Unix Lab Exp 7

1. Write a shell program to display a list of users currently logged in.

```
  GNU nano 2.9.3                                          p1.sh

#!/bin/sh
echo "No of users logged in: "
who | wc -l
```

```
delta24@ITA2-39:~/Desktop/Shell$ nano p1.sh
delta24@ITA2-39:~/Desktop/Shell$ chmod +x p1.sh
delta24@ITA2-39:~/Desktop/Shell$ ./p1.sh
No of users logged in:
2
delta24@ITA2-39:~/Desktop/Shell$
```

2. Write a shell program to perform arithmetic operations.

```
  GNU nano 2.9.3                                          p2.sh

#!/bin/sh
echo "Enter 1st number: "
read num1
echo "Enter 2nd number: "
read num2
echo "Addition result is: `expr $num1 + $num2`"
echo "Subtraction result is: `expr $num1 - $num2`"
echo "Multiplication result is: `expr $num1 \* $num2`"
echo "Division result is: `expr $num1 / $num2`"
```

```
delta24@ITA2-39:~/Desktop/Shell$ nano p2.sh
delta24@ITA2-39:~/Desktop/Shell$ chmod +x p2.sh
delta24@ITA2-39:~/Desktop/Shell$ ./p2.sh
Enter 1st number:
9
Enter 2nd number:
3
Addition result is: 12
Subtraction result is: 6
Multiplication result is: 27
Division result is: 3
delta24@ITA2-39:~/Desktop/Shell$
```

3. Write a shell program to search whether element is present in the list or not.

```
  GNU nano 2.9.3                                              p3.sh

#!/bin/sh
count=0
list="5 10 20 25 30"
echo "Enter number to be searched: "
read num
echo "Entered number is: $num"
for number in $list
do
        if [ $num -eq $number ]
        then
                echo "$num is present in list"
                count=1
        fi
done
if [ $count -eq 0 ]
then
        echo "$num is not present in list"

fi
```

```
delta24@ITA2-39:~/Desktop/Shell$ nano p3.sh
delta24@ITA2-39:~/Desktop/Shell$ chmod +x p3.sh
delta24@ITA2-39:~/Desktop/Shell$ ./p3.sh
Enter number to be searched:
20
Entered number is: 20
20 is present in list
delta24@ITA2-39:~/Desktop/Shell$ ./p3.sh
Enter number to be searched:
16
Entered number is: 16
16 is not present in list
```

1. Write a shell script to perform various operations on given strings.

```
#!/bin/sh
clear
i='y'
while [ $i = 'y' ]
do
        clear
        echo "Enter 1 for string compare."
        echo "Enter 2 for string concatenation."
        echo "Enter 3 for string length."
        echo "Enter 4 for EXIT."
        echo -n "Enter your choice: "
        read ch
        case $ch in
                1) echo -n "Enter 1st string: "
                read s1
                echo -n "Enter 2nd string: "
                read s2
                if [ $s1 = $s2 ]
                then
                        echo "Strings are equal!"
                else
                        echo "Strings are not equal!"
                fi;;
                2) echo -n "Enter 1st string: "
                read s1
                echo -n "Enter 2nd string: "
                read s2
                echo "$s1 $s2";;
                3) echo -n "Enter the string: "
                read s
                t=`expr "$s" | wc -c`
                t=`expr $t - 1`
                echo "Length of string is $t";;
                4) exit;;
                *) echo "Invalid Choice!";;
        esac
        echo -n "Do you want to continue? "
        read i
done
```

```
delta24@ITA2-39:~/Desktop/Shell/8$ nano 3.1.sh
delta24@ITA2-39:~/Desktop/Shell/8$ chmod +x 3.1.sh
delta24@ITA2-39:~/Desktop/Shell/8$ ./3.1.sh
```

```
Enter 1 for string compare.
Enter 2 for string concatenation.
Enter 3 for string length.
Enter 4 for EXIT.
Enter your choice: 1
Enter 1st string: Hello
Enter 2nd string: Hello
Strings are equal!
Do you want to continue? y
```

```
Enter 1 for string compare.
Enter 2 for string concatenation.
Enter 3 for string length.
Enter 4 for EXIT.
Enter your choice: 1
Enter 1st string: Hello
Enter 2nd string: hello
Strings are not equal!
Do you want to continue? y
```

```
Enter 1 for string compare.
Enter 2 for string concatenation.
Enter 3 for string length.
Enter 4 for EXIT.
Enter your choice: 2
Enter 1st string: Hello
Enter 2nd string: World
Hello World
Do you want to continue? y
```

```
Enter 1 for string compare.
Enter 2 for string concatenation.
Enter 3 for string length.
Enter 4 for EXIT.
Enter your choice: 3
Enter the string: Hello world
Length of string is 11
Do you want to continue? y
```

```
Enter 1 for string compare.
Enter 2 for string concatenation.
Enter 3 for string length.
Enter 4 for EXIT.
Enter your choice: 4
delta24@ITA2-39:~/Desktop/Shell/8$
```

