Assignment 2

OPERATING SYSTEMS (CS-301)

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(1) Shell script Program to accept a character and check whether it is an

Lower case alphabet

Upper case alphabet

A digit

Special symbol

Vowel

Using case control structure.

```
read -p "Enter a character: " CHAR
case "$CHAR" in

[aeiouAEIOU])
echo "Vowel"
;;

[A-Z])
echo "Upper Case"
;;

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

[0-9])
echo "Digit"
;;

['!@#\$%^\&*()_+'])
echo "Special Character"
;;

*)
echo "None"
;;

Esac
```

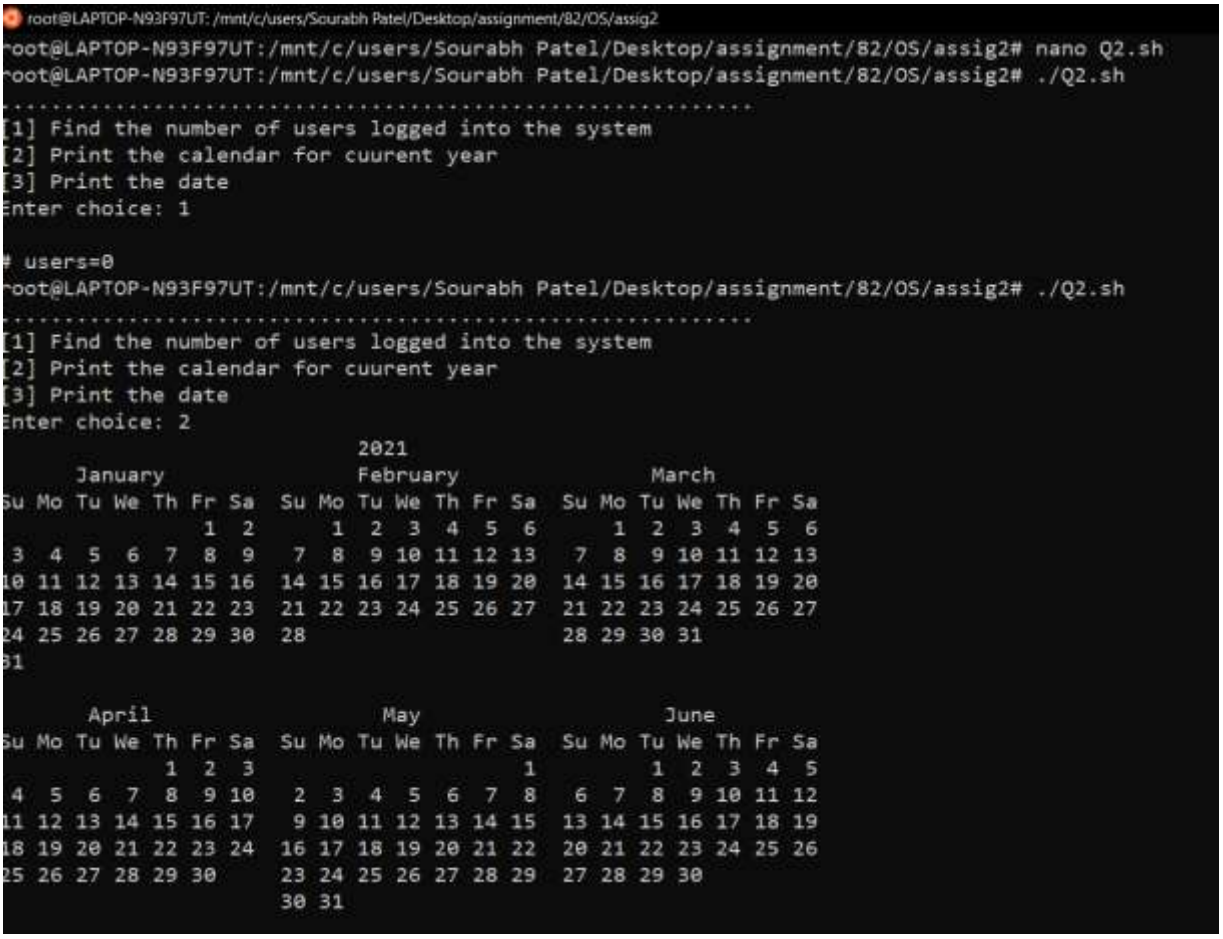
(2) Using case .. esac structure

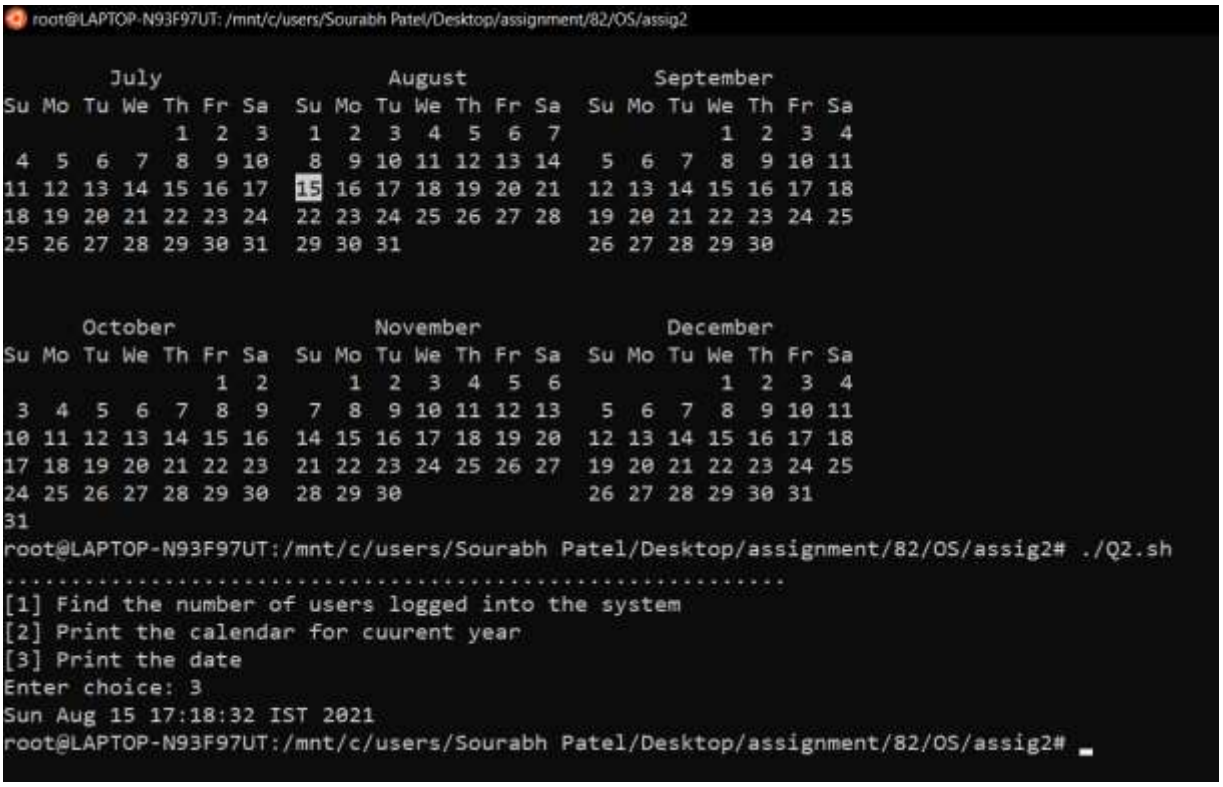
Find the number of users logged into the system

