

# Assignment 1 OS

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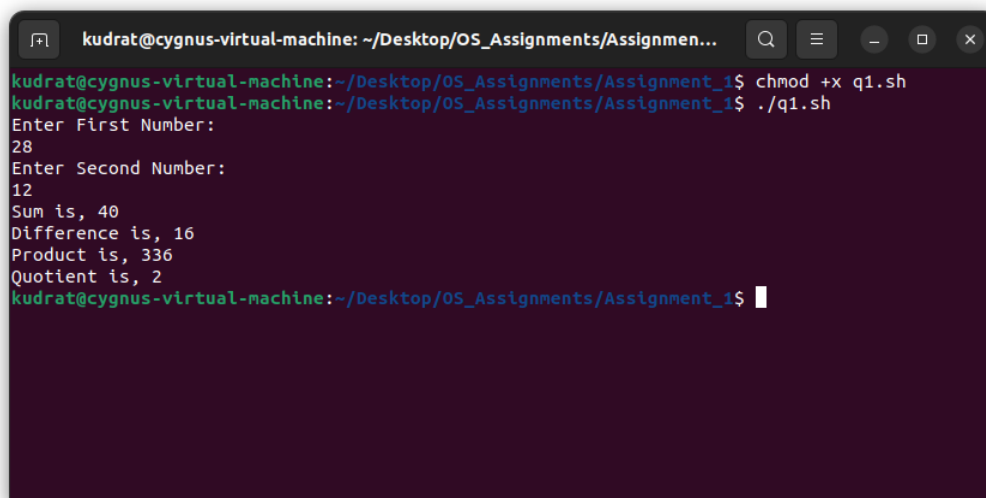
Q1 Program to perform Arithmetic operations using SHELL script.

CODE:



```
1 echo "Enter First Number:"
2 read var1
3
4 echo "Enter Second Number:"
5 read var2
6
7 Sum=$((var1+var2))
8
9 Difference=$((var1-var2))
10
11 Product=$((var1*var2))
12
13 quotient=$((var1/var2))
14
15 echo "Sum is, $Sum"
16 echo "Difference is, $Difference"
17 echo "Product is, $Product"
18 echo "Quotient is, $quotient"
```

OUTPUT:



```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignmen...
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ chmod +x q1.sh
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./q1.sh
Enter First Number:
28
Enter Second Number:
12
Sum is, 40
Difference is, 16
Product is, 336
Quotient is, 2
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$
```

Q2 Programs that deal with various condition statements and looping using SHELL script

**Conditional statement->**

**CODE:**

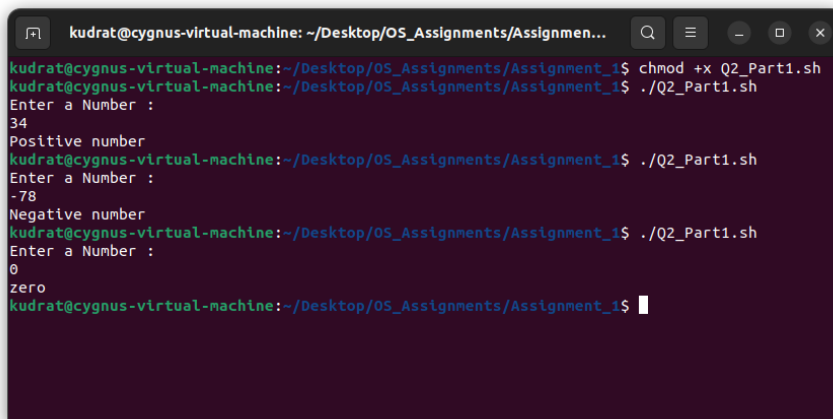


```
Q2_Part1.sh
~/Desktop/OS_Assignments/Assignment_1

1 echo "Enter a Number : "
2 read A
3
4 if [ $A -gt 0 ]
5 then
6     echo "Positive number"
7 elif [ $A -lt 0 ]
8 then
9     echo "Negative number"
10 else
11     echo "zero"
12 fi

sh  Tab Width: 8  Ln 7, Col 17  INS
```

**OUTPUT:**



```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignmen...
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ chmod +x Q2_Part1.sh
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q2_Part1.sh
Enter a Number :
34
Positive number
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q2_Part1.sh
Enter a Number :
-78
Negative number
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q2_Part1.sh
Enter a Number :
0
zero
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$
```

