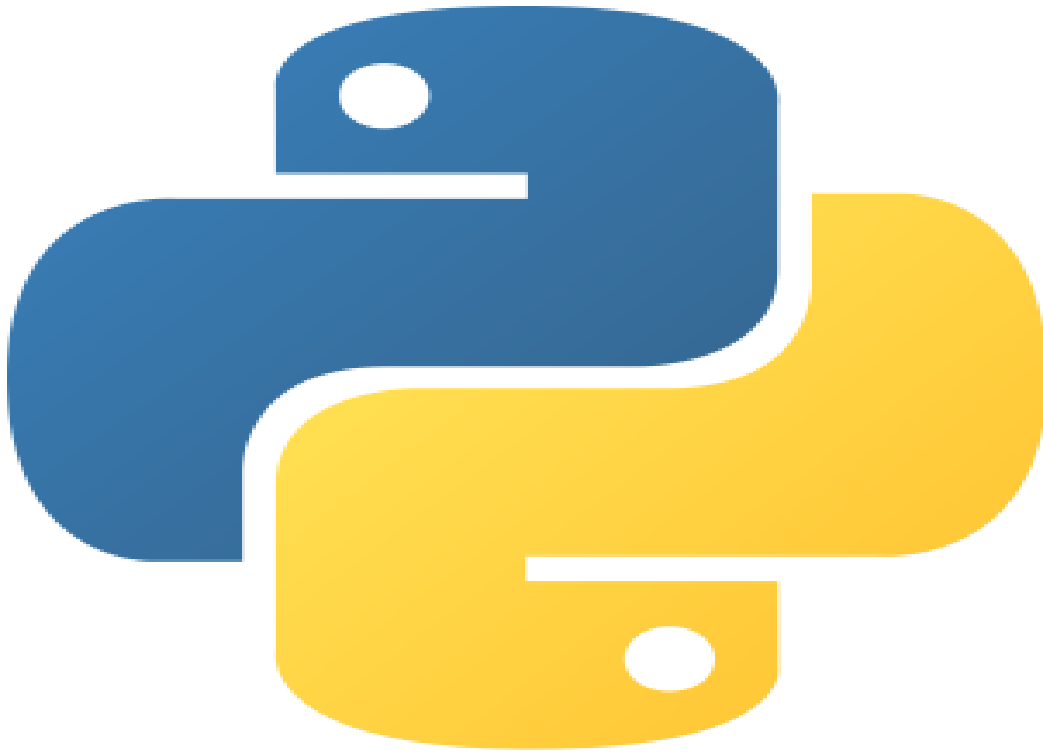


COMPUTER SCIENCE (PYTHON) JOURNAL FILE



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- Class 12/**B**

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In the academic session 2018-2019 under the guidance
of Computer Science teacher Mr. ArunSharma.

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e of Principal

School Stamp:

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Signature of External:

#1

OBJECTIVE:-

Write a program to input any choice and to implement the following.

Choice	Find
1.	Area of square
2.	Area of rectangle
3.	Area of triangle

CODE:-

```
print 'Choice\t Find'
print '1.\t Area of square'
print '2.\t Area of rectangle'
print '3.\t Area of triangle'
c=input("\nEnter any Choice: ")
if(c==1):
s=input("\nEnter any side of the square: ")
a = s*s
print"Area=",a
elif(c==2):
l=input("\nEnter length: ")
b=input("Enter breadth: ")
a = l*b
```

```
print"Area=",a
elif(c==3):
x = input("\nEnter first side of triangle: ")
y=input("enter second side of triangle:")
z = input("enter third side of triangle: ")
s = (x+y+z)/2.0
A = ((s-x)*(s-y)*(s-z))**0.5
print"Area=",A
else:
print "Wrong input"
```

INPUT:-

Choice Find

1. Area of square
2. Area of rectangle
3. Area of triangle

Enter any Choice:1

Enter any side of square: 7

OUTPUT:-

Area=49

#2

OBJECTIVE :-

Write a program to input any number and to print all natural numbers up to given number.

CODE:-

```
n = input("Enter any number: ")
for i in range(1,n+1):
    print i,
```

INPUT :-

Enter any number: 7

OUTPUT:-

1 2 3 4 5 6 7

#3

OBJECTIVE:-

Write a program to input any number and to find sum of all natural numbers up to given number.