Print the calendar for current year

Print the date

```
echo "------------------------------------------------------"
echo "[1] Find the number of users logged into the system"
echo "[2] Print the calendar for current year"
echo "[3] Print the date"
echo "------------------------------------------------------"
read -p "Enter choice: " choice
case "$choice" in
1)
who --count
;;
2)
cal -y
;;
3)
date
;;
*)
echo "none"
;;
esac
```


root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q2.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q2.sh
[1] Find the number of users logged into the system
[2] Print the calendar for cuurent year
[3] Print the date
Enter choice: 1
users=0
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q2.sh
[1] Find the number of users logged into the system
[2] Print the calendar for cuurent year
[3] Print the date
Enter choice: 2
2021
January
Su Mo Tu We Th Fr Sa
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
February
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28
March
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31
April
Su Mo Tu We Th Fr Sa
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30
May
Su Mo Tu We Th Fr Sa
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
June
Su Mo Tu We Th Fr Sa
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30


root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
July
Su Mo Tu We Th Fr Sa
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
August
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
September
Su Mo Tu We Th Fr Sa
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30
October
Su Mo Tu We Th Fr Sa
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
November
Su Mo Tu We Th Fr Sa
1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30
December
Su Mo Tu We Th Fr Sa
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q2.sh
[1] Find the number of users logged into the system
[2] Print the calendar for cuurent year
[3] Print the date
Enter choice: 3
Sun Aug 15 17:18:32 IST 2021
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2#

(3) Shell Script Program to check whether given file is a directory or not.

```
read -p "Enter directory name: " dir
if [ -d “$dir" ]
then
echo "Is a directory"
else
echo "Is not a directory"
fi
```

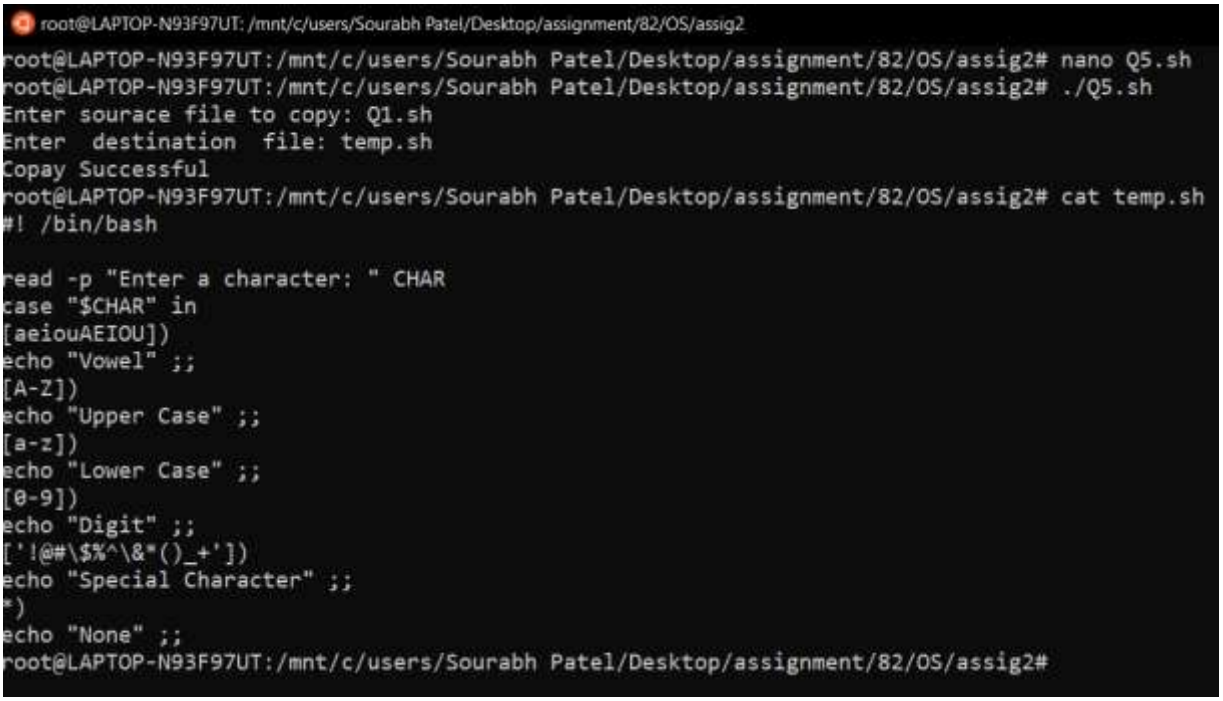
(4) Shell Script Program to Count number of files in a Directory.

```
echo "Count of file in directory:$#"
```