2. **Write a shell program to compute GCD and LCM of two numbers.**

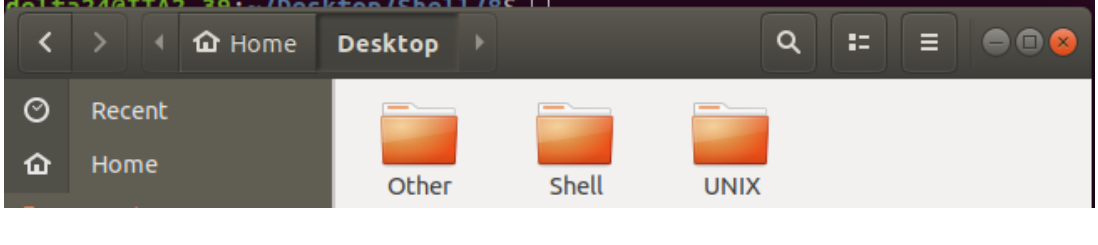
```
#!/bin/sh
echo "Enter two numbers: "
read num1 num2
if [ $num1 -lt $num2 ]
then
        temp=$num1
else
        temp=$num2
fi
while [ $temp -ne 0 ]
do
        x=`expr $num1 % $temp`
        y=`expr $num2 % $temp`
        if [ $x -eq 0 -a $y -eq 0 ]
        then
                gcd=$temp
                break
        fi
        temp=`expr $temp - 1`
done
lcm=`expr $num1 \* $num2 / $gcd`
echo "GCD of $num1 and $num2 is $gcd"
echo "LCM of $num1 and $num2 is $lcm"
```

```
delta24@ITA2-39:~/Desktop/Shell/8$ nano 2.sh
delta24@ITA2-39:~/Desktop/Shell/8$ chmod +x 2.sh
delta24@ITA2-39:~/Desktop/Shell/8$ ./2.sh
Enter two numbers:
2 4
GCD of 2 and 4 is 2
LCM of 2 and 4 is 4
delta24@ITA2-39:~/Desktop/Shell/8$ ./2.sh
Enter two numbers:
7 13
GCD of 7 and 13 is 1
LCM of 7 and 13 is 91
delta24@ITA2-39:~/Desktop/Shell/8$
```

3. **Write a shell program to check whether given file is a directory or not.**

```
#!/bin/sh
echo "Enter a directory: "
read pathname
if test -d $pathname
then
        echo "Entered file is a directory"
else
        if test -f $pathname
        then
                echo "It is a file"
        else
                echo "It is not a file"
        fi
fi
```

```
delta24@ITA2-39:~/Desktop/Shell/8$ nano 1.sh
delta24@ITA2-39:~/Desktop/Shell/8$ chmod +x 1.sh
delta24@ITA2-39:~/Desktop/Shell/8$ ./1.sh
Enter a directory:
/home/delta24/Desktop/Shell
Entered file is a directory
delta24@ITA2-39:~/Desktop/Shell/8$ ./1.sh
Enter a directory:
/home/delta24/Desktop/UL
It is not a file
```



