

# **Python Lab session 4 (19-01-2021)**

## **Assignment - 3**

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```
Exercise01.py - H:\##MCA Assignment\Python Assignments\19 Jan\Exercise01.py (3.8.2)
File Edit Format Run Options Window Help
# <Prog_No:1> <Ex_No:3> <Author: Purushottam Kumar>
# Write a program to find whether a given year is a leap year or not.

print("\n Output of Prog_No:1 in Ex_No:3 implemented by Purushottam Kumar :\n")
year = int(input(" Enter a Year : "))
if year%4==0:
    if(year%100 == 0 and year%400 != 0):
        print("\n",year," is not a leap year\n")
    else:
        print("\n",year," is a leap year\n")
else:
    print("\n",year," is not a leap year\n")
```

## OUTPUT

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise01.py
```

```
Output of Prog_No:1 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter a Year : 2016
```

```
2016 is a leap year
```

```
>>>
```

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise01.py
```

```
Output of Prog_No:1 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter a Year : 1900
```

```
1900 is not a leap year
```

```
>>>
```

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise01.py
```

```
Output of Prog_No:1 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter a Year : 2000
```

```
2000 is a leap year
```

Exercise02.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise02.py (3.8.2)

File Edit Format Run Options Window Help

```
# <Prog_No:2> <Ex_No:4> <Author: Purushottam Kumar>
# Write a program to calculate the roots of a quadratic equation.
from math import sqrt
print("\n Output of Prog_No:2 in Ex_No:4 implemented by Purushottam Kumar :\n")
a,b,c = [int(n) for n in input(" Enter Coefficient of X^2,X & Constant : ").split(',')]
if a!=0:
    D=(b*b)-(4*a*c)
    if D>0:
        X=(-b +sqrt(D))/(a*2)
        Y=(-b -sqrt(D))/(a*2)
        print("\n Roots are real and unequal.")
        print("\n Root 1 = ",X,"\n Root 2 = ",Y)
    elif D==0:
        X=(-b+sqrt(D))/(2*a)
        print("\n Roots are real and equal.")
        print("\n Root 1 = ",X,"\n Root 2 = ",X)
    else:
        print("\n Roots are Imaginary.\n")
else:
    print("\n Coefficient of x^2 Can't be Zero.")
```

## OUTPUT

Output of Prog\_No:2 in Ex\_No:4 implemented by Purushottam Kumar :

Enter Coefficient of X^2,X & Constant : 1,-5,6

Roots are real and unequal.

Root 1 = 3.0

Root 2 = 2.0

Enter Coefficient of X^2,X & Constant : 2,-5,3

Roots are real and unequal.

Root 1 = 1.5

Root 2 = 1.0

Enter Coefficient of X^2,X & Constant : 1,4,4

Roots are real and equal.

Root 1 = -2.0

Root 2 = -2.0

Enter Coefficient of X^2,X & Constant : 3,5,3

Roots are Imaginary.

Exercise03.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise03.py (3.8.2)

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File Edit Format Run Options Window Help

```
# <Prog_No:3> <Ex_No:3> <Author: Purushottam Kumar>
# Write a program to calculate the sum of numbers from m to n.
print("\n Output of Prog_No:3 in Ex_No:3 implemented by Purushottam Kumar :\n")
M,N = [int(k) for k in input(" Enter Starting & Ending Point : ").split(',')]
temp=M
sum=0
while M<=N:
    sum+=M
    M+=1
print("\n Sum of numbers between ",temp," & ",N," = ",sum)
```

## OUTPUT

```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise03.py
```

```
Output of Prog_No:3 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter Starting & Ending Point : 6,12
```

```
Sum of numbers between 6 & 12 = 63
```

```
>>>
```

Exercise04.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise04.py (3.8.2)

File Edit Format Run Options Window Help

```
# <Prog_No:4> <Ex_No:3> <Author: Purushottam Kumar>
# Write a program to read the numbers until -1 is encountered.
# Also count the negative, positive and zeros entered by the user.

print("\n Output of Prog_No:4 in Ex_No:3 implemented by Purushottam Kumar :\n")

positive=negative=zeros=N=0
while(N!=-1):
    N=int(input(" Enter Number : "))
    if(N>0):
        positive+=1
    elif(N<0):
        negative+=1
    elif(N==0):
        zeros+=1
print("\n No. Of Zeros : ",zeros)
print("\n No. Of Negative : ",negative)
print("\n No. Of Positive : ",positive)
```

