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Lab Assignment 5

Ques 1. WAP to swap the values of two numbers.

```
echo "Write your first number"
read num1
echo "Write your second number"
read num2
temp=$num1
num1=$num2
num2=$temp
echo "Num1: $num1"
echo "Num2: $num2"
```

Output

```
sneha@ubuntu:~/osLab$ sh swapping.sh
Write your first number
50
Write your second number
60
Num1: 60
Num2: 50
sneha@ubuntu:~/osLab$
```

Ques 2. WAP to perform addition, subtraction, multiplication, division and modulus of two numbers.

```
echo "Enter the first number: "
read n1
echo "Enter the second number: "
read n2
s=`expr $n1 + $n2`

echo "Sum: $s"

sub=`expr $n2 - $n1`
```

```
echo "Subtraction: $sub"

p=`expr $n1 \* $n2`

echo "Product: $p"

d=`expr $n2 / $n1`

echo "Division: $d"

m=`expr $n1 % $n2`

echo "Modulus: $m"
```

Output

```
sneha@ubuntu:~/osLab$ sh airthmetic.sh
Enter the first number:
30
Enter the second number:
60
Sum: 90
Subtraction: 30
Product: 1800
Division: 2
Modulus: 30
sneha@ubuntu:~/osLab$
```

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Ques 3. WAP to check whether a number is even or odd.

```
echo "Enter your number"
read number
isEven=`expr $number % 2`
if [ $isEven -eq 0 ]
then
echo "Number is even "
else
echo "number is odd"
fi
```

Output

```
sneha@ubuntu:~/osLab$ sh evenOdd.sh
Enter your number
86
Number is even
```

Ques 4. WAP to print the largest number among three numbers.

```
echo "Enter the three numbers"
read a b c

if [ $a -gt $b -a $a -gt $c ]
then
echo "$a is  the gretest number"
elif [ $b -gt $a -a $b -gt $c ]
then
echo "$b is the gretest number"
else
echo "$c is the gretest number"
fi
```

Output

```
sneha@ubuntu:~/osLab$ sh largestNum.sh
Enter the three numbers
10 40 80
80 is the gretest number
```

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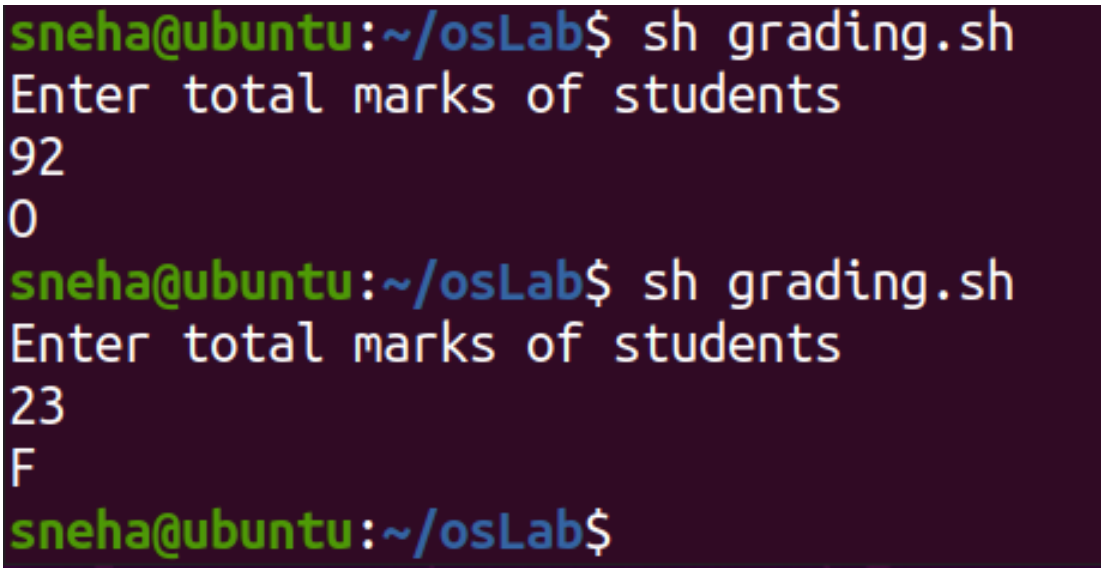
Ques 5. WAP to implement grading system.

```
echo "Enter total marks of students"
read n
case $n in
100)
echo "O" ;;
9[0-9]) echo "O" ;;
8[0-9])echo "E" ;;
7[0-9]) echo "A" ;;
6[0-9]) echo "B" ;;
5[0-9]) echo "C" ;;
4[0-9]) echo "D" ;;
*)
echo "F";;
esac
```

Output



Ques 6. Write a shell program to find whether a given year is a leap year or not.