4. Write a shell program to generate multiplication of numbers upto a specified limit.

```
#!/bin/sh
echo -n "Enter a number: "
read n
echo -n "Enter the range: "
read r
i=0
while [ $i -le $r ]
do
        echo "$n x $i = `expr $n \* $i`"
        i=`expr $i + 1`
done
```

```
delta24@ITA2-39:~/Desktop/Shell/8$ nano 4.sh
delta24@ITA2-39:~/Desktop/Shell/8$ chmod +x 4.sh
delta24@ITA2-39:~/Desktop/Shell/8$ ./4.sh
Enter a number: 9
Enter the range: 15
9 x 0 = 0
9 x 1 = 9
9 x 2 = 18
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
9 x 10 = 90
9 x 11 = 99
9 x 12 = 108
9 x 13 = 117
9 x 14 = 126
9 x 15 = 135
```

student.txt file

```
delta24@ITA2-39:~/Desktop/Shell$ cat student.txt
61,Evita,IT,A
5,Jaineel,IT,A
27,Rishan,IT,A
50,Bhagya,IT,B
35,Hollis,IT,B
1,Nelson,IT,B,IT
39,Dominic,IT,A,IT
41,Gaurav,CMPN,B
21,Sanket,CMPN,A
```

(A) LINE ADDRESSING:

Q.1) Write an sed command to display first 2 lines of a file and quit?

```
delta24@ITA2-39:~/Desktop/Shell$ sed '2q' student.txt
61,Evita,IT,A
5,Jaineel,IT,A
```

Q.2) Write an sed command to print the first 4 lines of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '4p' student.txt
50,Bhagya,IT,B
```

Q.3) Write an sed command to print from line 1 to line 3 of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '1,3p' student.txt
61,Evita,IT,A
5,Jaineel,IT,A
27,Rishan,IT,A
```

Q.4) Write an sed command to print from line 5 to line 7 of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '5,7p' student.txt
35,Hollis,IT,B
1,Nelson,IT,B,IT
39,Dominic,IT,A,IT
```

Q.5) Write an sed command to print the last line of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '$p' student.txt
21,Sanket,CMPN,A
```

Q.6) Write an sed command to print from line 1 to line 3 and from line 5 to line 7 and the last line of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n -e '1,3p' -e '5,7p' -e '$p' student.txt
61,Evita,IT,A
5,Jaineel,IT,A
27,Rishan,IT,A
35,Hollis,IT,B
1,Nelson,IT,B,IT
39,Dominic,IT,A,IT
21,Sanket,CMPN,A
```

(B) CONTEXT ADDRESSING:

Q.1) Write an sed command to display all lines of a file containing 'IT'?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '/IT/p' student.txt
61,Evita,IT,A
5,Jaineel,IT,A
27,Rishan,IT,A
50,Bhagya,IT,B
35,Hollis,IT,B
1,Nelson,IT,B,IT
39,Dominic,IT,A,IT
```

Q.2) Write an sed command to print all lines of a file containing 'IT' in a separate output file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed -n '/IT/w studentout.txt' student.txt
delta24@ITA2-39:~/Desktop/Shell$ cat studentout.txt
61,Evita,IT,A
5,Jaineel,IT,A
27,Rishan,IT,A
50,Bhagya,IT,B
35,Hollis,IT,B
1,Nelson,IT,B,IT
39,Dominic,IT,A,IT
```

Q.3) Write an sed command to delete lines containing 'IT'?

```
delta24@ITA2-39:~/Desktop/Shell$ sed '/IT/d' student.txt
41,Gaurav,CMPN,B
21,Sanket,CMPN,A
```

(C) SUBSTITUTION:

Q.1) Write an sed command to replace ',' with '|' only of first occurrence, on all the lines of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed 's/,/|/' student.txt
61|Evita,IT,A
5|Jaineel,IT,A
27|Rishan,IT,A
50|Bhagya,IT,B
35|Hollis,IT,B
1|Nelson,IT,B,IT
39|Dominic,IT,A,IT
41|Gaurav,CMPN,B
21|Sanket,CMPN,A
```

Q.2) Write an sed command to replace ',' with '|' of all global occurrence, on all the lines of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed 's/,/|/g' student.txt
61|Evita|IT|A
5|Jaineel|IT|A
27|Rishan|IT|A
50|Bhagya|IT|B
35|Hollis|IT|B
1|Nelson|IT|B|IT
39|Dominic|IT|A|IT
41|Gaurav|CMPN|B
21|Sanket|CMPN|A
```

Q.3) Write an sed command to replace ',' with '|' of all global occurrence, from line 2 to line 6, of a file?

