Assignment – 1

Ques.1 - Program to perform Arithmetic operations using SHELL script.

Sol. -

```
#!/bin/bash
 a=56 b=20
 echo "numbers are : $a and $b"
c=$((a+b))
 echo "addition : $c"
 d=$((a-b))
 echo "subtraction: $d"
 e=$((a*b))
 echo "multiplication : $e"
 f=$((a/b))
 echo "division : $f"
```

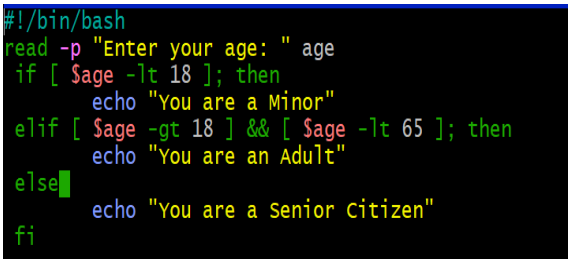
```
#!/bin/bash
a=40
b=20
echo "numbers are : $a and $b"
c=$((a+b))
echo "addition : $c"
d=$((a-b))
echo "subtraction : $d"
e=$((a*b))
echo "multiplication : $e"
f=$((a/b))
echo "division : $f"
```

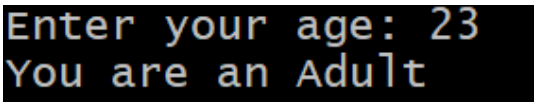
```
numbers are : 40 and 20
addition : 60
subtraction : 20
multiplication : 800
division : 2
```

Ques.2 - Programs that deal with various condition statements and looping using SHELL script.

Sol. – If/Else –

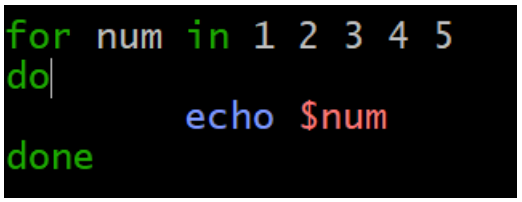
```
#!/bin/bash
read -p "Enter your age: " age
 if [ $age -lt 18 ]; then
        echo "You are a Minor"
 elif [ $age -gt 18 ] && [ $age -lt 65 ];
then
        echo "You are an Adult"
 else
        echo "You are a Senior Citizen"
 fi
```





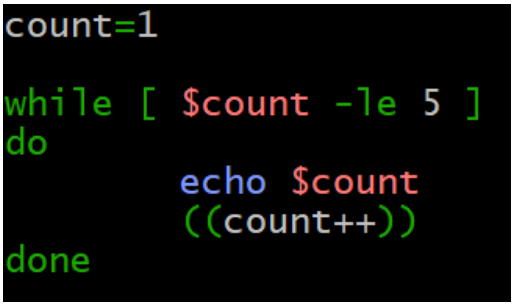
For Loop –

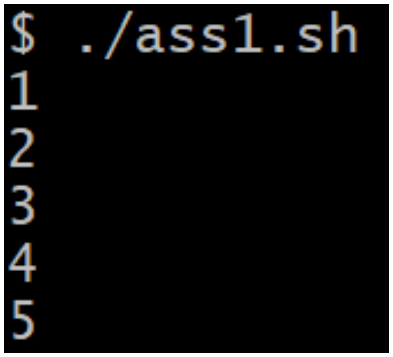
```
for num in 1 2 3 4 5
do
        echo $num
done
```



While Loop –

```
while [ $count -le 5 ]
do
        echo $count
        ((count++))
done
```



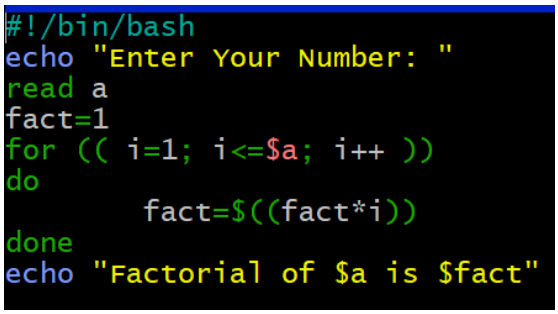


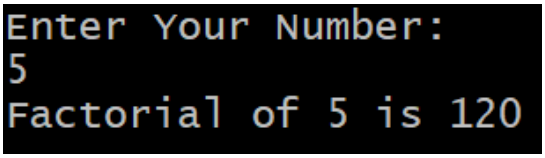
Ques.3 - Write a shell script to identify

factorial,
Fibonacci, and Tribonacci series for a number.

