FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)TM

**HORMIS NAGAR, MOOKKANNOOR**

**ANGAMALY-683577**



‘**FOCUS ON EXCELLENCE’**

**PYTHON PROGRAMMING**

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**LABORATORY RECORD**

**Name** : **AKSHAY B**

**Branch : MASTER OF COMPUTER APPLICATION**

**Semester : 1 Batch : SEMESTER -1 A**

**Roll No : 10**

**FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY (FISAT)TM**

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‘**FOCUS ON EXCELLENCE’**

**Name :** AKSHAY B

# Branch : MASTER OF COMPUTER APPLICATION

**Semester : 1 Roll No: 10**

**University Exam.Reg. No:**

**CERTIFICATE**

*This is to certify that this is a Bonafide record of the Practical work done and submitted to Kerala Technological University in partial fulfillment for the award of the Master Of Computer Applications is a record of the original research work done by* AKSHAY B *in the* ***PYTHON PROGRAMMING LAB*** *Laboratory of the Federal Institute of Science and Technology during the academic year 2020-2021.*

Signature of Staff in Charge Signature of H.O.D

Name: Name:

Date:

# Date of University practical examination ………………………

Signature of Signature of

Internal Examiner External Examiner

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# Display future leap years from current year to a final year entered by user.

**Program:**

print("Leap Years") print(" ")

start=int(input("enter starting year: ")) end=int(input("enter ending year: ")) c=0

print("Leap years in between" ,start ,"and",end,"are") while start <= end :

if start % 4 == 0 and start % 100 !=0 : print(start)

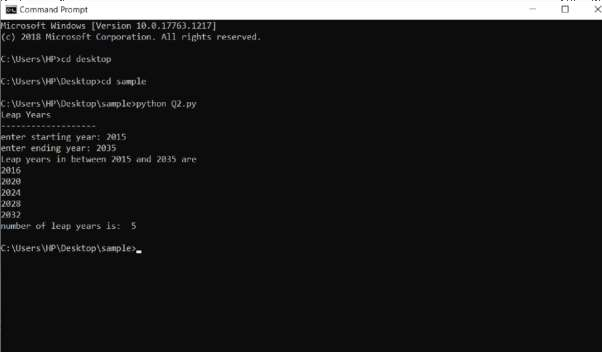
c+=1

if start % 100 == 0 and start % 400 == 0 : print(start)

start = start+1

print("number of leap years is: ",c)

**Output:**



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# List comprehensions

1. **Generate positive list of numbers from a given list of integers. Program:**

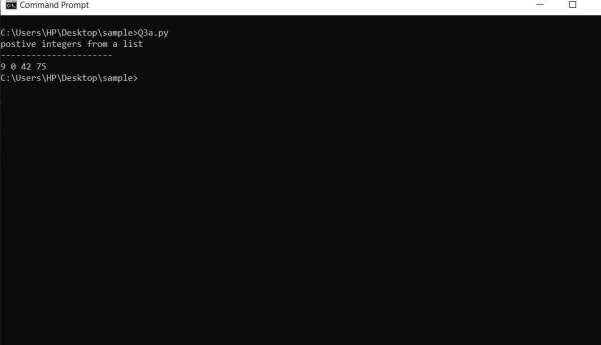
print("postive integers from a list")

print(" ") list1=[9,-2,0,42,75,-33]

for num in list1: if num >=0 :

print(num,end=" ")

**Output:**



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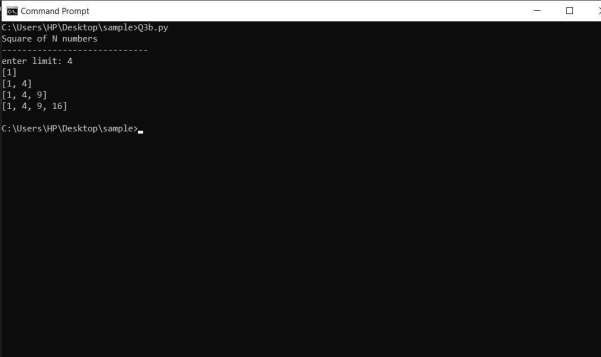
# Square of N numbers.

**Program:**

print("Square of N numbers") print(" ") limit=int(input("enter limit: ")) list1=[]

for i in range(1,limit+1): list1.append(i\*i) print(list1)

**Output:**



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# Form a list of vowels selected from a given word. Program:

print("Ordinal values") print(" ")

str=input("enter a word:") vowels=0

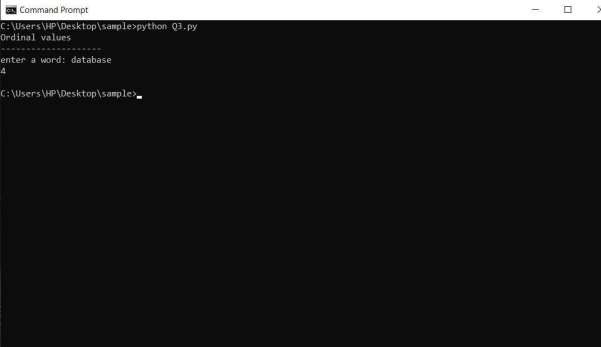
for char in str :

if char in 'aeiouAEIOU' : vowels=vowels+1

else :

continue print(vowels)

**Output:**



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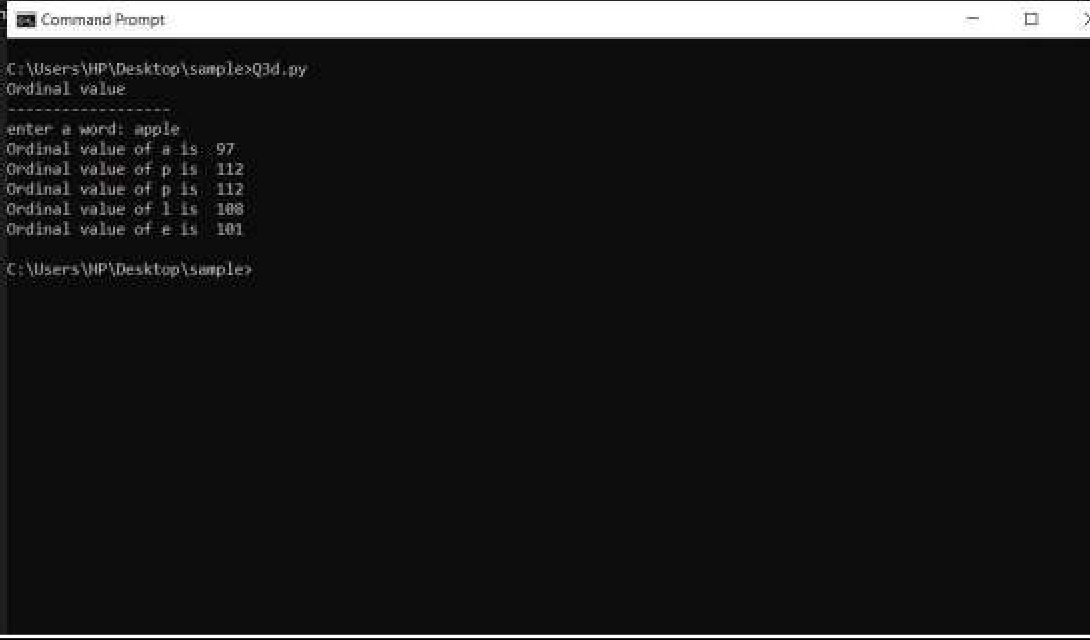
***Department of MCA Expt No:*** *..............*