```
delta24@ITA2-39:~/Desktop/Shell$ sed '2,6s/,/|/g' student.txt
61,Evita,IT,A
5|Jaineel|IT|A
27|Rishan|IT|A
50|Bhagya|IT|B
35|Hollis|IT|B
1|Nelson|IT|B|IT
39,Dominic,IT,A,IT
41,Gaurav,CMPN,B
21,Sanket,CMPN,A
```

UNIX LAB EXP-10.A

New.txt file

```
delta24@ITA2-39:~/Desktop/Shell$ cat New.txt
Hello echo, Welcome to echo command
Hello
echo is used to print. echo is similar to print command.
```

Q.1) Write a grep script to count number of lines containing the word 'echo'?

```
delta24@ITA2-39:~/Desktop/Shell$ grep -c 'echo' New.txt
2
```

Q.2) Write a grep script to count occurance of word in a given file?

```
delta24@ITA2-39:~/Desktop/Shell$ grep -o -w 'echo' New.txt | wc -w
4
```

Q.3) Write a grep script to search for a string in a given file?

```
delta24@ITA2-39:~/Desktop/Shell$ grep 'echo' New.txt
Hello echo, Welcome to echo command
echo is used to print. echo is similar to print command.
```

Q.4) Write a grep script to display line number, where pattern occurs?

```
delta24@ITA2-39:~/Desktop/Shell$ grep -n 'echo' New.txt
1:Hello echo, Welcome to echo command
3:echo is used to print. echo is similar to print command.
```

Q.5) Write a grep script to display lines excluding the pattern?

```
delta24@ITA2-39:~/Desktop/Shell$ grep -v 'echo' New.txt
Hello
```

Q.6) Write a grep script to display all lines starting or ending with a specific pattern?

```
delta24@ITA2-39:~/Desktop/Shell$ grep '^ec' New.txt
echo is used to print. echo is similar to print command.
delta24@ITA2-39:~/Desktop/Shell$ grep 'and$' New.txt
Hello echo, Welcome to echo command
```

Q.7) Write a grep script to find number of matched characters, words and lines in a file?

```
#!/bin/sh
echo "The no. of matched characters in a file is: "
grep -o "echo" New.txt | wc -c
echo "The number of matched words in a file is: "
grep -o "echo" New.txt |wc -w
echo "The number of matched lines in a file: "
grep -o "Hello" New.txt | wc -l
```

```
delta24@ITA2-39:~/Desktop/Shell/10.a$ nano 1.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ chmod +x 1.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ ./1.sh
The no. of matched characters in a file is:
20
The number of matched words in a file is:
4
The number of matched lines in a file:
2
```

Q.8) Write a grep script to find number of characters, words and lines in a file?

```
#!/bin/sh
echo "The no. of characters in a file is: "
grep "" New.txt | wc -c
echo "The number of words in a file is: "
grep "" New.txt |wc -w
echo "The number of lines in a file: "
grep "" New.txt | wc -l
```

```
delta24@ITA2-39:~/Desktop/Shell/10.a$ nano 2.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ chmod +x 2.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ ./2.sh
The no. of characters in a file is:
99
The number of words in a file is:
18
The number of lines in a file:
3
```

Q.9) Write an egrep script to list all files of the specified directory starting with a particular letter (eg.:10)?