CODE:-

```
n = input("Enter any number")
sum= 0
for i in range(1,n+1):
    sum = sum+i
print "sum=",sum
```

INPUT:-

Enter any number: 11

OUTPUT:-

Sum=66

#4

OBJECTIVE :-

Write a program to input any number and to find reverse of that number.

CODE:-

```
n=input("Enter any number: ")
```

```
r = 0
```

```
while(n>0):
```

```
    r =r*10+n%10
```

```
    n = n/10
```

```
print "reverse number is", r
```

INPUT:-

Enter any number: 76655456

OUTPUT:-

reverse number is 65455667

#5

OBJECTIVE:-

Write a function which take one parameter and return binary number equivalent to that number.

CODE:-

```
def binary_converter(x):  
    if x==0:  
        return 0  
    else:  
        bit=[]  
        while x:  
            bit.append(x%2)  
            x=x/2  
        return bit[::-1]
```

INPUT:-

binary_converter(112)

OUTPUT:-

[1, 1, 1, 0, 0, 0, 0]

#6

OBJECTIVE:-

Write a program to read a number. if the number is even then print half the number otherwise print the next number. End your program by printing 'Thank you!'

CODE:-

```
n=input('Enter number: ')
if n%2==0:
    print 'the number is even:'
    print 'the half number is: ',n/2.0
else:
    print 'the number is odd: '
    print 'the next number is: ',n+1
print 'Thank you!!!'
```

INPUT:-

Enter number: 44

OUTPUT:-

the number is even:

the half number is: 22.0

Thank you!!!

#7

OBJECTIVE:-

Write a program to compute tax payable by a person according to his salary as per following rates:

salary	tax rate
less than 10000	0%
10000<=salary<20000	5%
20000<=salary<40000	10%
40000 or higher	12%

CODE:-

```
salary=input('Enter salary: ')
if salary<10000:
    rate=0.0
elif salary<20000:
    rate=0.05
elif salary<40000:
    rate=0.10
else:
    rate=0.12
print 'you must pay',rate*salary,'as taxes'
```

INPUT:-Enter salary:20000

OUTPUT:-you must pay 2000 as taxes

#8

OBJECTIVE:-

Write a program to print sum of all natural numbers between 1 to 7.

CODE:-

```
sum=0
```

```
for i in range(1,8):
```

```
    sum+=i
```

```
print 'sum of natural number from 1 to 7 is: ',sum
```

INPUT:-

OUTPUT:-

Sum of natural number from 1 to 7 is: 28

#9

OBJECTIVE:-

Write a program to input some numbers repeatedly and print their sum. The program ends when user say no more to enter(normal termination) or program aborts when the number entered is less than zero.

CODE:-

```
count=sum=0
```

```
ans='y'
```

```
while ans=='y':
```

```
    num=input('Enter number: ')
```

```
    if num<0:
```

```
        print'Number entered is below zero.Aborting!!!'
```

```
        break
```

```
    sum+=num
```

```
    count+=1
```

```
    ans=raw_input('Want to enter more  
numbers?(y/n)..')
```

```
else:
```

```
    print'you entered',count,'numbers so far.'
```

```
print 'Sum of numbers entered ',sum
```

INPUT:-

Y

Enter number: (8)

Wanttoentermorenumbers?(y/n).. y

Enter number:-1

OUTPUT:-

Number entred is below zero.Aborting!!!

Sum of numbers entered 8

#10

OBJECTIVE:-

Write a short program to print the following series.

(i) 1 4 7 10.....40

(ii) 1 -4 7 -10.....-40

CODE:-

#(i)

```
for i in range(1,41,3):
```

```
    print i,
```

#(ii)

```
for i in range(1,41,3):
```

```
    if i%2==0:
```

```
        print i*(-1),
```

```
    else:
```

```
        print i,
```

INPUT:-

OUTPUT:-

(i)

1 4 7 10 13 16 19 22 25 28 31 34 37 40

(ii)

1 -4 7 -10 13 -16 19 -22 25 -28 31 -34 37 -40

#11

OBJECTIVE:-

Write a short program to find average of list of numbers entered through keyboard.