# List of ordinal values of each element of a word Program:

print("Ordinal value") print(" ") word=input("enter a word: ") for ch in word:

print("Ordinal value of "+ch+" is ",ord(ch))

# Output :



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# Count the occurrences of each word in a line of text. Program:

print("occurence of eachword") print(" ")

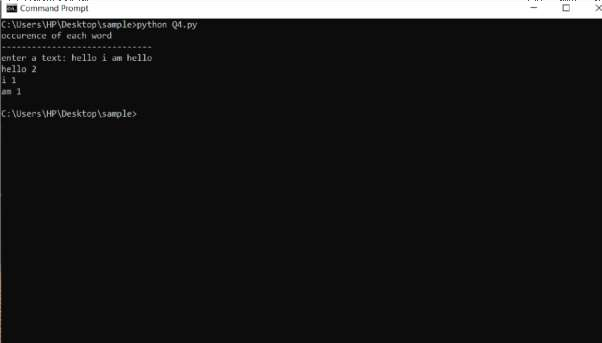
str=input("enter a text: ") counts={} words=str.split()

for word in words : if word in counts : counts[word]+=1

else : counts[word]=1

for k,v in counts.items(): print(k,v)

**Output:**



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# Prompt the user for a list of integers. For all values greater than 100, store ‘over’ instead.

**Program:**

list=[45,102,20,120]

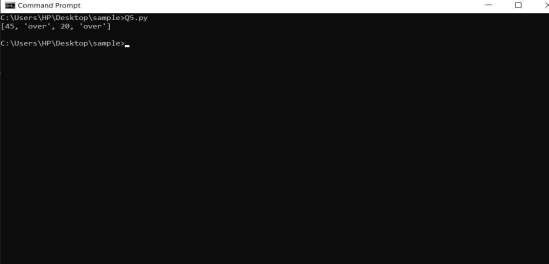
new\_list=[] for i in list:

if i>100:

new\_list.append("over") else:

new\_list.append(i) print(new\_list)

**Output:**



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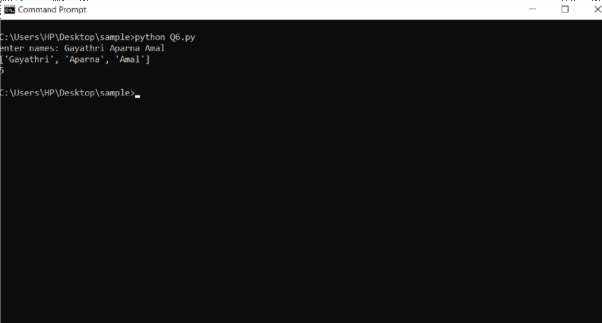
***Department of MCA Expt No:*** *..............*

# Store a list of first names. Count the occurrences of ‘a’ within the list. Program:

list=input("enter names: ") words=list.split() print(words)

c=0

for word in words : for char in word : if char in 'a' : c=c+1

else : continue print(c) **Output:**

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# Enter 2 list of integers. Check (a) Whether lists are of same length (b) Whether lists sums to same value (c) Whether any value occur in both

**Program:**

print("list of integers") print(" ") list1=[1,23,34,26] list2=[1,56,39,2,67]

if len(list1)==len(list2): print("lists are of samelength") else :

print("different length")

if sum(list1)==sum(list2) : print("Sum is same")

else :

print("Sum isdifferent") f=0

for elem in list2 : if elem in list1 : f=1

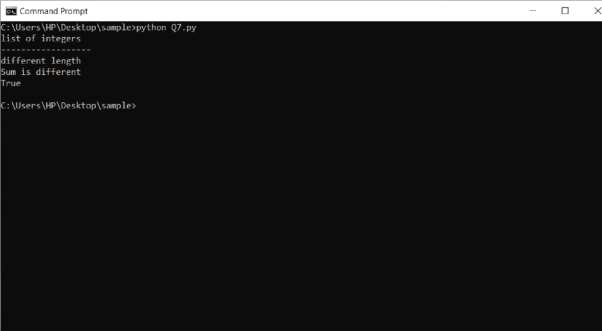
if f==1 : print(‘True’) else : print(False)

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**Output:**



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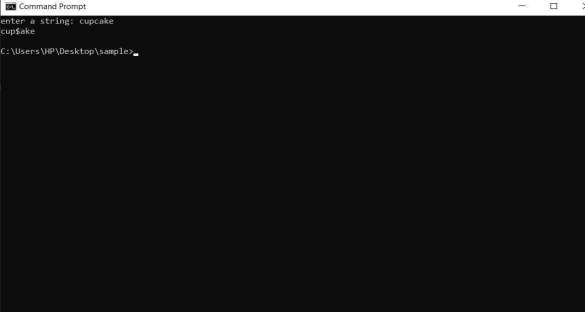
***Department of MCA Expt No:*** *..............*

# Get a string from an input string where all occurrences of first character replaced with ‘$’, except first character.

**Program:**

str=input("enter a string: ") first\_letter=str[0] replace\_str="$"

new\_str=str.replace(first\_letter,replace\_str) print(new\_str.replace(replace\_str,first\_letter,1))