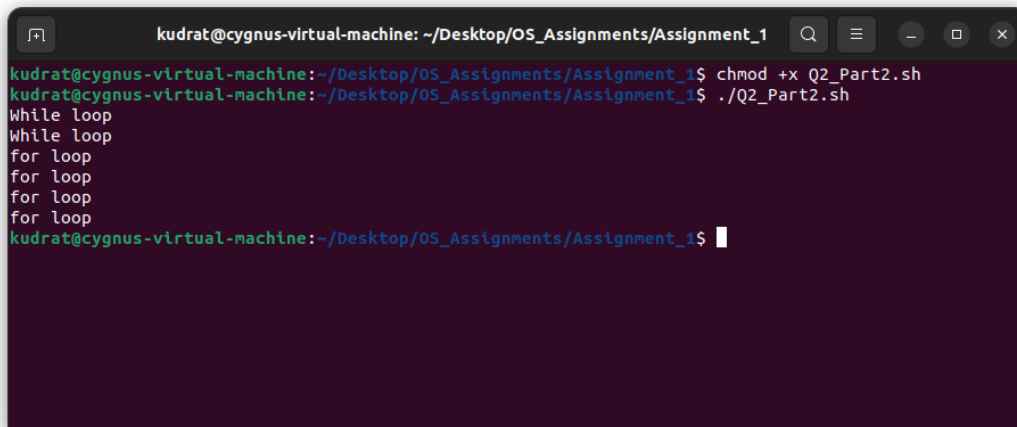
Looping->

CODE:



```
1 i=1
2
3 while [ $i -lt 3 ]
4 do
5     echo "While loop"
6     i=$(( i+1 ))
7 done
8
9 for n in {1..4}
10 do
11     echo "for loop"
12     i=$(( i+1 ))
13 done
```

OUTPUT:




```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignment_1
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ chmod +x Q2_Part2.sh
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q2_Part2.sh
While loop
While loop
for loop
for loop
for loop
for loop
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$
```

Q3 Write a shell script to identify factorial, Fibonacci, and Tribonacci series for a number.  
eg:Tribonacci - Input : 5 Output : 0, 0, 1, 1, 2

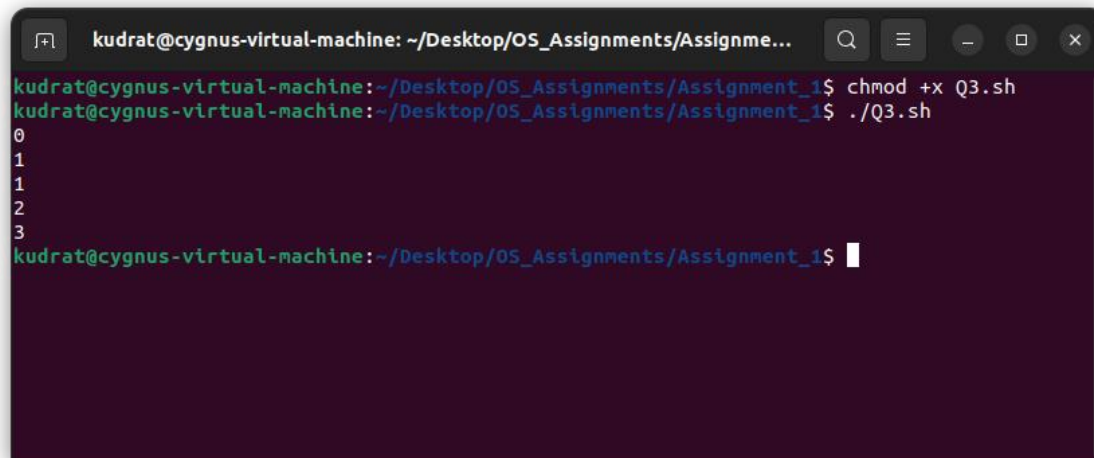
**Fibonacci Series->**

**CODE:**



```
Q3.sh
~/Desktop/OS_Assignments/Assignment_1
1 N=5
2
3 a=0
4
5 b=1
6
7 for (( i=0 ; i<N ; i++ ))
8 do
9     echo "$a"
10    t=$(( a+b ))
11
12    a=$b
13    b=$t
14 done
```

**OUTPUT:**



```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignme...
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ chmod +x Q3.sh
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q3.sh
0
1
1
2
3
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$
```