CODE:-

```
sum=0
```

```
count=0
```

```
end=""
```

```
while end!='end':
```

```
    number=input('Enter a number:')
```

```
    if number.lower()=='end':
```

```
        break
```

```
    sum+=float(number)
```

```
    count+=1
```

```
print 'the average of given numbers is: ',sum/count
```

INPUT:-

Enter a number: 1

Enter a number: 3

Enter a number: 5

Enter a number: 7

Enter a number: 9

Enter a number: end

OUTPUT:-

the average of given numbers is 5.0

#12

OBJECTIVE:-

Write a Short program to find largest number of a list of numbers entered through keyboard.

CODE:-

```
max=0
```

```
while True:
```

```
    number=raw_input('Enter a Number: ')
```

```
    if number.lower()=='end':
```

```
        break
```

```
    if float(number)>max:
```

```
        max=float(number)
```

```
print 'Maximum number among all numbers is: ',max
```

INPUT:-

Enter a Number: 23145564234

Enter a Number: 123453

Enter a Number: end

OUTPUT:-

Maximum number among all numbers is: 23145564234

#13

OBJECTIVE:-

Write a program to check whether a given number is palindrome or not.

CODE:-

```
num=input('Enter a number:')
tem=num
rev=0
while(num>0):
    digit=num%10
    num=num/10
    rev=rev*10+digit
if rev==tem:
    print "The number is a palindrome!"
else:
    print "The number isn't a palindrome!"
```

INPUT:-

Enter a number:1221

OUTPUT:-

The number is a palindrome!

#14

OBJECTIVE:-

Write a python program to sum of the given sequences:

(i) $2/9 - 5/13 + 8/17 + \dots$

(ii) $1^2 + 3^2 + 5^2 + \dots + n^2$

CODE:-

#(i)

```
number=input('Enter number: ')
```

```
num=2.0
```

```
den=9.0
```

```
sum=num/den
```

```
sign=-1
```

```
for i in range(2,number+1):
```

```
    num=num+3
```

```
    den=den+4
```

```
    sum=sum+(num)/(den)*sign
```

```
    sign*=-1
```

```
print 'sum of series up to: ',number, ' is: ',sum
```

#(ii)

```
sum=0
```

```
num=input('Enter a Number: ')
```

```
for i in range(1,2*num+1,2):
```

```
    sum+=i**2
```

```
print 'the sum of series up to ',num,' term is: ',sum
```

INPUT:-

(i) Enter number: 21314

(ii) Enter number: 21314

OUTPUT:-

(i) sum of series up to: 21314 is: -0.318093834875

(ii) the sum of series up to 21314 term is:

12910219335754

#15

OBJECTIVE:-

Write a python program to sum the sequence

a) $1 + 1/1! + 1/2! + 1/3! + \dots$

b) $x + x^2/2 + x^3/3 + \dots + x^n/n$

CODE:-

a)

```
import math
```

```
num=input('Enter a number:')
```

```
sum=1.0
```

```
for i in range(1,num):
```

```
    sum=sum+1.0/math.factorial(i)
```

```
print 'the sum of series up to ',num,' term: ',sum
```

b)

```
X=input('Enter value of X:')
```

```
N=input('Enter value of N:')
```

```
sum=X
```

```
for i in range(2,N+1):
```

```
    sum+=float(X**i)/i
```

print 'the sum of series up to ',N,' with value ',X,' is:
' ,sum

INPUT:-

a) Enter a number: 48

b) Enter value of X: 48

Enter value of N: 2_

OUTPUT:-

a) the sum of series up to 48 term: 2.71828182846

b) the sum of series up to 2 with value 48 is: 1200.0

#16

OBJECTIVE:-

Write a program input four digit year and find entered year is leap year or not.

CODE:-

```
year =input('Enter 4 digit year: ')  
if ((year%400 == 0)or ((year%4 == 0) and (year%100  
!= 0))):  
    print year , 'is leap year'  
else:  
    print year , ' is not leap year '
```

INPUT:-

Enter 4 digit year: 2009

OUTPUT:-

2009 is not a leap year

#17

OBJECTIVE:-

Write a program using nested loop to produce the following pattern

A

A B

A B C

A B C D

A B C D E

A B C D E F

CODE:-

```
for i in range(65,71):  
    for j in range(65,i+1):  
        print chr(j),  
    print
```

INPUT:-

OUTPUT:-

A

A B

A B C

A B C D

A B C D E

#18

OBJECTIVE:-

Write a program using nested loops to produce a rectangle of *s with 6 rows and 20 *s per row.

