

OPERATING SYSTEM

ASSIGNMENT-2

Submitted by:

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Q1:

Program to perform Arithmetic operations using SHELL script.

CODE:

```
a=30
b=40

val=`expr $a + $b`
echo "a + b : $val"

val=`expr $a - $b`
echo "a - b : $val"

val=`expr $a \* $b`
echo "a * b : $val"

val=`expr $b / $a`
echo "b / a : $val"

val=`expr $b % $a`
echo "b % a : $val"

if [ $a == $b ]
then
    echo "a is equal to b"
fi

if [ $a != $b ]
then
    echo "a is not equal to b"
fi
```

OUTPUT:

Prabhnoorsingh@ubuntu-DESKTOP-D995NIM	~\$ editor assignment1.sh
Prabhnoorsingh@ubuntu-DESKTOP-D995NIM	~\$ editor assignment1.sh
Prabhnoorsingh@ubuntu-DESKTOP-D995NIM	~\$ chmod +x assignment1.sh
Prabhnoorsingh@ubuntu-DESKTOP-D995NIM	~\$./assignment1.sh

```
a + b : 70
a - b : -10
a * b : 1200
b / a : 1
b % a : 10
a is not equal to b
```

Q2:

Programs that deal with various condition statements and looping using SHELL script.

CODE:

```
a=0
while [ $a -lt 10 ]
do
    echo $a
    if [ $a -eq 5 ]
    then
        break
    fi
    a=`expr $a + 1`
done
```

OUTPUT:

Prabhoorsingh@ubuntu-DESKTOP-D995NIM	~\$ editor assign1.sh
	~\$ chmod +x assign1.sh
Prabhoorsingh@ubuntu-DESKTOP-D995NIM	~\$./assign1.sh

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Q3:

Write a shell script to identify factorial, Fibonacci, and Tribonacci series for a number.

CODE:

```
#!/bin/bash
echo "Enter a number"
read num
number=$num
fact=1

while [ $num -gt 1 ]
do
    fact=$((fact * num)) #fact = fact * num
    num=$((num - 1))     #num = num - 1
done

echo "Factorial of $number is $fact"

a=0
b=1
echo "The Fibonacci series is : "
for (( i=0; i<number; i++ ))
do
    echo -e "$a \n"
    fn=$((a + b))
    a=$b
    b=$fn
done

a=0
b=0
c=1
echo "The Tribonacci series is: "
for (( i=0; i<number; i++ ))
do
    echo -e "$a \n"
    fn=$((a + b + c))
    a=$b
    b=$c
    c=$fn
done
```

OUTPUT:

```
Prabhoorsingh@ubuntu-DESKTOP-D99SNIM :~$ editor ass1.sh
Prabhoorsingh@ubuntu-DESKTOP-D99SNIM :~$ chmod +x ass1.sh
Prabhoorsingh@ubuntu-DESKTOP-D99SNIM :~$ ./ass1.sh

5
Factorial of 5 is 120
The Fibonacci series is :
0
1
1
2
3
The Tribonacci series is:
0
0
1
1
2
```

Q4:

Write a SHELL script to implement the array manipulations.

```
main bash
1 my_array=("mango" "grapes" "strawberry" "date" "cranberry")
2 echo "Original array: ${my_array[@]}"
3 echo "Element at index 2: ${my_array[2]}"
4 my_array[1]="grape"
5 echo "Updated array: ${my_array[@]}"
6 my_array+=( "fig" "grapefruit" )
7 echo "Updated array: ${my_array[@]}"
8 unset my_array[3]
9 echo "Updated array: ${my_array[@]}"
10 array_length=${#my_array[@]}
11 echo "Length of the array: $array_length"
12 echo "Iterating through the array:"
13 for element in "${my_array[@]"; do
14     echo "$element"
15 done
```

CODE:

OUTPUT:

```
input
Original array: mango grapes strawberry date cranberry
Element at index 2: strawberry
Updated array: mango grape strawberry date cranberry
Updated array: mango grape strawberry date cranberry fig grapefruit
Updated array: mango grape strawberry cranberry fig grapefruit
Length of the array: 6
Iterating through the array:
mango
grape
strawberry
cranberry
fig
grapefruit
```