**Output:**

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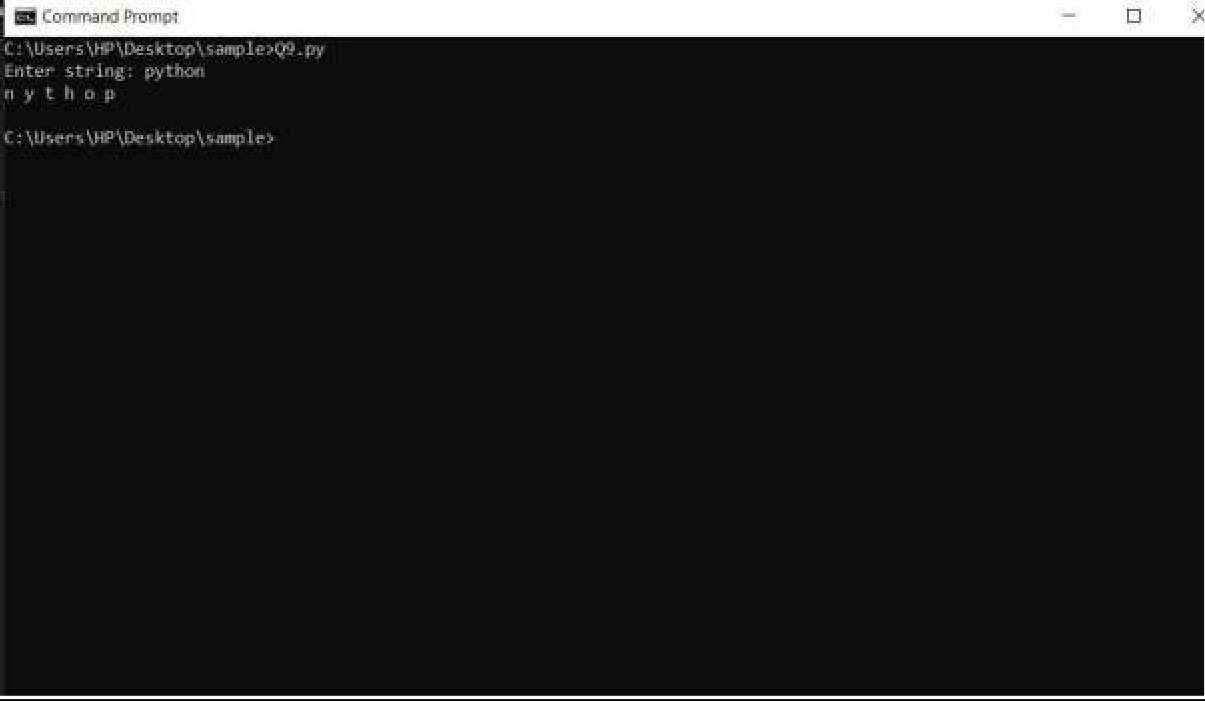
***Department of MCA Expt No:*** *..............*

# Create a string from given string where first and last characters exchanged. Program:

str=input("Enter string: ") letters=list()

for i in str: letters.append(i) first\_letter=letters[0] letters[0]=letters[-1] letters[-1]=first\_letter rev\_str=" " print(rev\_str.join(letters))

# Output:



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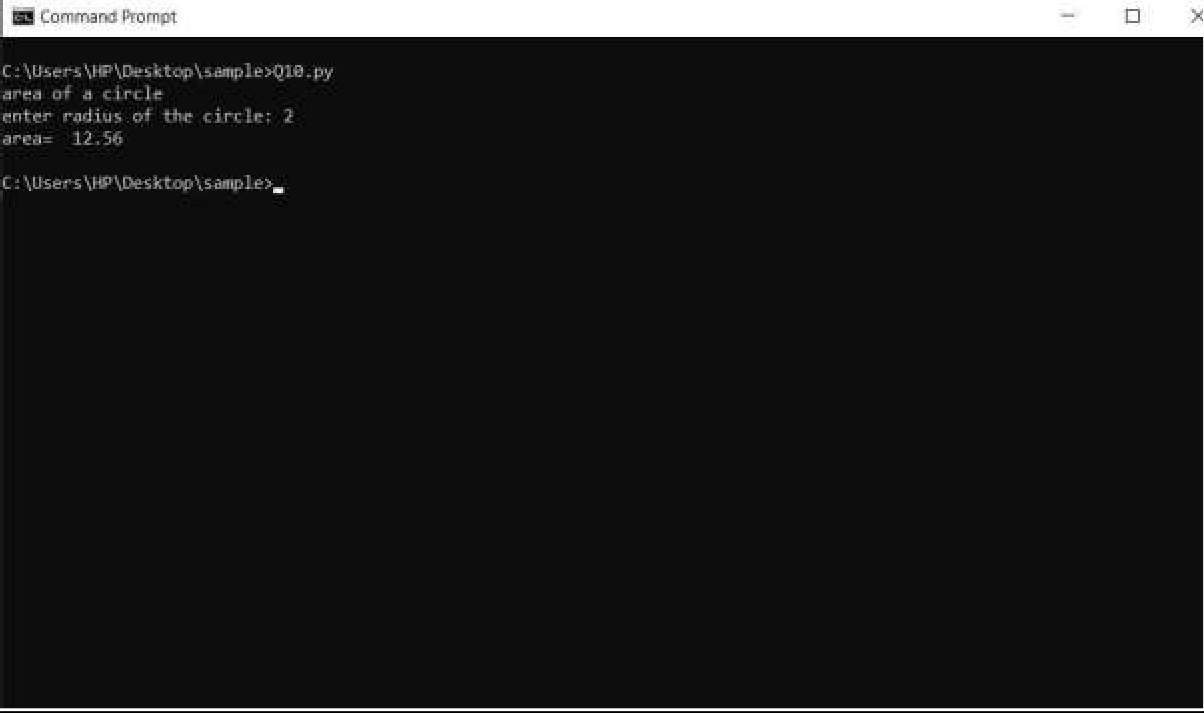
***Department of MCA Expt No:*** *..............*

# Accept the radius from user and find area of circle. Program:

print("area of a circle") r=float(input("enter radius of thecircle:")) area=3.14\*r\*r

print("area= ",area)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Find the biggest of 3 numbers entered. Program:

print("Largest of 3 numbers") print(" ")

n1=int(input("Enter first number: ")) n2=int(input("Enter second number: ")) n3=int(input("Enter third number: "))

if (n1>=n2) and (n1>=n3): largest=n1

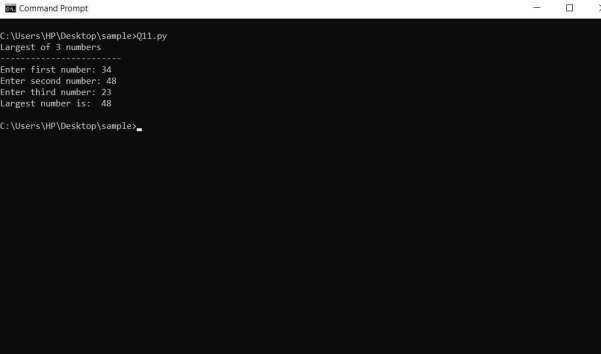
elif (n2>=n1)and(n2>=n3): largest=n2

else :

largest=n3

print("Largest number is: ",largest)