CODE:-

```
for i in range(6):
    for i in range(20):
        print '*',
    print
```

INPUT:-

OUTPUT:-

[illegible]

#19

OBJECTIVE:-

Write a short program to input a digit and print it in word.

CODE:-

```
digit=input('Enter a digit: ')
```

```
inword=""
```

```
if digit==1:
```

```
    inword='one'
```

```
elif digit==2:
```

```
    inword='two'
```

```
elif digit==3:
```

```
    inword='three'
```

```
elif digit==4:
```

```
    inword='four'
```

```
elif digit==5:
```

```
    inword='five'
```

```
elif digit==6:
```

```
    inword='six'
```

```
elif digit==7:
```

```
    inword='seven'
elif digit==8:
    inword='eight'
elif digit==9:
    inword='nine'
elif digit==0:
    inword='zero'
else:
    print 'invalid digit entry: '
print 'Digit ',digit,' in word is: ',inword
```

INPUT:-

Enter a digit: 9

OUTPUT:-

Digit 9 in word is: nine

#20

OBJECTIVE:-

Write a short program to check whether square root of given number prime or not.

CODE:-

```
from math import sqrt
number=input('Enter a Number: ')
sqr_number=sqrt(number)
limit=int(sqrt(sqr_number))+1
for i in range(2,limit):
    if sqr_number%i==0:
        print 'Square root of given number is not Prime!!'
        break
else:
    print 'Square root of given number is Prime!!'
```

INPUT:-

Enter a Number: 49

OUTPUT:-

Square root of given number is Prime!!

#21

OBJECTIVE:-

Write a program to print first n odd number in descending order.

CODE:-

```
number=input('Enter a Number: ')  
for i in range(number,0,-1):  
    if i%2!=0:  
        print i,
```

INPUT:-

Enter a Number:12

OUTPUT:-

11 9 7 5 3 1

#22

OBJECTIVE:-Write a program to print the following using a single loop.(no nested loop)

1

11

111

1111

11111

CODE:-

```
n=1
```

```
for a in range(5):
```

```
    print n
```

```
    n=n*10+1
```

INPUT:-

OUTPUT:-

1

11

111

1111

11111

#23

OBJECTIVE:-

Write a Python script to calculate sum of following series:

$$S = (1) + (1+2) + (1+2+3) + \dots + (1+2+3+\dots+n)$$

CODE:-

```
sum=1
n=input("How many term ? ")
for a in range(2,n+1):
    for b in range(1,a+1):
        sum+=b
print 'Sum of ',n,' term is: ',sum
```

INPUT:-

How many term? 9

OUTPUT:-

Sum of 9 term is: 165

#24

OBJECTIVE:-

Write a program to find sum of series:

$$s=1+x+x^{**2}+x^{**3}+x^{**n}$$

CODE:-

```
x=input("Enter value of X: ")
```

```
n=input("Enter value of n: ")
```

```
sum=0
```

```
for a in range(n):
```

```
    sum+=x**a
```

```
print "Sum of first ",n,' term is: ',sum
```

INPUT:-

Enter value of X: 9

Enter value of n: 5

OUTPUT:-

Sum of first 5 term is: 7381

#25

#25

OBJECTIVE:-

Write a program to input two numbers and print their LCM (least common factor) and GCD (greatest common divisor)

CODE:-

```
def gcd(n1,n2):  
    if n1>n2:  
        m=n2  
    else:  
        m=n1  
    for i in range(m,0,-1):  
        if n1%i==0 and n2%i==0:  
            gd=i  
            break  
    return gd  
def lcm(n1,n2):  
    prod=n1*n2  
    lm=prod/gcd(n1,n2)  
    return lm  
number1=input('Enter first number: ')
```

```
number2=input('Enter second number: ')
```

```
print 'LCM of ',number1,' and ',number2,' is  
,lcm(number1,number2)
```

```
print 'GCD of ',number1,' and ',number2,' is  
,gcd(number1,number2)
```

INPUT:-

Enter first number: 5

Enter second number: 4

OUTPUT:-

LCM of 5 and 4 is 20

GCD of 5 and 4 is 1

#26

OBJECTIVE:-

Write python script to print following pattern.

