1. Write a shell script to calculate the average of a set of N number.

```
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % cat avgofnum.sh
#! bin/bash

#variable declaration
total=0
avg=0
i=1

#getting i/p from customer
read -p "Enter a number: " num

#looping statement to run until it reaches the entered num
while [ $i -le $num ]
do
        total=`echo $total+$i | bc`   #calculate the total by adding the num
        i=`echo $i+1 | bc`            #incrementing the i value
done
avg=`echo $total/$num | bc`           #calculating the average

#displaying o/p on screen
echo "Average of 1st $num is: $avg"

bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % bash avgofnum.sh
Enter a number: 50
Average of 1st 50 is: 25
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 %
```

2. Write a Unix shell script to find the sum of number to given number. e.g. if entered number is 5 then 1+2+3+4+5

```
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % cat sumofgivennum.sh
#! /bin/bash

#variable declaration
num=0
total=0

#getting i/p from user
read -p "Enter a number: " num

#looping till the value incorrect
for ((i=1; i<=num; i++))
do
        total=`echo $total+$i | bc`   #adding the numbers and storing in the variable total
done

#printing the o/p
echo "The sum of given number $num  is: $total"
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % bash sumofgivennum.sh
Enter a number: 62
The sum of given number 62  is: 1953
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 %
```

3. Write a shell script to find the factorial of a given number

```
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % cat factorial.sh
#! /bin/bash

#declaration of variable
num=0
fac=1

#getting i/p from user
read -p "Enter a number: " num

#looping statement will run until false
for ((i=1; i<=num; i++))
do
        fac=$((fac*i))  #multiplying fac with i which increment until false
done                    #end of for loop

#priniting the factorail
echo "Factorial of $num is: $fac"
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % bash factorial.sh
Enter a number: 7
Factorial of 7 is: 5040
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 %
```

4. Write a shell script to find the first n Fibonacci numbers.

```
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % cat fibonacci.sh
#! /bin/bash

#declaration of variable
num=0
fac=0
i=1
j=1
k=3

#getting i/p from user
read -p "Enter a number: " num

#printing the 1st 3 digits of fibonnaci series
echo -e "Fibonacci Series of $num numbers: \n$fac\n$i\n$j"

#looping statement will run until false
while [ $k -lt $num ]
do
        fac=$((i+j))    #adding value of i and j
        i=$j            #assigning the value of i with j
        j=$fac          #assigning the value of j with fac
        echo "$fac"     #printing the value of fac
        k=$((k+1))      #incrementing the value of k
done                    #end of loop
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 % bash fibonacci.sh
Enter a number: 12
Fibonacci Series of 12 numbers:
0
1
1
2
3
5
8
13
21
34
55
89
bibekjyotinath@Bibekjyotis-MacBook-Air Class_6 %
```

5. Write a shell script to find the maximum and minimum number from n given numbers.

```
bibekjyotinath@Bibekjyotis-MacBook-Air ~ % cat maxnmin.sh
#! /bin/bash

#variable declaration
num=0
max=0
min=0
num1=0

#getting i/p from the user
read -p "How many numbers do you want to enter: " num
read -p "Please enter the number: " num1
min=$num1   #assigining value of num1 to min
max=$min    #assigning value of min to max

#loop to get the number i/p from users
for ((i=1; i<num; i++))
do
        read -p "Pleaes enter the number: " num1     #getting i/p from the user
        if [ $num1 -ge $max ]       #checking if entered number is greater than max
        then max=$num1                   #assigning value of num1 to max
        fi                          #end of if
        if [ $num1 -le $min ]       #checking if entered number is smaller than max
        then min=$num1              #assigining value of num1 to min
        fi                          #end of if
done                                #end of for loop
echo "Smallest number is: $min"
echo "Largest number is: $max"
bibekjyotinath@Bibekjyotis-MacBook-Air ~ % bash maxnmin.sh
How many numbers do you want to enter: 10
Please enter the number: 92
Pleaes enter the number: 31
Pleaes enter the number: 47
Pleaes enter the number: 76
Pleaes enter the number: 0
Pleaes enter the number: 12
Pleaes enter the number: 79
Pleaes enter the number: 99
Pleaes enter the number: 102
Pleaes enter the number: -12
Smallest number is: -12
Largest number is: 102
bibekjyotinath@Bibekjyotis-MacBook-Air ~ %
```