ABHISHEK SHARMA
CS THIRD YEAR
SECTION : "I"
ROLL NO.: 01
ENROLLMENT NO.: 12019009001127

OPERATING SYSTEMS LABORATORY
DAY 6

ASSIGNMENT 6

DATE : 23.08.2021
PLATFORM USED : UBUNTU 20.04 LTS

UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

► **Lab Assignments**

Q1. Write a shell program that takes a number from user and prints the reverse of the number.

```
echo "Enter any number to be reveresed! : "
read n
sd=0
rev=0
while [ $n -gt 0 ]
do
        sd=$(( $n % 10 ))
            rev=$(( $rev * 10 + $sd ))
                n=$(( $n / 10 ))
        done
        echo "-----------------------------------"
        echo "Reverse of the entered number is $rev"
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6l1.sh
abhisheks008@LAPTOP-9RGGUF05:~$ chmod +x a6l1.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6l1.sh
Enter any number to be reveresed! :
123456
---------------------------------
Reverse of the entered number is 654321
```

Q2. Write a shell script to determine whether two numbers input through keyboard are prime to each other.

```
echo "Enter the first number : "
read a
echo "Enter the second number : "
read b
if test $b -gt $a
then
        max=$b
        min=$a
else
         max=$a
         min=$b
fi
r=`expr $max % $min`
while test $r -ne 0
do
        max=$min
        min=$r
        r=`expr $max % $min`
done
if test $min -eq 1
then
        echo "$a and $b are prime to each other or, simply co-prime numbers!"
else
        echo "$a and $b are not co-prime numbers. Choose different! :("
fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6l2.sh
abhisheks008@LAPTOP-9RGGUF05:~$ chmod +x a6l2.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6l2.sh
Enter the first number :
7
Enter the second number :
11
7 and 11 are prime to each other or, simply co-prime numbers!
```

Q3. Write a shell script to find whether a number is divisible by 11.

```
echo "Enter a number : "
read n
r=`expr $n % 11`
if test $r -eq 0
then
        echo "$n is divisible by 11"
else
        echo "$n is not divisible by 11"
fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6l3.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6l3.sh
Enter a number :
11
11 is divisible by 11
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6l3.sh
Enter a number :
25
25 is not divisible by 11
```

P.T.O.

Q4. Write a shell script that produces a shell calculator to perform the following operations:
1. Addition
2. Subtraction
3. Multiplication
4. Division

```bash
# Creating a Basic Calculator using shell script
echo "Enter the first number : "
read a
echo "Enter the second number : "
read b

# Input type of operation
echo "Enter Choice :"
echo "1. Addition"
echo "2. Subtraction"
echo "3. Multiplication"
echo "4. Division"
read ch

# Switch Case to perform
# calculator operations
case $ch in
      1)res=`echo $a + $b | bc`
              ;;
      2)res=`echo $a - $b | bc`
              ;;
      3)res=`echo $a \* $b | bc`
              ;;
      4)res=`echo "scale=2; $a / $b" | bc`
              ;;
esac
echo "Result : $res"
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6l4.sh
abhisheks008@LAPTOP-9RGGUF05:~$ chmod +x a6l4.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6l4.sh
Enter the first number :
1.5
Enter the second number :
5
Enter Choice :
1. Addition
2. Subtraction
3. Multiplication
4. Division
3
Result : 7.5
```

► Home Assignment

Q1. Write a shell script to print the following pattern for any number of lines:

```
    *
   * * *
  * * * * *
 * * * * * * *
* * * * * * * * *
```

```bash
# Creating the pyramid pattern in shell
# Abhishek Sharma
echo "Enter the number of rows : "
read p
echo;
echo "Printing the pattern ... "
echo;
for ((m=1;m<=p;m++))
do
        for ((a=m;a<=p;a++))
        do
                echo -ne " ";
        done
        for ((n=1;n<=m;n++))
        do
                echo -ne "*";
        done
        for ((i=1;i<m;i++))
        do
                echo -ne "*";
        done
        echo;
done
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6h1.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6h1.sh
Enter the number of rows :
5

Printing the pattern ...

    *
   ***
  *****
 *******
*********
```

Q2. Write a shell script to test whether a given string is palindrome or not.

```
echo "Input the string without space"
read str
echo;
echo "checking ..."
echo;
for i in $(seq 0 ${#str}) ; do
                revstr=${str:$i:1}$revstr
        done

        echo "The given string is " $str
        echo "Its reverse is " $revstr
        echo;

        if [ "$str" = "$revstr" ]; then
                        echo "It is a palindrome."
                else
                        echo "It is not a palindrome."
        fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6h2.sh
Input the string without space
malayalam

checking ...

The given string is  malayalam
Its reverse is  malayalam

It is a palindrome.
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6h2.sh
Input the string without space
abhishek

checking ...

The given string is  abhishek
Its reverse is  kehsihba

It is not a palindrome.
```

Q3. Write a shell script which counts the number of consonants and vowels in a given sentence.

```
# Finding out how many vowels and consonants are there in a senentence.
# Author : Abhishek Sharma

echo -n "Enter a line of text: "
read string

vowCount=$(echo $string | grep -o -i "[aeiou]" | wc --lines)
consCount=$(echo $string | grep -o -i "[bcdfghjklmnpqrstvwxyz]" | wc --lines)

echo;
echo "The given sentence has $vowCount vowels and $consCount consonants in it.."
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6h3.sh
abhisheks008@LAPTOP-9RGGUF05:~$ chmod +x a6h3.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6h3.sh
Enter a line of text: My name is Abhishek Sharma. I am 20 years old.

The given sentence has 13 vowels and 20 consonants in it..
```

Q4. Write a shell script to display the list of users as well as the number of users connected to the system.

```
# Showing the user count and the active users

cat /etc/passwd>user.txt
        set `wc -l user.txt`
                log=`who|wc -l`
                        echo "There are $1 users in network "

                        echo "There are $log user logged in right now"
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim a6h4.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./a6h4.sh
There are 31 users in network
There are 0 user logged in right now
```

---- o ----