**Output:**



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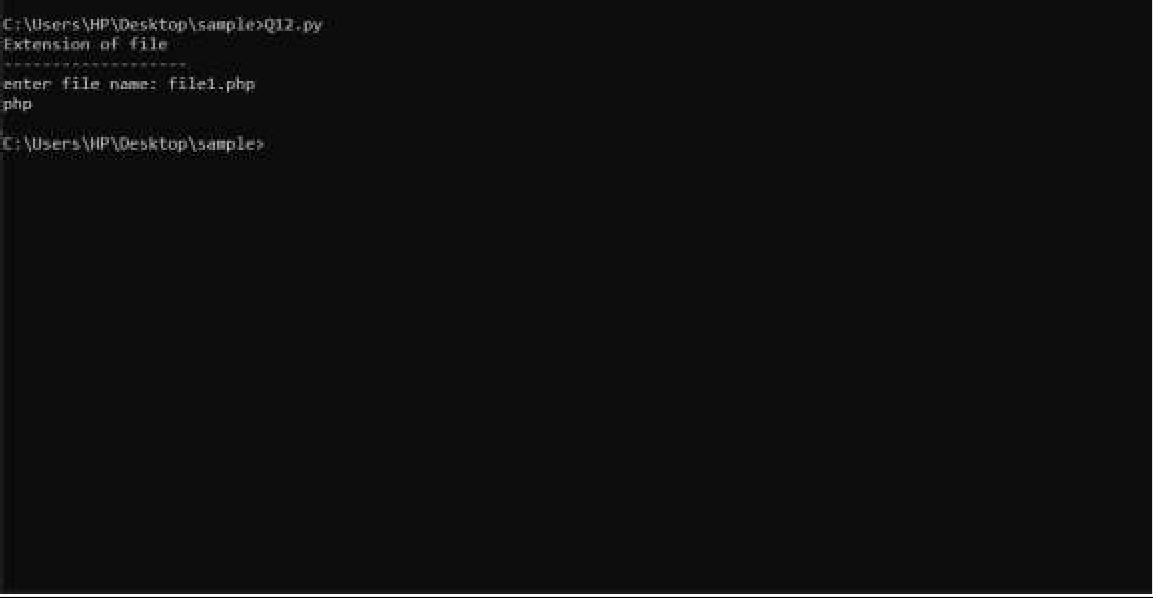
# Accept a file name from user and print extension of that. Program:

print("Extension of file") print(" ") file=input("enter file name: ") l=list()

l=file.split(".")

print(l[-1])

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a list of colors from comma-separated color names entered by user. Display first and last colors.

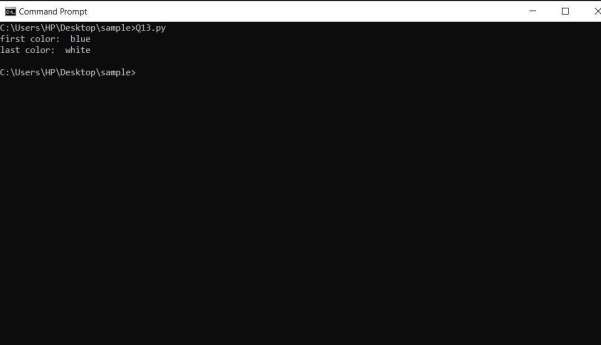
**Program:**

List1=['blue','black','yellow','red','white'] print("first color",:List1[0])

print("last color: ",List1[4])

**Output:**

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# Accept an integer n and compute n+nn+nnn. Program: :

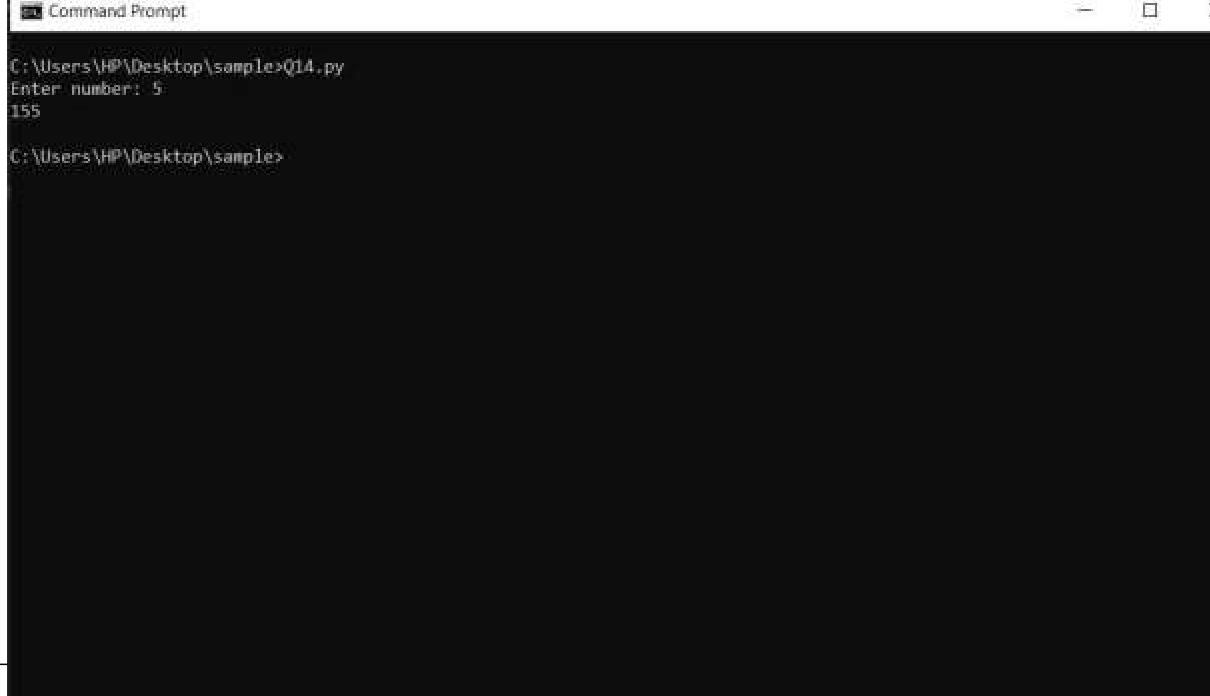
n=int(input("Enter number: "))

num=n

+ n \* n + n \* n \* n

print(num)

**Output:**



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***Department of MCA Expt No:*** *..............*

# 14 .Print out all colors from color-list1 not contained in color-list2. Program:

color\_list1=['blue','white','black','green','indigo'] color\_list2=['green','red','blue','white','yellow'] sorted\_list=list(set(color\_list1) - set(color\_list2))

print("colors are: ",sorted\_list)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a single string separated with space from two strings by swapping the character at position 1.