## OUTPUT

Output of Prog\_No:4 in Ex\_No:3 implemented by Purushottam Kumar :

```
Enter Number : 5
Enter Number : 6
Enter Number : -2
Enter Number : -9
Enter Number : 0
Enter Number : 0
Enter Number : 1
Enter Number : 3
Enter Number : -1
```

No. Of Zeros : 2

No. Of Negative : 3

No. Of Positive : 4

Exercise05.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise05.py (3.8.2)

— □

File Edit Format Run Options Window Help

```
# <Prog_No:5> <Ex_No:3> <Author: Purushottam Kumar>
# WAP to enter a decimal number and convert it into a binary equivalent.

print("\n Output of Prog_No:5 in Ex_No:3 implemented by Purushottam Kumar :\n")

n=int(input(" Enter A Decimal Number : "))
temp=n
sum=i=0
while(n>0):
    rem=n%2
    sum+=rem*(10**i)
    n//=2
    i=i+1
print("\n Binary Equivalent of ",temp,"=",sum)
```

## OUTPUT

```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise05.py
```

```
Output of Prog_No:5 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter A Decimal Number : 26
```

```
Binary Equivalent of 26 = 11010
```

```
Enter A Decimal Number : 88
```

```
Binary Equivalent of 88 = 1011000
```

```
Enter A Decimal Number : 11
```

```
Binary Equivalent of 11 = 1011
```

```
>>>
```

Exercise06.py - H:\##MCA Assignment\Python Assignments\19 Jan\Exercise06.py (3.8.2)

File Edit Format Run Options Window Help

```
# <Prog_No:6> <Ex_No:3> <Author: Purushottam Kumar>
# WAP to enter a binary number and convert it into a decimal equivalent.

print("\n Output of Prog_No:6 in Ex_No:3 implemented by Purushottam Kumar :\n")

n=int(input(" Enter A binary Number : "))
temp=n
Dec=i=flag=0
while(n>0):
    rem=n%10
    if(rem==0 or rem==1):
        Dec+=rem*(2**i)
        n//=10
        i+=1
    else:
        print("\n It is not a binary number")
        flag=1
        break
if(flag==0):
    print("\n Decimal Equivalent of ",temp,"=",Dec,"\n")
```

## OUTPUT

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise06.py
```

```
Output of Prog_No:6 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter A binary Number : 1000101
```

```
Decimal Equivalent of 1000101 = 69
```

```
>>>
```

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise06.py
```

```
Output of Prog_No:6 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter A binary Number : 10021
```

```
It is not a binary number
```

```
>>>
```

```
===== RESTART: H:\##MCA Assignment\Python Assignments\19 Jan\Exercise06.py
```

```
Output of Prog_No:6 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter A binary Number : 1101
```

```
Decimal Equivalent of 1101 = 13
```

Exercise07.py - H://MCA Assignment/Python Assignments/19 Jan/Exercise07.py (3.8.2)

File Edit Format Run Options Window Help

```
# <Prog_No:7> <Ex_No:3> <Author: Purushottam Kumar>
# Write a program to calculate GCD of two numbers.

print("\n Output of Prog_No:7 in Ex_No:3 implemented by Purushottam Kumar :\n")

a,b=[int(x) for x in input(" Enter Two poitive Integers : ").split(',')]
if(a<b):
    a,b=b,a    #setting lowest = b & biggest = a
while(a>0):
    if(b==0):
        print("\n GCD = ",a)
        break
    else:
        temp=a
        a=b
        b=temp%b
```