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```
echo "Enter Year: "
read yrs

x=`expr $yrs % 400`
y=`expr $yrs % 100`
z=`expr $yrs % 4`
if [ $x -eq 0 ] || [ $y -ne 0 ] && [ $z -eq 0 ]
then
echo "$yrs is a Leap Year"
else
echo "$yrs is not a Leap Year"
fi
```

Output

```
sneha@ubuntu:~/osLab$ sh leapYear.sh
Enter Year:
2016
2016 is a Leap Year
sneha@ubuntu:~/osLab$
```

Ques 7. WAP to print numbers between 1 to 10.

```
a=1
while [ $a -le 100 ]
do
echo $a
a=`expr $a + 1`
done
```

Output

```
sneha@ubuntu:~/osLab$ sh print_1-10.sh
1
2
3
4
5
6
7
8
9
10
sneha@ubuntu:~/osLab$
```

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Ques 8. Write a shell script to display the gross salary of an employee (basic+da+hra).

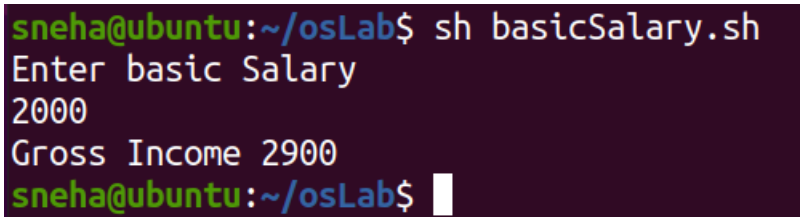
```
echo "Enter basic Salary"
read sal

da=`expr $sal \* 15 / 100`
hra=`expr $sal \* 30 / 100`

gross=`expr $sal + $da + $hra`

echo "Gross Income $gross"
```

Output



Ques 9. Write a shell script to which will accept a number & find out the summation of square of last 3 digits.

```
echo "Enter Number"
read num

count=0
sum=0
temp=$num

while [ $count -lt 3 ]
do
lastDigit=`expr $temp % 10`
sum=`expr $sum + $lastDigit \* $lastDigit`
temp=`expr $temp / 10`
count=`expr $count + 1`
done

echo "Sum of square of last 3 digit is $sum"
```

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Output

```
sneha@ubuntu:~/osLab$ sh summation-square.sh
Enter Number
50
Sum of square of last 3 digit is 25
sneha@ubuntu:~/osLab$
```

Ques 10. Write a shell script to find out the electrical bill amount for consumer according to different unit charges.

```
echo "----------------------------------------"
echo 'Calculate Electricity Charge'
echo "----------------------------------------"
echo "Enter the unit"

read unit
if [ $unit -gt 0 ] && [ $unit -le 50 ]

then
    charge=`expr $unit \* 50 / 100`

    echo $charge
elif [ $unit -gt 50 ] && [ $unit -le 150 ]

then
    charge=`expr 25 + $unit - 50 \* 75 / 100`

    echo "$charge"
elif [ $unit -gt 150 ] && [ $unit -le 250 ]
then
    charge=`expr 100 + $unit-150 \* 12 / 10`
echo "$charge"
elif [ $unit -gt 250 ]

then
    charge=`expr 100 + $unit-150 \* 120 / 100`
echo "$charge"
fi
sur_charge=`expr $charge \* 2 / 10`
total_amt=`expr $charge + $sur_charge`
```

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```
echo ----------------------------------------
echo "Electricity Billing"
echo ----------------------------------------
echo "Unit:$unit"
echo "charge:$total_amt"
echo ----------------------------------------
```

Output

```
sneha@ubuntu:~/osLab$ sh electricity-bill.sh
----------------------------------------
Calculate Electricity Charge
----------------------------------------
Enter the unit
30
15
----------------------------------------
Electricity Billing
----------------------------------------
Unit:30
charge:18
----------------------------------------
sneha@ubuntu:~/osLab$
```