**Program:**

str1=input("enter first string: ") str2=input("enter second string: ") new\_str1=str2[:1] + str1[1:] new\_str2=str1[:1] + str2[1:]

print("After swapping: ",new\_str1 + ' ' + new\_str2)

**Output:**



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# Sort dictionary in ascending and descending order. Program:

print("Dictonary sorting") print(" ")

D={'alan':12,'susan':75,'elizabeth':30,'joe':32} print("Original dictionary is: ",D) l=list(D.items())

l.sort()

print("Ascending order is: ",l) l=list(D.items()) l.sort(reverse=True)

print("Descending order is: ",l)

**Output:**

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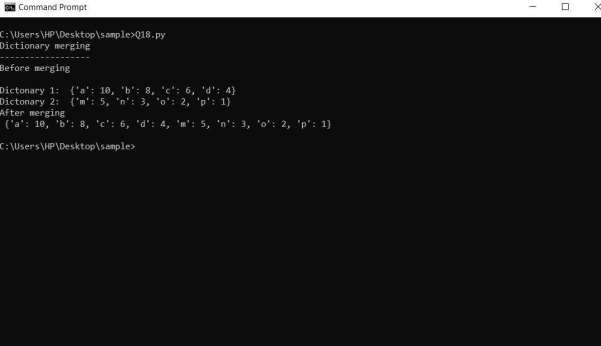
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***Department of MCA Expt No:*** *..............*

1. **Merge two dictionaries Program:** print("Dictionarymerging") print(" ") d1={'a':10,'b':8,'c':6,'d':4} d2={'m':5,'n':3,'o':2,'p':1} print('Before merging\n') print("Dictonary 1: ",d1) print("Dictonary 2: ",d2) d1.update(d2)

print('After merging\n',d1)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Find gcd of 2 numbers. Program:

print("GCD of 2 numbers") print(" ")

n1=int(input("enter first number: ")) n2=int(input("enter second number: ")) def gcd(a,b):

if(b==0):

return a else:

return gcd(b,a%b) result=gcd(n1,n2)

print("Gcd of" ,n1, "and" ,n2, "is:",result)

**Output:**



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# From a list of integers, create a list removing even numbers. Program:

limit=int(input("enter limit: ")) n=[]

for i in range(1,limit+1): num=int(input(f"enter the {i} th number:")) n.append(num)

print("entered list: ",n) odd\_list=[]

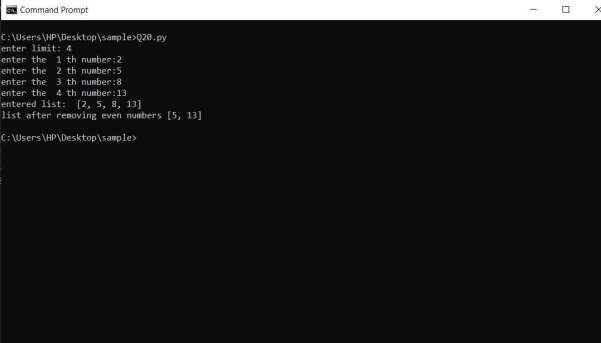
for i in n:

if i%2!=0:

odd\_list.append(i)

print("list after removing even numbers",odd\_list)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Program to find the factorial of a number Program:

print("factorial of a number") print(" ") num=int(input("enter a number: ")) fact=1

if num < 0:

print("enter a positive number") else:

for i in range(1,num+1): fact=fact\*i

print("factorial of",num,"is",fact)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Generate Fibonacci series of N terms

**Program:**

print("fibonacci series") print(" ") limit=int(input("enter limit: ")) n1=0

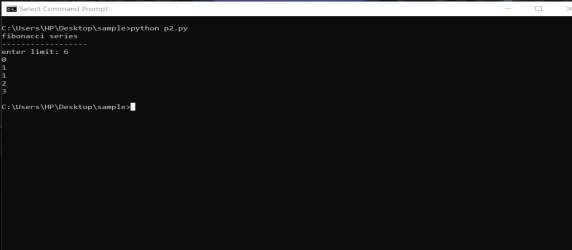
n2=1

count=1

while count < limit: print(n1)

n=n1+n2 n1=n2 n2=n

count=count+1

**Output:**

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***Department of MCA Expt No:*** *..............*

# Find the sum of all items in a list Program:

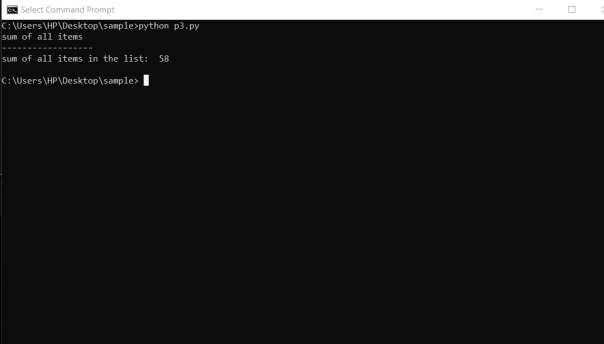
print("sum of all items")

print(" ") total=0 list1=[11,10,12,20,5] for ele in range(0,len(list1)):

total = total + list1[ele]

print("sum of all items in the list: ",total)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square.

**Program:**

sq\_list=[]

limit=int(input("enter the range: ")) if(limit<1000 or limit>9999):

print("enter a range between 1000 to 9999") else:

for i in range(32,99):

s=0 if(i\*i>limit):

break else:

for k in str(i\*i):

if(int(k)%2==0):

s=s+1 if(s==4):

sq\_list.append(i\*i) if(len(sq\_list)==0):

print("No numbers satisfying both conditions found in the range") else:

print(f"Numbers satisfying both conditons are->{sq\_list}")

**Output:**



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***Department of MCA Expt No:*** *..............*

# Display the given pyramid with step number accepted from user. Eg: N=4

**1**

**2 4**

**3 6 9**

**4 8 12 16**

**Program:**

sum=0

limit=int(input("enter limit:")) for i in range(1,limit+1): print("\n")

for j in range(1,i+1): sum=i\*j print(sum,end=' ') print("\n")