(5) Shell Script Program to copy contents of one file to another.

```
read -p "Enter source file to copy: " file1
read -p "Enter destination file: " file2
if [[ -f "$file1" && -f "$file2" ]]
then
cp $file1 $file2
echo "Copy Successful"
else
```

```
if [[ ! -f "$file1" ]]
then
echo "Source file doesn't exist"
else
echo "Destination file doesn't exist"
fi
fi
```

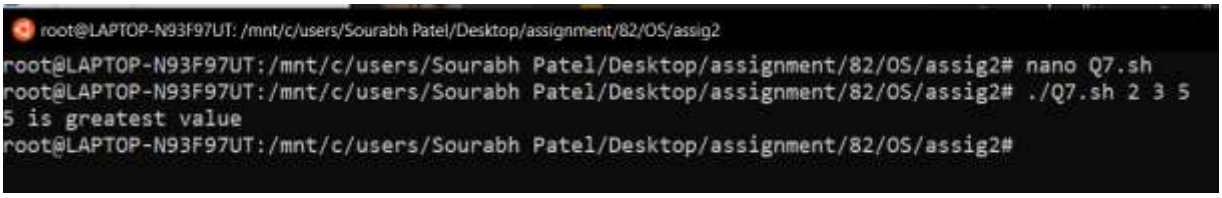


(6) Write a shell script to add two numbers supplied by user and supplied as command line argument.

```
if [[ $# == 2 ]]
then
echo "$1 + $2 = `expr $1 + $2`"
else
echo "Enter 2 arguments only"
fi
```

(7) Write a shell script to find out biggest number form given three numbers. Numbers are supplied by command line argument.

```
if [[ $# == 3 ]]
then
if [[ $1 -ge $2 && $1 -ge $3 ]]
then echo "$1 is the greatest value"
elif [[ $2 -ge $1 && $2 -ge $3 ]]
then echo "$2 is the greatest value"
else
echo "$3 is the greatest value"
fi
else
echo "Enter 3 arguments only"
fi
```



(8) Implement simple calculator. Numbers are supplied by command line argument.

```
if [ $# == 3 ]
then
case "$2" in
"+") echo "$1 + $3 = `expr $1 + $3`"
;;
"-") echo "$1 - $3 = `expr $1 - $3`"
;;
"x") echo "$1 * $3 = `expr $1 \* $3`"
;;
"/") echo "$1 / $3 = `expr $1 / $3`"
;;
"%") echo "$1 % $3 = `expr $1 % $3`"
;;
*) echo "Incorrect input"
;;
esac
else
echo "Enter 2 arguments only"
fi
```

```
Select root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q8.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 + 3
5
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 - 3
-1
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 X 3
6
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 / 3
0
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 % 3
2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q8.sh 2 ~ 3
Incorrect input
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2#
```

