:~/Assignment3$ cat 12.sh
echo "enter any number = "
read num
fact=1
for(( i=1 ; i<=num ; i++))
do
    fact=$(( fact * i))
done
echo "Factorial of $num is $fact"
vaibhav@VK:~/Assignment3$ bash 12.sh
enter any number =
5
Factorial of 5 is 120
vaibhav@VK:~/Assignment3$ bash 12.sh
enter any number =
8
Factorial of 8 is 40320
vaibhav@VK:~/Assignment3$ |
```

13. Write a shell script to create a backup of a file with a timestamp in the filename.
14. Write a shell script to check if a directory exists and create it if it doesn't.

```

vaibhav@VK:~/Assignment3$ cat 14.sh
echo "enter directory name"
read dir
if [ -d $dir ]
then
    echo "Directory already exists."
else
    echo "Directory not exists...that's why creating"
    mkdir $dir
    ls
    echo "$dir directory created."
fi
vaibhav@VK:~/Assignment3$ bash 14.sh
enter directory name
A1
Directory not exists...that's why creating
1.sh  15.sh  23.sh  3.txt  37.sh  49.sh  7.sh  ABC
11.sh 19.sh  27.sh  30.sh  4.sh  5.sh  8.sh  demo.txt
12.sh 2.sh  29.sh  31.sh  4.txt  5.txt  9.sh
14.sh 2.txt  3.sh  36.sh  47.sh  6.sh  A1
A1 directory created.
vaibhav@VK:~/Assignment3$ bash 14.sh
enter directory name
A1
Directory already exists.
vaibhav@VK:~/Assignment3$ |

```

15. Write a shell script to print the last 10 lines of a file.

```

vaibhav@VK:~/Assignment3$ cat 15.sh
echo "enter any file name"
read file
tail -n 10 $file
vaibhav@VK:~/Assignment3$ bash 15.sh
enter any file name
14.sh
read dir
if [ -d $dir ]
then
    echo "Directory already exists."
else
    echo "Directory not exists...that's why creating"
    mkdir $dir
    ls
    echo "$dir directory created."
fi
vaibhav@VK:~/Assignment3$ |

```

16. Write a shell script to find the sum of all the numbers in a file.

```

vaibhav@VK:~/Assignment3$ cat numbers.txt
1
2
3
4
5
vaibhav@VK:~/Assignment3$ cat 16.sh
echo "enter any file name = "
read fname
sum=0
while read number;
do
    sum=$(( sum + number ))
done < $fname
echo "sum of numbers = $sum"
vaibhav@VK:~/Assignment3$ bash 16.sh
enter any file name =
numbers.txt
sum of numbers = 15
vaibhav@VK:~/Assignment3$ |

```

17. Write a shell script to find the average of a list of numbers in a file.



```
vaibhav@VK:~/Assignment3$ cat numbers.txt
1
2
3
4
5
vaibhav@VK:~/Assignment3$ cat 17.sh
echo "enter any file name = "
read fname
sum=0
c=0
while read line;
do
    sum=$(( sum + line ))
    c=$(( c + 1 ))
done < $fname
avg=$(( sum / c ))
echo "average = $avg"
vaibhav@VK:~/Assignment3$ bash 17.sh
enter any file name =
numbers.txt
average = 3
vaibhav@VK:~/Assignment3$ |
```

18. Write a shell script to convert all the filenames in a directory to lowercase.
19. Write a shell script to find and replace a string in a file.

```

vaibhav@VK:~/Assignment3$ cat demo.txt
hello everyone
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ sed -i 's/everyone/guys/g' demo.txt
vaibhav@VK:~/Assignment3$ vim 19.sh
vaibhav@VK:~/Assignment3$ cat demo.txt
hello guys
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ cat 19.sh
echo "enter any file name = "
read fname
if [ -f $fname ]
then
    sed -i 's/guys/everyone/g' $fname
    cat $fname
else
    echo "$fname is not exists."
fi
vaibhav@VK:~/Assignment3$ bash 19.sh
enter any file name =
demo.txt
hello everyone
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ |

```

20. Write a shell script to calculate the area of a rectangle, given the length and width entered by the user.

```

vaibhav@VK:~/Assignment3$ cat 20.sh
echo "enter length for a rectangle = "
read l
echo "enter breadth for a rectangle = "
read b
area=$(( l * b ))
echo "area of a rectangle = $area"
vaibhav@VK:~/Assignment3$ bash 20.sh
enter length for a rectangle =
6
enter breadth for a rectangle =
4
area of a rectangle = 24
vaibhav@VK:~/Assignment3$ |

```

21. Write a shell script to print the Fibonacci series up to a certain number entered by the user.

```

vaibhav@VK:~/Assignment3$ cat 21.sh
echo "enter any number = "
read num
a=0
b=1
echo "the fibonacci series till $num = "
for(( i=0 ; i<=num ; i++))
do
    echo "$a"
    fn=$((a+b))
    a=$b
    b=$fn
done
vaibhav@VK:~/Assignment3$ bash 21.sh
enter any number =
7
the fibonacci series till 7 =
0
1
1
2
3
5
8
13
vaibhav@VK:~/Assignment3$ |

```

22. Write a shell script to remove all files in a directory except for those with a certain extension.

23. Write a shell script to check if a string is a palindrome.