**Output :**



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# Count the number of characters (character frequency) in a string. Program:

print("Number of characters in a string") print(" ") string=input("enter a string: ")

count=0

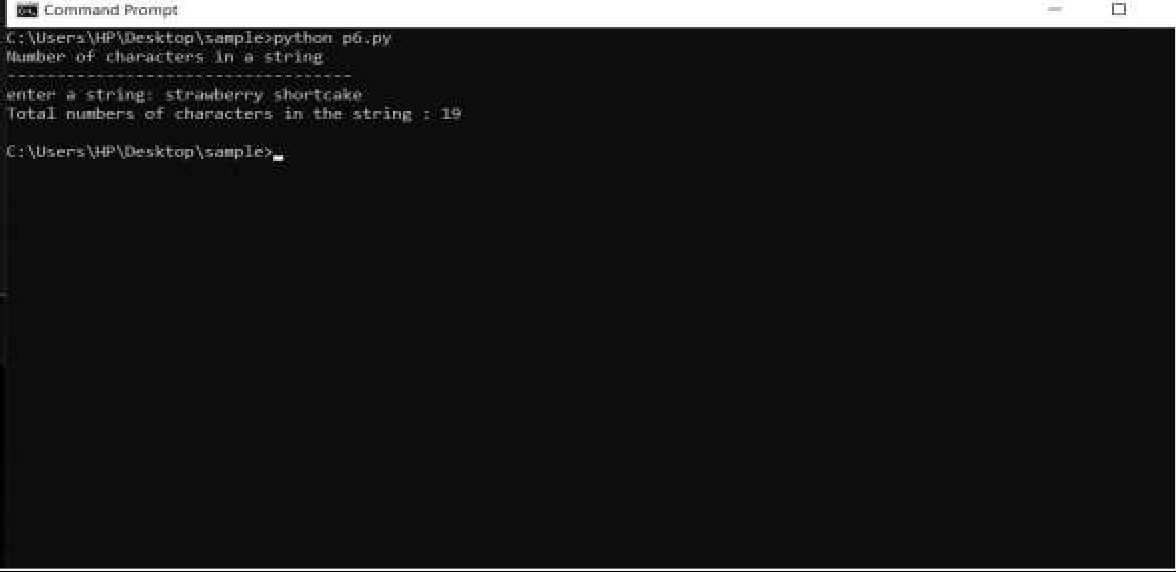
for i in range(0,len(string)):

if(string[i]!=' '):

count = count + 1

print("Total numbers of characters in the string : "+str(count))

**Output:**



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# Add ‘ing’ at the end of a given string. If it already ends with ‘ing’, then add ‘ly’. Program:

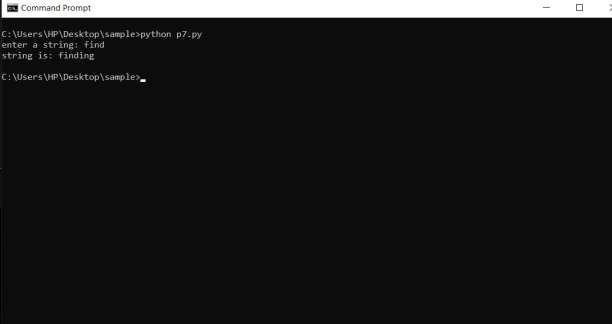
string1=input("enter a string: ") str1="ly"

str2="ing" last=string1[-3:] if last in 'ing':

string1=string1+str1 print("string is: "+string1) else:

string1=string1+str2 print("string is: "+string1)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Accept a list of words and return length of longest word. Program:

str\_list=list() long=0 string=' '

lim=int(input("enter the limit: ")) for i in range(1,lim+1):

item=str(input(f"enter the string{i}:"))

str\_list.append(item) for i in str\_list:

if(long<=len(i)):

long=len(i) string=i

print(f"Longest word in the list is {string} and its length is {long}")

**Output:**



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# Construct following pattern using nested loop.

\*

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\* \* \* \*

\* \* \*

\* \*

\*

**Program:**

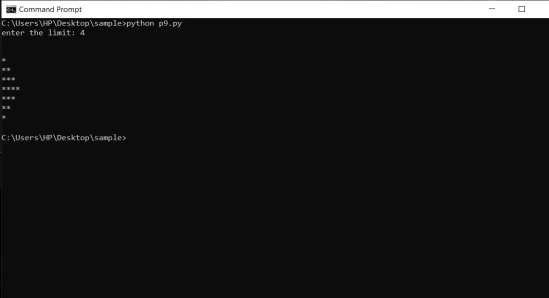
lim=int(input("enter the limit: ")) print("\n")

for i in range(1,lim+1): print('\*'\*i)

j=lim-1 while(j!=0):

print('\*'\*j) j=j-1

**Output:**



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***Department of MCA Expt No:*** *..............*

# Generate all factors of a number. Program:

print("factors of a number")

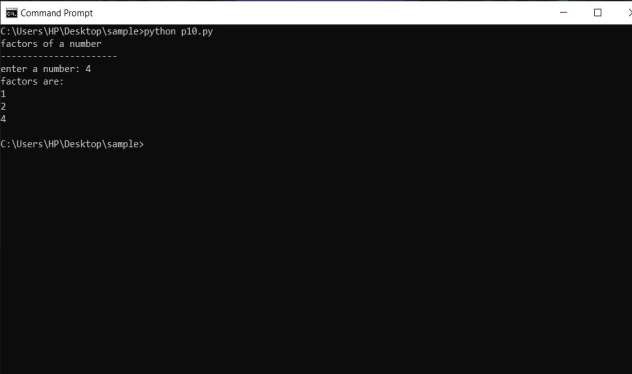
print(" ") num=int(input("enter a number: ")) print("factors are: ")

for i in range(1,num+1): if num % i ==0:

print(i)

**Output:**

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***Department of MCA Expt No:*** *..............*

# Write lambda functions to find area of square, rectangle and triangle. Program:

square=lambda x: x \*\* 2 rectangle=lambda x,y: x\*y triangle=lambda x,y: 0.5\*(x\*y) print("1.Area of square") print("2.Area of rectangle") print("3.Area of triangle") print("\n")

ch=int(input("enter a choice: ")) if(ch==1):

side = int(input("enter one side: ")) print("\n")

print(f"Area of the square is {square(side)}") elif(ch==2):

length=int(input("enter the length: ")) breadth=int(input("enter the breadth: ")) print("\n")

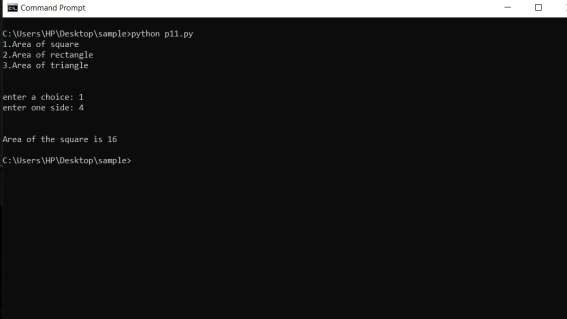
print(f"Area of the rectangle is{rectangle(length,breadth)}") elif(ch==3):

height=int(input("enter the height: ")) breadth=int(input("enter the breadth: ")) print("\n")

print(f"Area of triangle is{int(triangle(height,breadth))}") else:

print("Invalid input")