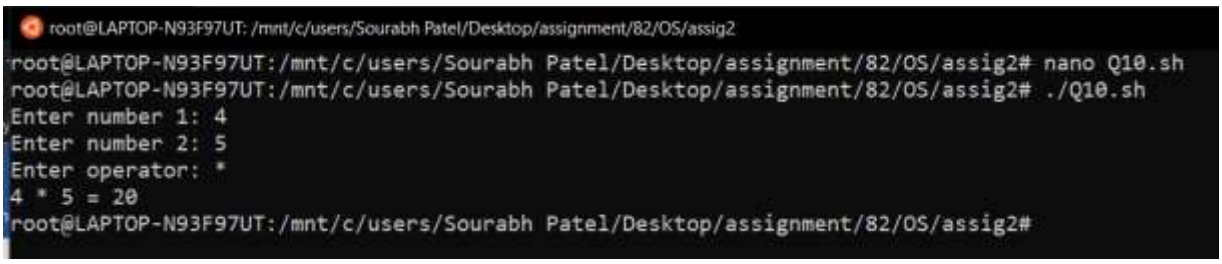
(9) Write a shell script to print numbers in descending order using while loop.

```
read -p "Enter a number: " num
while [ $num -gt 0 ]
do
echo "$num"
num=$((num - 1))
done
```

```
Select root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q9.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q9.sh
Enter a number: 8
8
7
6
5
4
3
2
1
```

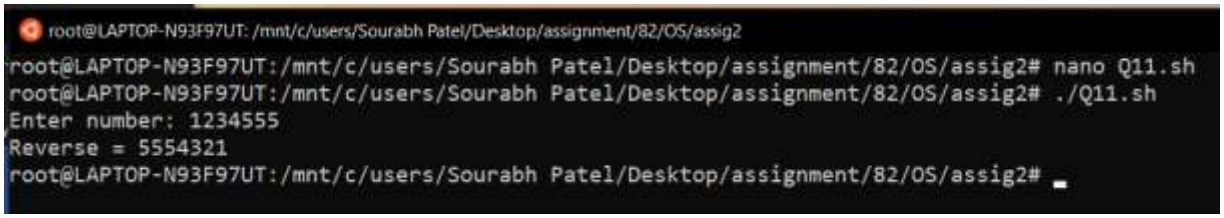
(10) Write a shell script to create a simple calculator using switchcase statement.

```
read -p "Enter number 1: " num1
read -p "Enter number 2: " num2
read -p "Enter operator: " op
case "$op" in
"+")
echo "$num1 + $num2 = `expr $num1 + $num2`"
;;
"-")
echo "$num1 - $num2 = `expr $num1 - $num2`"
;;
"*")
echo "$num1 * $num2 = `expr $num1 \* $num2`"
;;
"/")
echo "$num1 / $num2 = `expr $num1 / $num2`"
;;
"%")
echo "$num1 % $num2 = `expr $num1 % $num2`"
;;
*)
echo "Incorrect input"
;;
esac
```



(11) Write a shell script to print given number in reverse order.

```
read -p "Enter number: " num
temp=0
while [ $num -gt 0 ]
do
temp=$((temp * 10 + num % 10))
num=$((num / 10))
done
echo "Reverse = $temp"
```



(12) Write a shell script to print sum of all digits of a given number.

```
read -p "Enter number: " num
sum=0
while [ $num -gt 0 ]
do
sum=$((sum + num % 10))
num=$((num / 10))
done
echo "Sum of digits = $sum"
```

(13) Find the factorial value of given input number.

```
read -p "Enter number: " num
ans=1
while [ $num -gt 0 ]
do
ans=$((ans * num))
num=$((num - 1))
done
echo "Factorial = $ans"
```

```
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q13.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q13.sh
Enter number: 6
factorial = 720
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2#
```

(14) Generate and display Fibonacci series.

