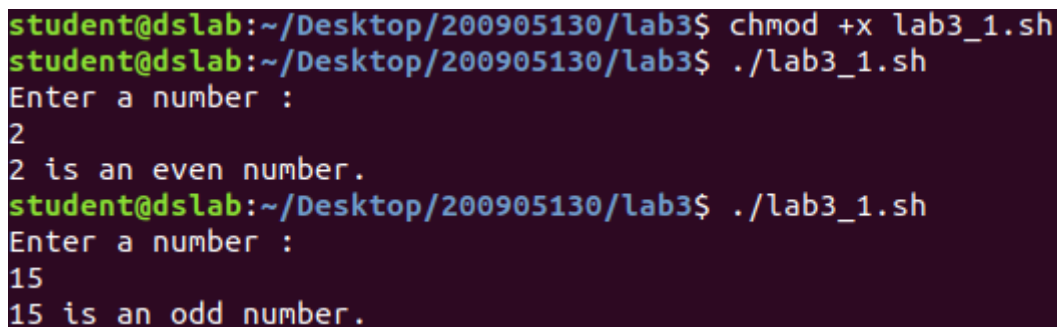


LAB – 3

1) Find whether the given number is even is odd.

Ans :

```
echo "Enter a number : "  
read number  
if [ `expr $number % 2` -eq 0 ]  
then  
echo $number "is an even number."  
else  
echo $number "is an odd number."  
fi
```



```
student@dslab:~/Desktop/200905130/lab3$ chmod +x lab3_1.sh  
student@dslab:~/Desktop/200905130/lab3$ ./lab3_1.sh  
Enter a number :  
2  
2 is an even number.  
student@dslab:~/Desktop/200905130/lab3$ ./lab3_1.sh  
Enter a number :  
15  
15 is an odd number.
```

2) Print first 'n' odd numbers.

Ans :

```
echo "Enter a number : "  
read num  
count=1  
x=1  
echo "First" $num "odd numbers are : "  
while [ $count -le $num ]  
do  
rem=`expr $x % 2`  
if [ $rem -eq 1 ]  
then  
echo $x  
count=`expr $count + 1`  
fi  
x=`expr $x + 1`  
done
```

```

student@dslab:~/Desktop/200905130/lab3$ chmod +x lab3_2.sh
student@dslab:~/Desktop/200905130/lab3$ ./lab3_2.sh
Enter a number :
10
First 10 odd numbers are :
1
3
5
7
9
11
13
15
17
19

```

3) Find all the possible quadratic equation roots using case.

Ans :

```

#Quadratic equation is of the form  $ax^2+bx+c=0$ 
echo "Enter the coefficients a b c of the quadratic equation : "
read a b c
disc=$(echo "$b*$b-4*$a*$c" | bc -l)
if [ $disc -gt 0 ]
then
d="r"
elif [ $disc -lt 0 ]
then
d="i"
else
d="e"
fi
case $d in
"e")
echo "Roots are real and equal."
root1=$(echo "((-1*$b)/(2*$a))" | bc -l)
root2=$(echo "((-1*$b)/(2*$a))" | bc -l)
echo "$root1 and $root2 are the roots of the quadratic equation."
;;
"r")
root_disc=$(echo "scale=15; sqrt($disc)" | bc -l)
echo "Roots are real and different."
root1=$(echo "((-1*$b+$root_disc)/(2*$a))" | bc -l)
root2=$(echo "((-1*$b-$root_disc)/(2*$a))" | bc -l)
echo "$root1 and $root2 are the roots of the quadratic equation."
;;
"i")
echo "Roots are imaginary."
root_disc=$(echo "scale=15; sqrt(-1*$disc)" | bc -l)
real=$(echo "((-1*$b)/(2*$a))" | bc -l)
img=$(echo "($root_disc)/(2*$a)" | bc -l)
echo "$real+i($img) and $real-i($img) are the roots of the quadratic equation."
;;
esac

```

```
student@dslab:~/Desktop/200905130/lab3$ chmod +x lab3_3.sh
student@dslab:~/Desktop/200905130/lab3$ ./lab3_3.sh
Enter the coefficients a b c of the quadratic equation :
1 1 1
Roots are imaginary.
-.5000000000000000000+i(.86602540378443850000) and -.5000000000000000000-i(.86602540378443850000) are the roots of the quadratic equation.
student@dslab:~/Desktop/200905130/lab3$ ./lab3_3.sh
Enter the coefficients a b c of the quadratic equation :
1 5 6
Roots are real and different.
-2.0000000000000000000 and -3.0000000000000000000 are the roots of the quadratic equation.
student@dslab:~/Desktop/200905130/lab3$ ./lab3_3.sh
Enter the coefficients a b c of the quadratic equation :
2 8 8
Roots are real and equal.
-2.0000000000000000000 and -2.0000000000000000000 are the roots of the quadratic equation.
```

4) Find the factorial of a given number.

Ans :

```
echo "Enter a number : "  
read n  
fac=1  
num=$n  
while [ $n -ge 1 ]  
do  
fac=`expr $fac \* $n`  
n=`expr $n - 1`  
done  
echo "$num factorial = $fac"
```

```
student@ds1ab:~/Desktop/200905130/lab3$ chmod +x lab3_4.sh
student@ds1ab:~/Desktop/200905130/lab3$ ./lab3_4.sh
Enter a number :
4
4 factorial = 24
student@ds1ab:~/Desktop/200905130/lab3$ ./lab3_4.sh
Enter a number :
8
8 factorial = 40320
```