**Output:**



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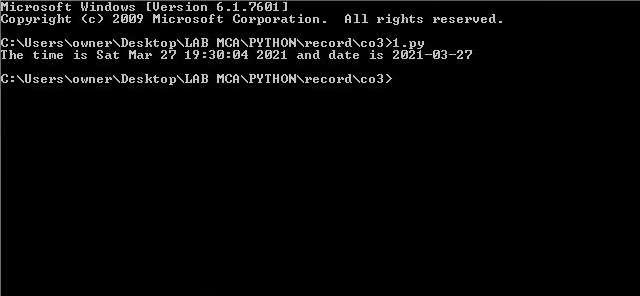
# Work with built-in packages Program:

import time import datetime

today=datetime.date.today()

print(f"The time is {time.ctime()} and date is {today}")

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a package graphics with modules rectangle,circle.include method to find area and perimeter of respective figures in each.Write a program to find area and perimeter of figure by different importing statements

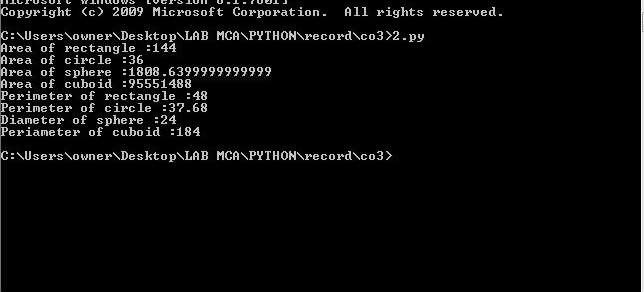
**Program:**

from graphics import rectangle as r, circle as c

from graphics.three\_d\_graphics import sphere as s, cuboid as cu print(f"Area of rectangle :{r.area(12,12)}")

print(f"Area of circle :{c.area(6)}") print(f"Area of sphere :{s.area(12)}") print(f"Area of cuboid :{cu.area(12,16,18)}")

print(f"Perimeter of rectangle :{r.perimeter(12,12)}") print(f"Perimeter of circle :{c.perimeter(6)}") print(f"Diameter of sphere :{s.diameter(12)}") print(f"Periameter of cuboid :{cu.perimeter(12,16,18)}") **Output:**



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***Department of MCA Expt No:*** *..............*

# Create Rectangle class with attributes length and breadth and methods to find area and perimeter. Compare two Rectangle objects by their area.

**Program:**

class Rectangle:

def arearect(self,l,w): self.l=l

self.w=w self.area=self.l\*self.w print("area= ",self.area)

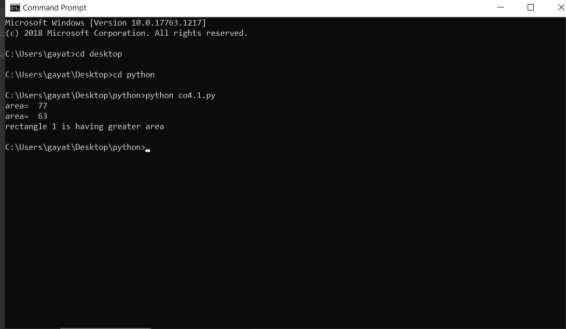
rect1=Rectangle() rect2=Rectangle() rect1.arearect(11,7) rect2.arearect(9,7) if(rect1.area<rect2.area):

print("rectangle 2 is having greater area") elif(rect1.area==rect2.area):

print("both rectangles have some area") else:

print("rectangle 1 is having greater area")

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a Bank account with members account number, name, type of account and balance. Write constructor and methods to deposit at the bank and withdraw an amount from the bank.

**Program:**

class Bank\_account:

def init (self,acc\_no,name,acc\_type,balance): self.acc\_no=acc\_no

self.name=name self.acc\_type=acc\_type self.balance=balance

def deposit(self,deposit\_am):

print("Initial balance: ",self.balance) print("Amount to be deposited: ",deposit\_am) self.balance=self.balance+deposit\_am print("New balance is: ",self.balance)

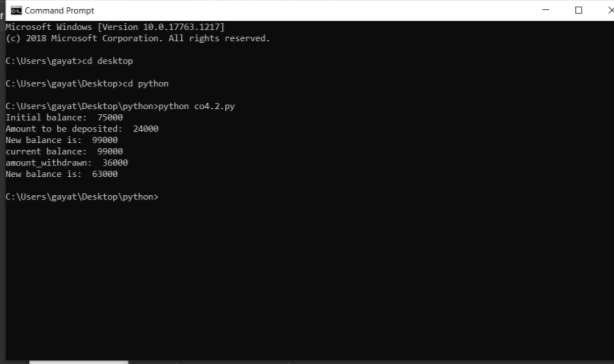
def withdraw(self,withdrawn\_am): print("current balance: ",self.balance)

print("amount\_withdrawn: ",withdrawn\_am) self.balance=self.balance-withdrawn\_am print("New balance is: ",self.balance)

P=Bank\_account(1234,'Rose','savings',75000) P.deposit(24000)

P.withdraw(36000)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a class Rectangle with private attributes length and width. Overload ‘<’ operator to compare the area of 2 rectangles.

**Program:**

class Rectangle:

def init (self,l,w):

self.l=l self.w=w

def lt (self,a):

if((self.l\*self.w)>(a.l\*a.w)):

print("rect1 is having greater area") return(self.l\*self.w)

else:

rect1=Rectangle(9,4) rect2=Rectangle(8,5) print(rect1<rect2)

**Output:**

print("rect2 is having greater area") return(a.l\*a.w)



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***Department of MCA Expt No:*** *..............*

# 36 .Create a class Time with private attributes hour, minute and second. Overload ‘+’ operator to find sum of 2 time.

**Program:**

class Time:

def init (self,hr,min,sec):

self.hr=hr self.min=min self.sec=sec

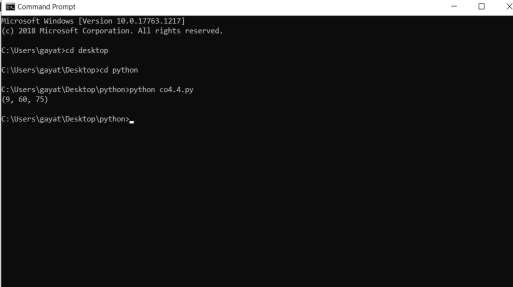
def add (self,t):

return(self.hr+t.hr,self.min+t.min,self.sec+t.sec) t1=Time(4,15,45)

t2=Time(5,45,30)

print(t1+t2)

**Output:**



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***Department of MCA Expt No:*** *..............*

# Create a class Publisher (name). Derive class Book from Publisher with attributes title and author. Derive class Python from Book with attributes price and no\_of\_pages. Write a program that displays information about a Python book. Use base class constructor invocation and method overriding.