1

1 3

1 3 5

1 3 5 7

CODE:-

```
for a in range(3,10,2):
```

```
    for b in range(1,a,2):
```

```
        print b,
```

```
    print
```

INPUT:-

OUTPUT:-

1

1 3

1 3 5

1 3 5 7

#27

OBJECTIVE:-

Numbers in form $2^n - 1$ are called Mersenne Numbers, e.g. $2^1 - 1 = 1$, $2^2 - 1 = 3$, $2^3 - 1 = 7$. Write a python script that displays first ten Mersenne.

CODE:-

```
def Mersenne(n):  
    return 2**n-1  
  
print 'First ten Mersenne numbers: '  
  
for i in range(1,11):  
    print Mersenne(i),
```

INPUT:-

OUTPUT:-

First ten Mersenne numbers:

1 3 7 15 31 63 127 255 511 1023

#28

OBJECTIVE:-

Write a python script to generate divisors of a number.

CODE:-

```
import math
num=input('Enter an integer: ')
print'Divisors of numbers are:'
mid=int(math.sqrt(num))
for a in range(2,mid+1):
    if num%a==0:
        print a,
```

INPUT:-

Enter an integer: 54

OUTPUT:-

Divisors of numbers are:

2 3 6

#29

OBJECTIVE:-

Write a python script to read an integer >1000 and reverse the number

CODE:-

```
num=input('Enter an integer(>1000): ')
tnum=num
reverse=0
while tnum:
    digit=tnum%10
    tnum=tnum/10
    reverse=reverse*10+digit
print 'Reverse of ',num,' is: ',reverse
```

INPUT:-

Enter an integer(>1000): 987185144

OUTPUT:-

Reverse of 987185144 is: 441581789

#30

OBJECTIVE:-

Write a python script to print Fibonacci series 'first 20 elements'. Some initial elements of a Fibonacci series are:

0 1 1 2 3 5 8

CODE:-

```
first=0
second=1
print first,second,
for a in range(1,19):
    third=first+second
    print third,
    first,second=second,third
```

INPUT:-

OUTPUT:-

0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597
2584 4181

#31

OBJECTIVE:-

Given a list of integers, L write code to add the integers and display the sum.

CODE:-

```
def sum_list(List):
```

```
    sum=0
```

```
    for a in List:
```

```
        sum+=a
```

```
    return sum
```

```
l=[1,7,8,6,10]
```

```
print 'The sum of all integers in List: ',sum_list(l)
```

INPUT:-

OUTPUT:-

The sum of all integers in List: 32

#32

OBJECTIVE:-

Given a list of integers, L, write code to calculate and display the sum of all the odd numbers in the list.

CODE:-

```
def sum_list(List):
```

```
    sum=0
```

```
    for a in List:
```

```
        if a%2!=0:
```

```
            sum+=a
```

```
    return sum
```

```
l=[1,7,8,6,10]
```

```
print 'The sum of all integers in List: ',sum_list(l)
```

INPUT:-

OUTPUT:-

The sum of all integers in List: 8

#33

OBJECTIVE:-

Write a function that takes any two lists L and M of the same size as parameters and return a list which containing elements are sums of the corresponding elements in L and M. for instance if L=[3,1,4] and M=[1,5,9] then new list should be equal to [4,6,13].

CODE:-

```
def add_lists(L,M):  
    new_list=[]  
    length=len(L)  
    for i in range(length):  
        new_list.append(L[i]+M[i])  
    return new_list
```

INPUT:-

```
add_lists('sd','sa')
```

OUTPUT:-

```
['ss', 'da']
```

#34

OBJECTIVE:-

Ask the user to enter a list of string. Create a new list that consists of those string with their first characters removed.

CODE:-

```
word_list=[]
```

```
while True:
```

```
    ele=input('Enter String elements in list "end" to end: ')
    if ele=='end':
```

```
        break
```

```
    else:
```

```
        word_list.append(ele)
```

```
new_list=[]
```

```
string=""
```

```
for i in word_list:
```

```
    for j in range(1,len(i)):
```

```
        string+=i[j]
```

```
    new_list.append(string)
```

```
    string=""
```

print new_list

INPUT:-

Enter String elements in list "end" to end: ['sasin','ssss']

Enter String elements in list "end" to end: ['ssaa','ddss']

Enter String elements in list "end" to end: ['end']

Enter String elements in list "end" to end: [end]

Enter String elements in list "end" to end: end

OUTPUT:-

["'sasin','ssss'", "'ssaa','ddss'", "'end'", 'end']