```
#!/bin/sh
echo "Enter name of Directory: "
read dir
if [ -d $dir ]
then
        echo "List of files starting with '10': "
        ls $dir|egrep "^10"
else
        echo "Provide proper directory."
fi
```

```
delta24@ITA2-39:~/Desktop/Shell/10.a$ nano 4.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ chmod +x 4.sh
delta24@ITA2-39:~/Desktop/Shell/10.a$ ./4.sh
Enter name of Directory:
/home/delta24/Desktop/Shell/10.a
List of files starting with '10':
10.1
10.2 and 3.png
10.2.png
10.3.png
delta24@ITA2-39:~/Desktop/Shell/10.a$ ./4.sh
Enter name of Directory:
/home/delta24/Desktop/Sh
Provide proper directory.
```

UNIX LAB EXP-10.B

Q.1) Write an awk script to develop a fibonacci series?

```
awk 'BEGIN{
        for(i=1;i<=10;i++){
                if(i<=1) {
                        print i;
                        x=0;
                        y=1;
                } else {
                        z=x+y;
                        print z;
                        x=y;
                        y=z;
                }
        }
}'
```

```
delta24@ITA2-39:~/Desktop/Shell/10.b$ nano 1.sh
delta24@ITA2-39:~/Desktop/Shell/10.b$ chmod +x 1.sh
delta24@ITA2-39:~/Desktop/Shell/10.b$ ./1.sh
1
1
2
3
5
8
13
21
34
55
```

Q.2) Write an awk script to replace the nth occurance of a pattern?

```
awk 'BEGIN{count=0}
{
        if($1=="AAA") {
                count++;
        }
        if(count==4) {
                sub("AAA","ZZZ",$1);
        }
}
{
        print $0;
}' New.txt
```

```
delta24@ITA2-39:~/Desktop/Shell/10.b$ nano 2.sh
delta24@ITA2-39:~/Desktop/Shell/10.b$ chmod +x 2.sh
delta24@ITA2-39:~/Desktop/Shell/10.b$ cat New.txt
AAA
BBB
CCC
XXX
AAA
DDD
AAA
AAA
AAA
XXX
delta24@ITA2-39:~/Desktop/Shell/10.b$ ./2.sh
AAA
BBB
CCC
XXX
AAA
DDD
AAA
ZZZ
AAA
XXX
```

UNIX LAB EXP-10.C

Q.1) Write a perl program to display a message?

```
delta24@ITA2-39:~/Desktop/Shell/10.c$ perl -e 'print "Hello\nWorld\n";'
Hello
World
```

Q.2) Write an interactive perl script to convert temperature from Centigrade to Fahrenheit?

```
#!/usr/bin/perl
print("Enter the temperature in Centigrade: ");
$centigrade=<STDIN>;
$fahrenheit=$centigrade * 9.5 + 32;
print "The temperature in fahrenheit is: $fahrenheit\n";
```

```
delta24@ITA2-39:~/Desktop/Shell/10.c$ nano 2.pl
delta24@ITA2-39:~/Desktop/Shell/10.c$ chmod +x 2.pl
delta24@ITA2-39:~/Desktop/Shell/10.c$ perl 2.pl
Enter the temperature in Centigrade: 10
The temperature in fahrenheit is: 127
```

Q.3) Write a perl script to check whether entered number is Prime or not?

```
#/usr/bin/perl
print "Enter number to be checked: ";
$n=<>;
$d=0;
if($n==2){
        print "Prime number.\n";
}else{
        for($c=2;$c<=$n-1;$c++){
                if($n % $c == 0){
                        $d=1;
                        break;
                }
        }
        if($d==1){
                print "Not a Prime number.\n";
        }else{
                print "Prime number.\n";
        }
}
```

```
delta24@ITA2-39:~/Desktop/Shell/10.c$ nano 3.pl
delta24@ITA2-39:~/Desktop/Shell/10.c$ chmod +x 3.pl
delta24@ITA2-39:~/Desktop/Shell/10.c$ perl 3.pl
Enter number to be checked: 2
Prime number.
delta24@ITA2-39:~/Desktop/Shell/10.c$ perl 3.pl
Enter number to be checked: 9
Not a Prime number.
delta24@ITA2-39:~/Desktop/Shell/10.c$ perl 3.pl
Enter number to be checked: 5
Prime number.
```