**Program:**

class Publisher:

def init (self,n):

self.name=n class Book(Publisher):

def init (self,n,a,t):

super(). init (n) self.title=t self.author=a

class Python(Book):

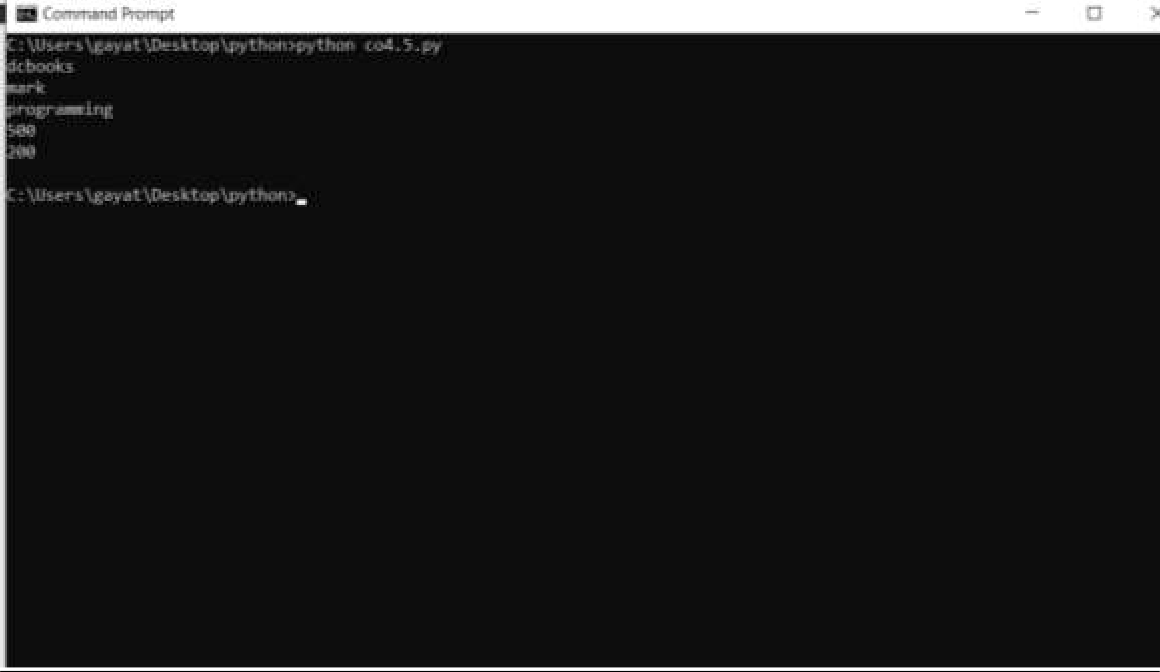
def init (self,n,a,t,p,pg): super(). init (n,a,t) self.price=p self.pages=pg

def Print(self):

print(P.name) print(P.title) print(P.author) print(P.price) print(P.pages)

P=Python('dcbooks','programming','mark',500,200) P.Print()

**Output:**



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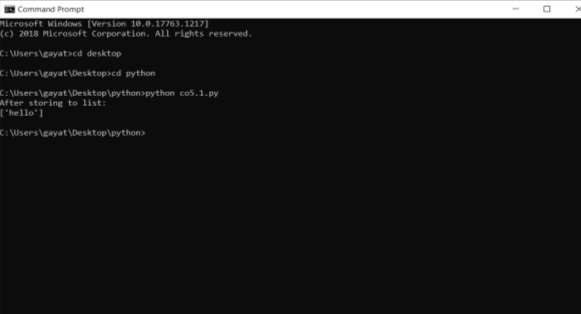
# Write a Python program to read a file line by line and store it into a list Program:

file1=open("demofile1.txt",'r')

list1=file1.readlines()

print(f"After storing to list:\n{list1}")

**Output:**



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***Department of MCA Expt No:*** *..............*

# Python program to copy odd lines of one file to other Program:

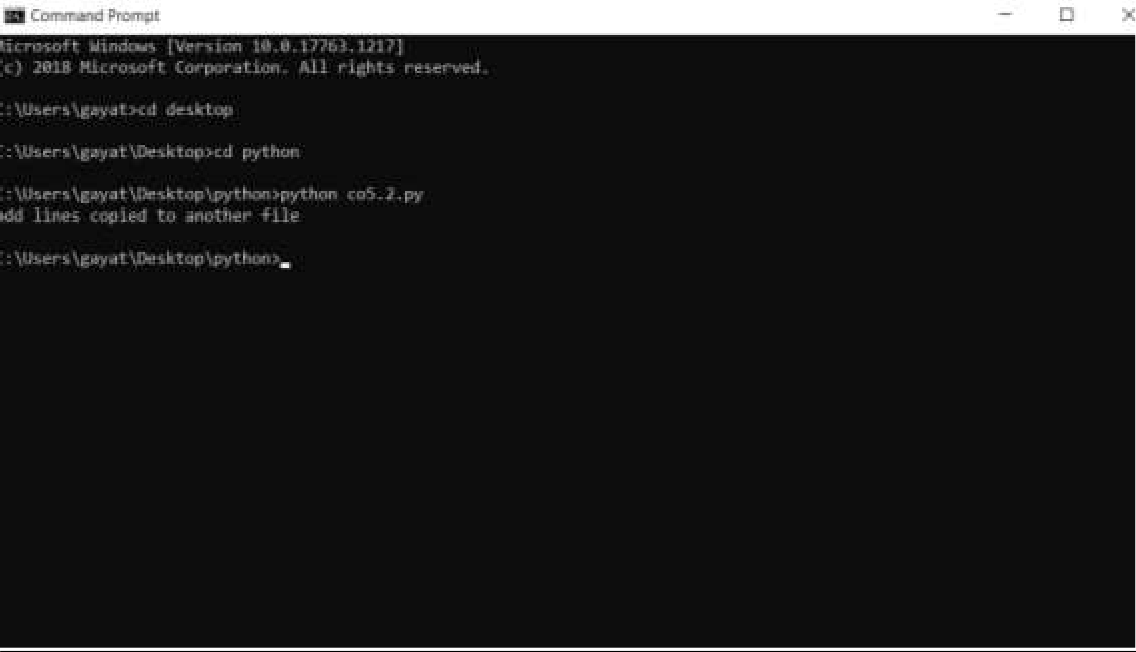
file1=open("demofile1.txt",'r')

file2=open("demofile2.txt",'w+') list1=file1.readlines()

for i in range(0,len(list1),2): file2.write(list1[i])

print("odd lines copied to another file")

**Output:**



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