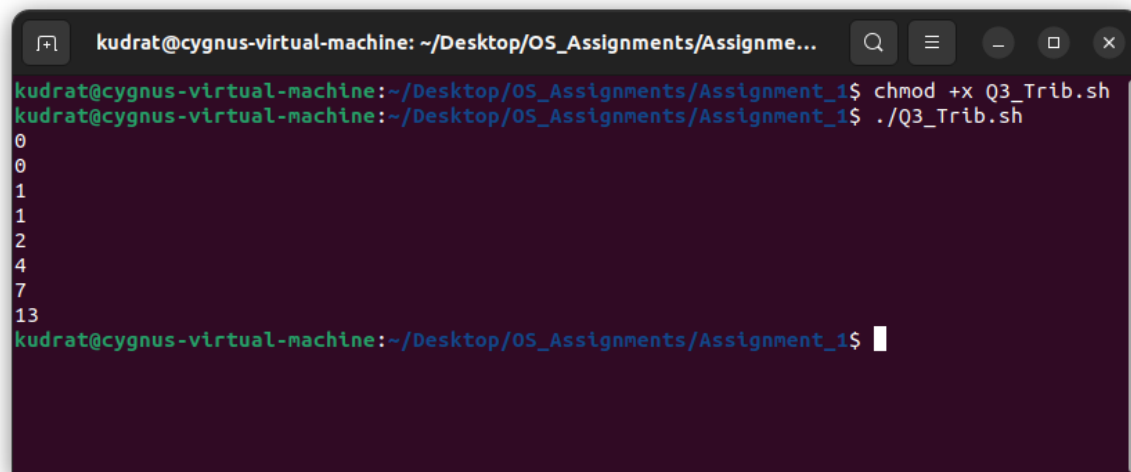
## Tribonacci Series->

CODE:

A screenshot of a code editor window titled "Q3\_Trib.sh" with the path "~/Desktop/OS\_Assignments/Assignment\_1". The editor contains a shell script for calculating the Tribonacci series. The script sets N=5, initializes a=0, b=0, and c=1, and prints their values. It then enters a for loop from i=0 to i=N-1, calculating the next value t=a+b+c, printing it, and updating a, b, and c. The status bar at the bottom shows "sh", "Tab Width: 8", "Ln 16, Col 13", and "INS".

```
1 N=5
2
3 a=0
4 b=0
5 c=1
6
7 echo "$a"
8 echo "$b"
9 echo "$c"
10
11
12 for (( i=0 ; i<N ; i++ ))
13 do
14     t=$(( a+b+c ))
15     echo "$t"
16     a=$b
17     b=$c
18     c=$t
19 done
```

OUTPUT:

A screenshot of a terminal window showing the execution of the Tribonacci series script. The user runs "chmod +x Q3\_Trib.sh" and then "./Q3\_Trib.sh". The output shows the values 0, 0, 1, 1, 2, 4, 7, and 13, each on a new line. The terminal prompt is "kudrat@cygnus-virtual-machine: ~/Desktop/OS\_Assignments/Assignment\_1\$".

```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignment_1$ chmod +x Q3_Trib.sh
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignment_1$ ./Q3_Trib.sh
0
0
1
1
2
4
7
13
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignment_1$
```

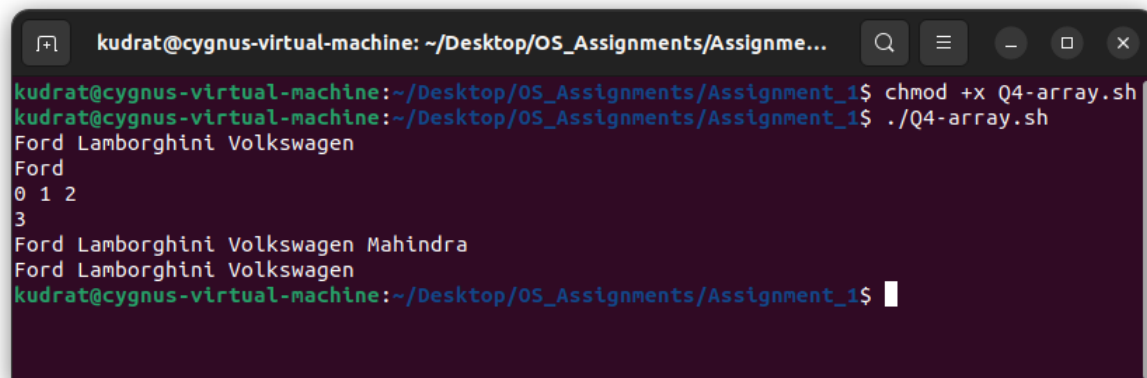
Q4 Write a SHELL script to implement the array manipulations.

CODE:



```
1 Cars=('Ford' 'Lamborghini' 'Volkswagen')
2
3 #Print all the elements of the array
4 echo "${Cars[@]}"
5
6 #Print a specific element
7 echo "${Cars[0]}"
8
9 #Print indeces
10 echo "${!Cars[@]}"
11
12 #Print length of array
13 echo "${#Cars[@]}"
14
15 #Insert a new element
16 Cars[3]='Mahindra'
17 echo "${Cars[@]}"
18
19 #remove an element
20 unset Cars[3]
21 echo "${Cars[@]}"
```

OUTPUT:



```
kudrat@cygnus-virtual-machine: ~/Desktop/OS_Assignments/Assignme...
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ chmod +x Q4-array.sh
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$ ./Q4-array.sh
Ford Lamborghini Volkswagen
Ford
0 1 2
3
Ford Lamborghini Volkswagen Mahindra
Ford Lamborghini Volkswagen
kudrat@cygnus-virtual-machine:~/Desktop/OS_Assignments/Assignment_1$
```