```
vaibhav@VK:~/Assignment3$ vim 23.sh
vaibhav@VK:~/Assignment3$ cat 23.sh
echo "enter any string = "
read str
if [ $( rev <<< $str ) == $str ]
then
    echo "$str is a palindrome."
else
    echo "$str is not a palindrome."
fi
vaibhav@VK:~/Assignment3$ bash 23.sh
enter any string =
hello
hello is not a palindrome.
vaibhav@VK:~/Assignment3$ bash 23.sh
enter any string =
lol
lol is a palindrome.
vaibhav@VK:~/Assignment3$ |
```

24. Write a shell script to find the largest file in a directory.

25. Write a shell script to sort the lines of a file in ascending order.

26. Write a shell script to generate a random number between two given numbers entered by the user.

27. Write a shell script to find the number of occurrences of a string in a file.

```
vaibhav@VK:~/Assignment3$ cat demo.txt
hello everyone
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ cat 27.sh
echo "enter any file name = "
read fname
echo "enter a string to search in $fname = "
read str
res= grep -c "$str" $fname
vaibhav@VK:~/Assignment3$ bash 27.sh
enter any file name =
demo.txt
enter a string to search in demo.txt =
are
1
vaibhav@VK:~/Assignment3$ |
```

28. Write a shell script to find the length of a string entered by the user.

29. Write a shell script to check if a given year is a leap year.

```

vaibhav@VK:~/Assignment3$ cat 29.sh
echo "enter any year = "
read year
if [ $(( year % 4 )) -eq 0 ]
then
    if [ $(( year % 100 )) -eq 0 ]
    then
        if [ $(( year % 400 )) -eq 0 ]
        then
            echo "$year is a leap year"
        else
            echo "$year is not a leap year"
        fi
    else
        echo "$year is a leap year"
    fi
else
    echo "$year is not a leap year"
fi
vaibhav@VK:~/Assignment3$ bash 29.sh
enter any year =
2018
2018 is not a leap year
vaibhav@VK:~/Assignment3$ bash 29.sh
enter any year =
2024
2024 is a leap year
vaibhav@VK:~/Assignment3$ |

```

30. Write a shell script to calculate the volume of a cylinder, given the radius and height entered by the user.

```

vaibhav@VK:~/Assignment3$ cat 30.sh
echo "Volume of Cylinder"
pie=3.14
echo "enter radius for the cylinder = "
read radius
echo "enter height for the cylinder = "
read height
volume=$(( echo "scale=2; $pie * $radius * $radius * $height" | bc ))
echo "Volume of the cylinder is $volume"
vaibhav@VK:~/Assignment3$ bash 30.sh
Volume of Cylinder
enter radius for the cylinder =
4
enter height for the cylinder =
6
Volume of the cylinder is 301.44
vaibhav@VK:~/Assignment3$ |

```

31. Write a shell script to search for a pattern in a file and print the matching lines.

```

vaibhav@VK:~/Assignment3$ cat demo.txt
hello everyone
myself vaibhav khandekar
I'm pursuing PG-DBDA from Cdac, Mumbai.
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ vim 31.sh
vaibhav@VK:~/Assignment3$ bash 31.sh
enter file name =
demo.txt
enter any string to search in
are
Now we are performing some shell scripting.
vaibhav@VK:~/Assignment3$ |

```

32. Write a shell script to convert a CSV file to a TSV file.
33. Write a shell script to find the sum of all the even numbers in a file.
34. Write a shell script to find the number of lines in a file that contain a certain word.
35. Write a shell script to find the second largest number in a list of numbers entered by the user.
36. Write a shell script to find the number of files with a certain extension in a directory and its subdirectories.

```
vaibhav@VK:~/Assignment3$ ls
1.sh  12.sh  15.sh  2.sh  27.sh  31.sh  37.sh  5.sh  7.sh  9.sh
11.sh 14.sh 19.sh 23.sh 3.sh  36.sh  4.sh  6.sh  8.sh  demo.txt
vaibhav@VK:~/Assignment3$ cat 36.sh
echo "enter any extension = "
read ext
find . -name "$ext"
vaibhav@VK:~/Assignment3$ bash 36.sh
enter any extension =
.sh
./15.sh
./27.sh
./12.sh
./5.sh
./37.sh
./8.sh
./14.sh
./6.sh
./7.sh
./23.sh
./9.sh
./3.sh
./36.sh
./4.sh
./11.sh
./1.sh
./19.sh
./31.sh
./2.sh
vaibhav@VK:~/Assignment3$ |
```

37. Write a shell script to find the number of words in a file.



```

vaibhav@VK:~/Assignment3$ cat 37.sh
echo "enter any file name = "
read file
if [ -f $file ]
then
    echo "$file details = "
    wc $file
else
    echo "$file does not exist."
fi
vaibhav@VK:~/Assignment3$ bash 37.sh
enter any file name =
demo.txt
demo.txt details =
  4  18 124 demo.txt
vaibhav@VK:~/Assignment3$ |

```

38. Write a shell script to generate a random password of a certain length entered by the user.
39. Write a shell script to check if a file is executable and print a message accordingly.
40. Write a shell script to calculate the average of two numbers entered by the user and round it to two decimal places.
41. Write a shell script to find and remove all duplicate lines in a file.
42. Write a shell script to find the number of lines in a file that start with a certain string.
43. Write a shell script to sort a list of names alphabetically and print the sorted list.
44. Write a shell script to find the number of times a certain command has been executed in the shell history.
45. Write a shell script to check if a file is a directory or a regular file and print a message accordingly.
46. Write a shell script to calculate the area of a triangle, given the base and height entered by the user.
47. Write a shell script to find the number of files in a directory and its subdirectories.
48. Write a shell script to convert a string to uppercase.
49. Write a shell script to find the total size of all the files in a directory.
50. Write a shell script to generate a random string of a certain length entered by the user.
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