Assignment-1

Explore editor in the terminal of UNIX and write shell programming for the following:

i. Program to perform Arithmetic operations using SHELL script.
ii. Programs that deal with various condition statements and looping using SHELL script.
iii. Write a shell script to identify factorial, Fibonacci, and Tribonacci series for a number Tribonacci Series Example- > Output: 0, 0, 1, 1, 2,4
iv. Write a SHELL script to implement the array manipulations.

```
# These are various arithmetic operations in Shell Script
echo "Enter the First Number:"
read x
echo "Enter the second Number:"
read y

sum=$(($x+$y))
echo "The sum of X and Y is ${sum}"

sub=$(($x-$y))
echo "The difference of X and Y is ${sub}"

product=$(($x*$y))
echo "The product of X and Y is ${product}"

div=$(($x/$y))
echo "The division of X and Y gives ${div}"

mod=$(($x%$y))
echo "The mod of X and Y gives ${mod}"
```

Output:

```
HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ ./arithmatic.sh
Enter the First Number:
3
Enter the second Number:
6
The sum of X and Y is 9
The difference of X and Y is -3
The product of X and Y is 18
The division of X and Y gives 0
The mod of X and Y gives 3
```

Conditional Statements

```
a=10
b=20

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

Output:

```
HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ chmod +x conditional.sh

HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ ./conditional.sh
a is not equal to b
```

Looping Statements:

```
for i in {1..10}
do
    echo "${i}"
done
```

Output:

```
HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ chmod +x loops.sh

HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ ./loops.sh
1
2
3
4
5
6
7
8
9
10
```

Factorial, Fibonacci, Tribonacci:

```
echo "Enter the input for factorial"
read x
factorial=1

for ((i=x;i>1;i--));
{
    factorial=$((factorial*i))
}

echo "Factorial is ${factorial}"

echo "Enter the input to get the Fibonacci series and Tribonacci series"
read nm

function fibo
{
    x=0
    y=1
    i=2
    echo "Fibonacci Series is"
    echo "$x"
    echo "$y"

    while [ $i -lt $nm ]
    do
        i=$(($i+1))
        z=$(($x+$y))

        echo "$z"

        x=$y
        y=$z
    done
}
fibo $nm


echo "The Tribonacci series for the same is"

function tribo
{
    x=0
    y=1
    z=1
    echo "Tribonacci series is"
    echo "$x"
    echo "$y"
```

```
    echo "$z"
    i=3

    while [ $i -lt $nm ]
    do
        p=$(($x+$y+$z))
        echo "$p"

        x=$y
        y=$z
        z=$p
        i=$(($i+1))
    done

}
tribo $nm
```

Output:

```
HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ ./factorial.sh
Enter the input for factorial
5
Factorial is 120
Enter the input to get the Fibonacci series and Tribonacci series
5
Fibonacci Series is
0
1
1
2
3
The Tribonacci series for the same is
Tribonacci series is
0
1
1
2
4
```

Array implementation:

```
arr[0]=1
arr[1]=2
arr[2]=3
arr[3]=4
arr[4]=5

echo "First Index: ${arr[0]}"
echo "Second Index: ${arr[1]}"
echo "Third Index: ${arr[2]}"
echo "Fourth Index: ${arr[3]}"
```

Output:

```
HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ chmod +x arr.sh

HP@DESKTOP-8A8DKGD MINGW64 /e/Semester_5/OS/Assignment-2
$ ./arr.sh
First Index: 1
Second Index: 2
Third Index: 3
Fourth Index: 4
```