**EXERCISE 1**

Write a Shell script that displays list of all the files in the current directory to which the user has read, write and execute permissions.

# AIM :

To create a Shell script that displays list of all the files in the current directory to which the user has read, write and execute permissions.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin01.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. sh admin01.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "The name of all files along with their permissions and user priviledges :" for file in \*

do

if [ -f $file ] then

# if [ -r $file -a -w $file -a -x $file ] # then

ls -l $file # fi

fi done

# EXERCISE 2

Write an awk script to find the number of characters, words and lines in a file?

# AIM :

To create a Shell script that displays list of all the files in the current directory to which the user has read, write and execute permissions.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin02.awk
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. awk -f admin02.awk admin01.sh
10. Note down the output in your observation.

# ALGORITHM :

BEGIN{print "record.\t characters \t words"} #BODY section

{

len=length($0) total\_len =len

print(NR,":\t",len,":\t",NF,$0) words =NF

} END{

print("\n total") print("characters :\t" total len) print("lines :\t" NR)

}

# EXERCISE 3

Write a Shell script that accepts a filename, starting and ending line numbers as arguments and displays all the lines between the given line numbers?

# AIM :

To write a Shell script that accepts a filename, starting and ending line numbers as arguments and displays all the lines between the given line numbers?

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin03.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. sh admin03.sh
10. Note down the output in your observation.

# ALGORITHM :

ls

echo "Choose a file :" read fname

echo "enter the beginning line number to read from" read s

echo "enter the termination line number upto displayed with" read n

echo "\e[1;31m Your file has these texts inbetween the lines you entered \e[0m" echo "\e[1;42m"

sed -n $s,$n\p $fname | cat > newline cat newline

# EXERCISE 4

Write a shell script to sort number in ascending order.

# AIM :

To write a shell script to sort number in ascending order ( Using Bubble sort method).

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin04.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. bash admin04.sh
10. Note down the output in your observation.

# ALGORITHM :

arr=(10 8 20 100 12)

echo "Array in original order" echo ${arr[\*]}

for ((i = 0; i<5; i++)) do

for((j = 0; j<5-i-1; j++)) do

if [ ${arr[j]} -gt ${arr[$((j+1))]} ] then

temp=${arr[j]} arr[$j]=${arr[$((j+1))]} arr[$((j+1))]=$temp

fi done

done

echo "Array in sorted order :" echo ${arr[\*]}

# EXERCISE 5

Write a shell script (small calculator) that adds, subtracts, multiplies and divides the two given numbers.

# AIM :

To write a shell script (small calculator) that adds, subtracts, multiplies and divides the two given numbers.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin05.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. sh admin05.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "Enter first number to be played with : " read num1

echo "Enter second number to be played with : " read num2

echo "playground games :" echo "1) Addition"

echo "2) Subtraction"

echo "3) Multiplication"

echo "4) Division"

echo "Enter youe choice of game: " read ch

case $ch in

1. res=`echo $num1 + $num2 | echo $((num1 + num2))`;;
2. res=`echo $num1 - $num2 | echo $((num1 - num2))`;;
3. res=`echo $num1 \\* $num2 | echo $((num1 \* num2))`;;
4. res=`echo "scale=2; $num1 / $num2" | echo $((num1 / num2))`;;

esac

echo "Result : $res"

# EXERCISE 6

Write a shell script to determine whether a given number is a prime number or not.

# AIM :

To write a shell script to determine whether a given number is a prime number or not.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin06.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. sh admin06.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "Enter a number to check for prime or not: " read input\_number

i=2 f=0

while test $i -le `expr $input\_number / 2` do

if test `expr $input\_number % $i` -eq 0 then

f=1 fi

i=`expr $i + 1` done

if test $f -eq 1 then

echo "The given number is not a Prime" else

echo "The given number is a Prime" fi

# EXERCISE 7

Write a shell script to print the first n Fibonacci numbers.

# AIM :

To write a shell script to print the first n Fibonacci numbers.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin07.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. bash admin07.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "enter number of fibonacci sequence to be printed: " read input

a=0 b=1

echo "The Fibonacci series is : " for (( i=0; i<input; i++ ))

do

echo -n "$a " fn=$((a + b)) a=$b

b=$fn done

# EXERCISE 8

Write a shell script to find the GCD of two given numbers.

# AIM :

To write a shell script to find the GCD of two given numbers.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin08.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. sh admin08.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "Enter two numbers with space in between: " read a b

m=$a

if [ $b -lt $m ] then

m=$b fi

while [ $m -ne 0 ] do

x=`expr $a % $m` y=`expr $b % $m`

if [ $x -eq 0 -a $y -eq 0 ] then

echo Greatest Common Divisor of $a and $b is $m break

fi

m=`expr $m - 1` done

# EXERCISE 9

Write a shell script to check whether given string is palindrome or not.

# AIM :

To write a shell script to check whether given string is palindrome or not.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin09.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. bash admin09.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "Type a word to check" read str

for i in $(seq 0 ${#str}) ; do revstr=${str:$i:1}$revstr

done

echo "The given word to check is " $str echo "Its reverse of it is " $revstr

if [ "$str" = "$revstr" ]; then echo "It is a palindrome."

else fi

echo "It is not a palindrome."

# EXERCISE 10

Write a shell script to find the factorial of given integer.

# AIM :

To write a shell script to find the factorial of given integer.

# PROCEDURE :

1. Switch on your PC and open virtual box,
2. Click on the kali Linux OS and click green start button to boot – up the OS,
3. Wait until the boot process completes and login screen prompts,
4. Log in to the dcfs account with the password “hacker#3”,
5. Click on the Terminal App in the dock below and create a file named “admin01.sh” with the following command,
6. nano admin10.sh
7. Type the algorithm in the field and save the file by pressing CTRL+O and exit out of the editor by pressing CTRL+X,
8. type the following command to execute the files as bash script,
9. bash admin10.sh
10. Note down the output in your observation.

# ALGORITHM :

echo "Finding factorial using for loop :" echo "Enter a number to get it's factorial" read num

fact=1 for((i=2;i<=num;i++))

{

fact=$((fact \* i))

}

echo "the factorial of given number is: " $fact ######################################################################################

echo "Finding factorial using do-while :" echo "Enter a number to find it's factorial" read num

fact=1

while [ $num -gt 1 ] do

fact=$((fact \* num)) num=$((num - 1)) done

echo "the factorial of given number is: " $fact