## OUTPUT

```
==== RESTART: H://MCA Assignment/Python Assignments/19 Jan/Exercise07.py :
```

```
Output of Prog_No:7 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter Two poitive Integers : 10,18
```

```
GCD = 2
```

```
>>>
```

```
==== RESTART: H://MCA Assignment/Python Assignments/19 Jan/Exercise07.py :
```

```
Output of Prog_No:7 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter Two poitive Integers : 19,12
```

```
GCD = 1
```

```
>>>
```



```
Exercise08.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise08.py (3.8.2)
File Edit Format Run Options Window Help
# <Prog_No:8> <Ex_No:3> <Author: Purushottam Kumar>
# WAP to find out whether a given number is prime or composite.

print("\n Output of Prog_No:8 in Ex_No:3 implemented by Purushottam Kumar")

num=int(input(" Enter a poitive Integer : "))
if(num>0):
    if(num<2):    #Only For 0 & 1
        print("\n",num," is neither prime nor composite.\n")
    elif(num==2):
        print("2 is prime.\n")
    else:
        for i in range(2,int(num**0.5)):
            if(num%i==0):
                print("\n",num," is a composite number\n")
                break
            else:
                print("\n",num," is a prime number\n")
else:
    print("\n You have entered Negative number !!\n")
```

## OUTPUT

```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise08.py

Output of Prog_No:8 in Ex_No:3 implemented by Purushottam Kumar :

Enter a poitive Integer : 1

1  is neither prime nor composite.

>>>
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise08.py

Output of Prog_No:8 in Ex_No:3 implemented by Purushottam Kumar :

Enter a poitive Integer : 5

5  is a prime number

>>>
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise08.py

Output of Prog_No:8 in Ex_No:3 implemented by Purushottam Kumar :

Enter a poitive Integer : 12

12  is a composite number

>>>
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise08.py

Output of Prog_No:8 in Ex_No:3 implemented by Purushottam Kumar :

Enter a poitive Integer : -6

You have entered Negative number !!
```

Exercise09.py - H:\##MCA Assignment\Python Assignments\19 Jan\Exercise09.py (3.8.2)

File Edit Format Run Options Window Help

```
# <Prog_No:9> <Ex_No:3> <Author: Purushottam Kumar>
# Write a program to sum the series :
# (i) 1 + 1/2 + 1/3 +.....+ 1/n
# (ii) 1/1^2 + 1/2^2 + 1/3^2 + .... + 1/n^2

print("\n Output of Prog_No:9 in Ex_No:3 implemented by Purushottam Kumar :\n")

n=int(input(" Enter value of n : "))
if(n>0):
    sum1=0 #for 1st series
    sum2=0 #for 2nd series
    for i in range(1,n+1):
        sum1+=(1/i)
        sum2+=(1/(i*i))
    print("\n Sum of Series 1 : %.2f" % sum1)
    print("\n Sum of Series 2 : %.2f" % sum2)
else:
    print("\n only positive number allowed !!\n")
```

## OUTPUT

```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise09.py
```

```
Output of Prog_No:9 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter value of n : 3
```

```
Sum of Series 1 : 1.83
```

```
Sum of Series 2 : 1.36
```

```
>>>
```


```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise09.py
```

```
Output of Prog_No:9 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter value of n : 2
```

```
Sum of Series 1 : 1.50
```

```
Sum of Series 2 : 1.25
```

 \*Exercise10.py - H:/##MCA Assignment/Python Assignments/19 Jan/Exercise10.py (3.8.2)\*

File Edit Format Run Options Window Help

```
# <Prog_No:10> <Ex_No:3> <Author: Purushottam Kumar>
# WAP to calculate square root of any number less than 1000 and not equal to and less than 0.
# (use break if number greater than 1000 and continue if number less than 0)

print("\n Output of Prog_No:10 in Ex_No:3 implemented by Purushottam Kumar :\n")

while True:
    n=int(input("\n Enter value of n : "))
    if(n>1000):
        break
    elif(n<=0):
        continue
    elif(n<1000):
        print("\n Square Root of ",n," = %.1f"%(n**0.5))
```

## OUTPUT

```
==== RESTART: H:/##MCA Assignment/Python Assignments/19 Jan/Exercise10.py
```

```
Output of Prog_No:10 in Ex_No:3 implemented by Purushottam Kumar :
```

```
Enter value of n : 100
```

```
Square Root of 100 = 10.0
```

```
Enter value of n : 121
```

```
Square Root of 121 = 11.0
```

```
Enter value of n : -6
```

```
Enter value of n : 0
```

```
Enter value of n : 1600
```