Sol. - Factorial -

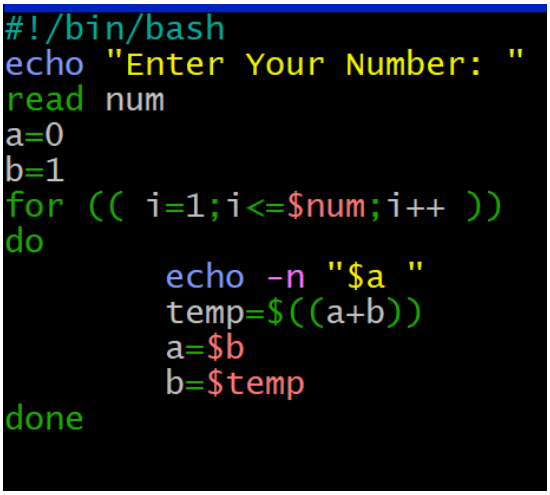
```
#!/bin/bash
echo "Enter Your Number: "
read a
fact=1
for (( i=1; i<=$a; i++ ))
do
        fact=$((fact*i))
done
echo "Factorial of $a is $fact"
```

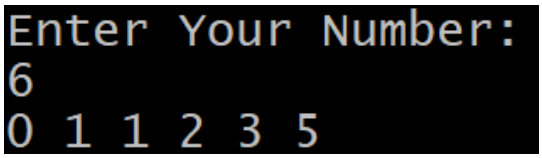




Fibonacci Series -

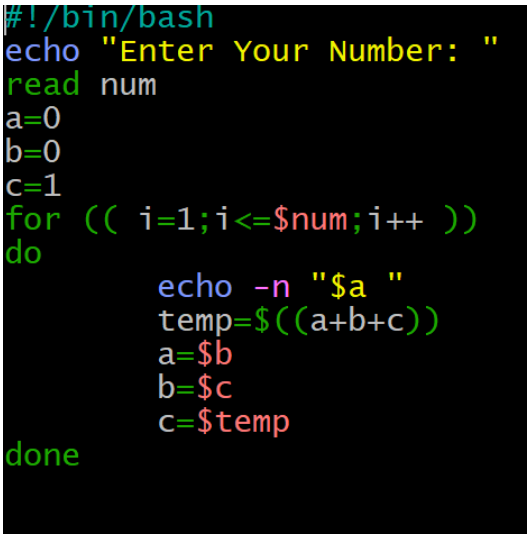
```
#!/bin/bash
echo "Enter Your Number: "
read num
a=0
b=1
for (( i=1;i<=$num;i++ ))
do
        echo -n "$a "
        temp=$((a+b))
        a=$b
        b=$temp
done
```





Tribonacci Series -

```
#!/bin/bash
echo "Enter Your Number: "
read num
a=0
b=0
```



```
c=1
for (( i=1;i<=$num;i++ ))
do
        echo -n "$a "
        temp=$((a+b+c))
        a=$b
        b=$c
        c=$temp
done
```

```
Enter Your Number:
10
0 0 1 1 2 4 7 13 24 44
```

Ques.4 - Write a SHELL script to implement the array manipulations.

```
#!/bin/bash
arr=("Apple" "Banana" "Orange")
echo "Original Array: ${arr[@]}"
echo "Element at Index 1: ${arr[1]}"
arr+=("Grapes")
echo "Array after adding grapes: ${arr[@]}"
arr[1]="Berry"
echo "Array after Updating: ${arr[@]}"
echo "Length of the Array is: ${#arr[@]}"
echo "Elements of Array: "
for element in "${arr[@]}";
do
        echo "$element"
done
```

```
#!/bin/bash
arr=("Apple" "Banana" "Orange")
echo "Original Array: ${arr[@]}"
echo "Element at Index 1: ${arr[1]}"
arr+=("Grapes")
echo "Array after adding grapes: ${arr[@]}"
arr[1]="Berry"
echo "Array after Updating: ${arr[@]}"
echo "Length of the Array is: ${#arr[@]}"
echo "Elements of Array: "
for element in "${arr[@]}";
do
        echo "$element"
done
```

```
Original Array: Apple Banana Orange
Element at Index 1: Banana
Array after adding grapes: Apple Banana Orange Grapes
Array after Updating: Apple Berry Orange Grapes
Length of the Array is: 4
Elements of Array:
Apple
Berry
Orange
Grapes
```