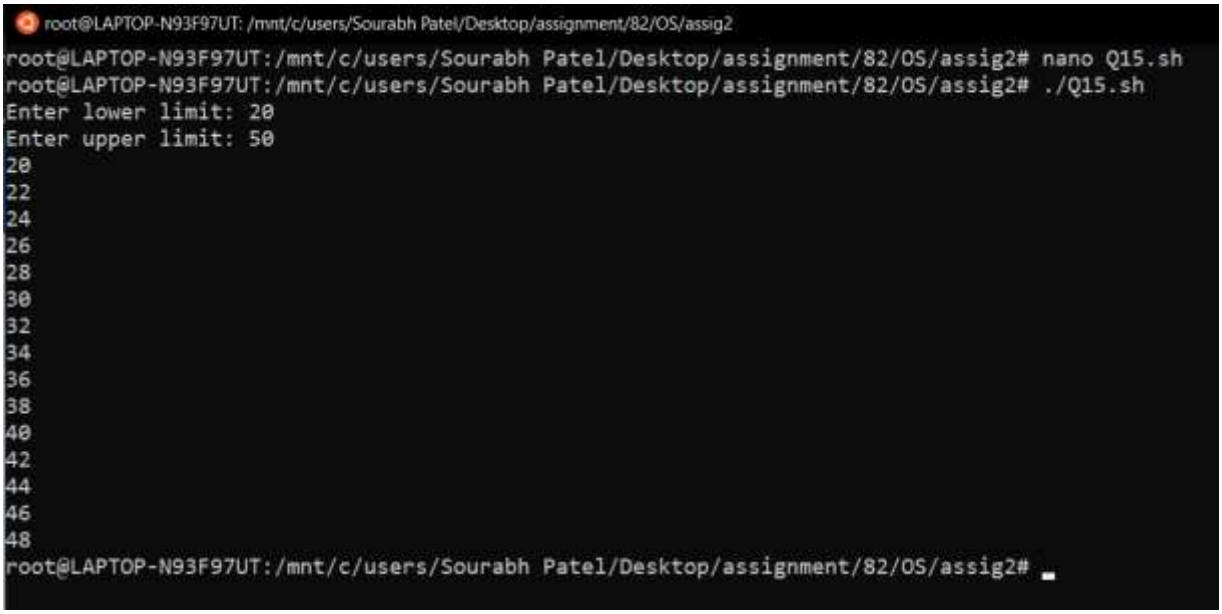
```
read -p "Enter the number of element in Fibonacci series: "
num
echo "Fibonacci series: "
num1=1
num2=1
temp=0
count=0
while [ $count -lt $num ]
do
count=$((count + 1))
echo "$num1"
temp=$((num1 + num2))
num1=$num2
num2=$temp
done
```

```
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q14.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q14.sh
Enter the number of element in Fibonacci series: 5
Fibonacci series:
1
1
2
3
5
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2#
```

(15) Display all even numbers within given range.

```
read -p "Enter lower limit: " start
read -p "Enter upper limit: " end
if [ $start -lt $end ]
then
while [ $start -lt $end ]
do
```

```
if [ $((start % 2)) == 0 ]
then
echo $start
fi
start=$((start + 1))
done
else
echo "Incorrent range"
fi
```



(16) Find out number of characters, words and lines from a given file.

```
read -p "Enter a file name: " file
if [ -f $file ]
then
lines=`wc -l $file`
word=`wc -w $file`
char=`wc -m $file`
echo -e "Charecters = $char \nWords = $word \nLines = $lines"
else
echo -E "File doesn't exist!"
fi
```


root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano Q16.sh
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# nano temp.txt
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# cat temp.txt
A Kernel is at the nucleus of a computer. It makes the communication between the hardware and soft
While the Kernel is the innermost part of an operating system, a shell is the outermost one.
A shell in a Linux operating system takes input from you in the form of commands, processes it,
and then gives an output. It is the interface through which a user works on the programs, commands
cessed by a terminal which runs it.
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# ./Q16.sh
Enter a file name: temp.txt
Charecters = 464 temp.txt
Words = 84 temp.txt
Lines = 4 temp.txt
root@LAPTOP-N93F97UT:/mnt/c/users/Sourabh Patel/Desktop/assignment/82/OS/assig2# A