Ques 11. Write a shell script to calculate the overtime (Hours) payment of an employee as per rules.

```
echo "Enter Hours"
read hrs

overtime=`expr $hrs - 8`
pay=15

if [ $overtime -gt 0 ]
then
amt=`expr $overtime \* $pay`
echo "Overtime: $amt"
else
echo "No Overtime"
fi
```

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Output

```
sneha@ubuntu:~/osLab$ sh overtime-payment.sh
Enter Hours
12
Overtime: 60
sneha@ubuntu:~/osLab$
```

Ques 12. Write a shell program to evaluate the operation $1^2+2^2+3^2+.....+n^2$

```
echo "Enter the value of n"
read n

firstTerm=`expr $n + 1`
secondTerm=`expr $n \* 2 + 1`

result=`expr $n \* $firstTerm \* $secondTerm / 6`

echo "Your result is $result"
```

Output

```
sneha@ubuntu:~/osLab$ bash n-terms.sh
Enter the value of n
4
Your result is 30
sneha@ubuntu:~/osLab$
```

Ques 13. Write a shell script to display the alternate digits in a given seven digits number starting first digit.

```
echo "Enter your number"
read num
lastDigit=0

while [ $num -gt 0 ]
do
lastDigit=`expr $num % 10`
echo "$lastDigit"
num=`expr $num / 100`
done
```

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Output

```
sneha@ubuntu:~/osLab$ sh alternate-digit.sh
Enter your number
7654321
1
3
5
7
sneha@ubuntu:~/osLab$
```

Ques 14. Write a shell script to print all the even odd between 0 to 100.

```
echo "Odd Numbers Between 0-100"
for(( i=1 ; i<=100 ; i=i+2))
do
 echo "$i"
done

echo "Even Numbers Between 0-100"
for(( i=0 ; i<=100 ; i=i+2))
do
 echo "$i"
done
```

Output

```
sneha@ubuntu:~/osLab$ bash all-odd.sh
Odd Numbers Between 0-100
1
3
5
7
9
11
13
15
17
19
Even Numbers Between 0-100
0
2
4
6
8
10
sneha@ubuntu:~/osLab$
```

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Ques 15. Write a shell script to print factorial of a given number.

```
echo "Enter a Number: "
read num
fact=1
while [ $num -gt 1 ]
do
  fact=`expr $fact \* $num`
  num=`expr $num - 1`
done

echo $fact
```

Output

```
sneha@ubuntu:~/osLab$ sh factorial.sh
Enter a Number:
10
3628800
sneha@ubuntu:~/osLab$
```

Ques 16. Write a shell script to print Fibonacci series starting from 0.

```
echo "Enter number of terms: "
read n

nextTerm=1
term=0
echo "$term"
echo "$nextTerm"

while [ $n -gt 0 ]
do
sum=`expr $term + $nextTerm`
```

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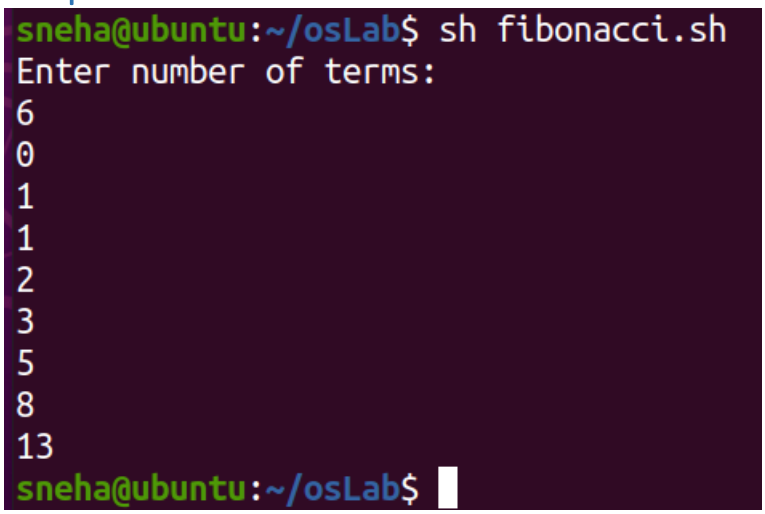
```
echo "$sum"
term=`expr $nextTerm`
nextTerm=`expr $sum`

n=`expr $n - 1`
done
```

Output



Ques 17. Write a shell script to print a number in reverse order & calculate its sum of its digits.

```
echo "Write a number"
read num

temp=$num
rev=0
sum=0

while [ $temp -gt 0 ]
do
lastDigit=`expr $temp % 10`
rev=`expr $rev \* 10 + $lastDigit`
sum=`expr $sum + $lastDigit`
temp=`expr $temp / 10`
```

```
done

echo "Reverse number is $rev"
echo "Sum of Digits is $sum"
```

Output

```
sneha@ubuntu:~/osLab$ sh num-in-reverse.sh
Write a number
5678
Reverse number is 8765
Sum of Digits is 26
sneha@ubuntu:~/osLab$
```

Ques 18. Write a shell script to find (check whether) palindrome numbers in a given range.

```
echo "Enter a Number : "
read a
sum=0
num=$a
while [ $num -gt 0 ]
do
d=`expr $num % 10`
sum=`expr $sum \* 10 + $d`
num=`expr $num / 10`
done
if [ $sum -eq $a ]
then
echo "Palindrome Number"
else
echo "Not a Palindrome Number"
fi
```

Output

```
sneha@ubuntu:~/osLab$ sh palindrome.sh
Enter a Number :
121
Palindrome Number
sneha@ubuntu:~/osLab$
```

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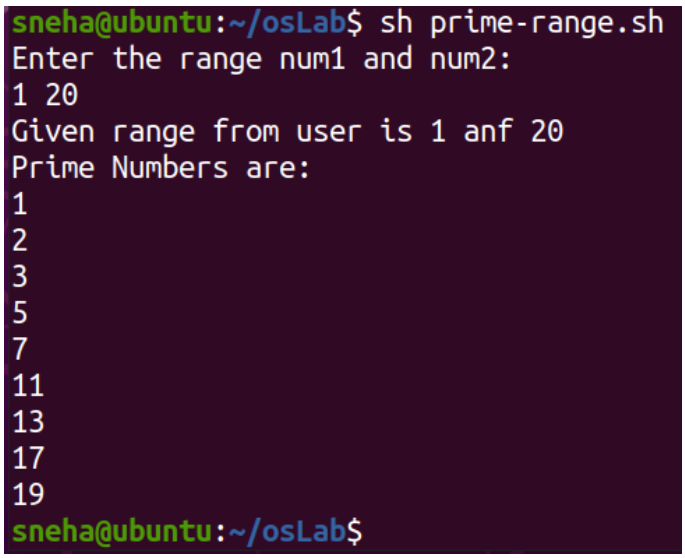
Ques 19. Write a shell script to print the prime numbers in a given range.

```
echo "Enter the range num1 and num2:"
read num1 num2
echo "Given range from user is $num1 anf $num2 "
echo "Prime Numbers are:"
while [ $num1 -le $num2 ]
do
i=2; flag=1
while [ $i -lt $num1 ]
    do
        if [ `expr $num1 % $i` -eq 0 ]
        then
            flag=0
            break
        else
            i=`expr $i + 1`
        fi
    done
    if [ $flag -eq 1 ]
    then
        echo $num1
    fi
    num1=`expr $num1 + 1`
done
```

Output



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Ques 20. Write a shell script to find (check whether) Armstrong numbers in a given range.

```
echo "Enter the number"
read number

revNumber=0
loopCounter=$number

while [ $loopCounter -gt 0 ]
do
lastDigit=`expr $loopCounter % 10`
revNumber=`expr $revNumber + $lastDigit \* $lastDigit \* $lastDigit`
loopCounter=`expr $loopCounter / 10`
done

if [ $number -eq $revNumber ]
then
echo "Your number is Armstrong Number"
else
echo "Your number is not Armstrong Number"
fi
```

Output

```
sneha@ubuntu:~/osLab$ sh armstrong.sh
Enter the number
234
Your number is not Armstrong Number
sneha@ubuntu:~/osLab$ sh armstrong.sh
Enter the number
371
Your number is Armstrong Number
sneha@ubuntu:~/osLab$
```

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Ques 21. Write a shell script to convert decimal number to binary number.

```
echo "Enter the num"
read n

val=0
power=1

while [ $n  -ne 0 ]
       do
        r=`expr $n % 2`
        val=`expr $r \* $power + $val`
        power=`expr $power \* 10`
        n=`expr $n / 2`
      done

echo "Binary equivalent=$val"
```

Output