

Computer Science XII

Practical File 2022-23

Made by-

Ujjwal Kakar

XII – F

Roll no. 39

**BASICS OF PYTHON**

Program 1

Write a Python program to obtain temperatures of 7 days of a week and then display the average temperature of the week.

**Source Code-**

print("Temperature of the week (⁰C)") #Title

#Obtain Temperature input from user

tempMon=float(input("Enter Temperature on Monday (⁰C): "))

tempTue=float(input("Enter Temperature on Tuesday (⁰C): "))

tempWed=float(input("Enter Temperature on Wednesday(⁰C): "))

tempThu=float(input("Enter Temperature on Thursday (⁰C): "))

tempFri=float(input("Enter Temperature on Friday (⁰C): "))

tempSat=float(input("Enter Temperature on Saturday (⁰C): "))

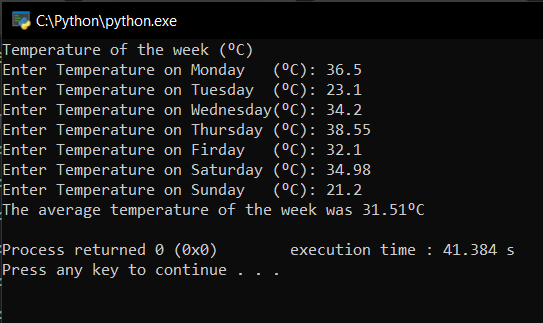
tempSun=float(input("Enter Temperature on Sunday (⁰C): "))

tempAvg=(tempMon + tempTue + tempWed + tempThu + tempFri + tempSat + tempSun)/7 #Average Temperature

tempAvg = (tempAvg//0.01)/100 #removes everything after 2 decimals

print("The average temperature of the week was ",tempAvg,"⁰C",sep="") #Output

**Output-**

****

Program 2

Write a Python program to accept two numbers and one operator (+,-,\*, /, %) from the user and display the calculated result, according to the operator input from the user.

**Source Code-**

print("Mathematical Operations") #Title

#Number Input

n1=float(input("\nEnter first number: "))

n2=float(input("Enter Second number: "))

#operator Input

operator= input("\nEnter Operator ( + , - , \* , / , % ): ")

print('') #newline

#Operation based on operator

if(operator=="+"):

print("The sum of",n1,"and",n2,"is",(n1+n2))

elif(operator=="-"):

print("The difference of",n1,"and",n2,"is",(n1-n2))

elif(operator=="\*"):

print("The product of",n1,"and",n2,"is",(n1\*n2))

elif(operator=="/"):

print("The quotient of",n1,"and",n2,"is",(n1/n2))

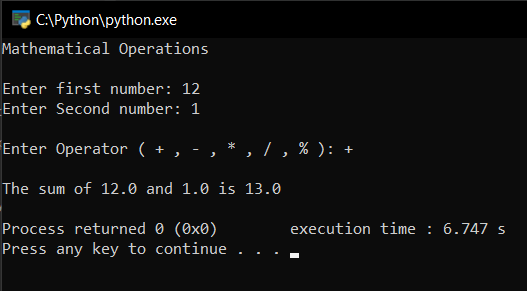
elif(operator=="%"):

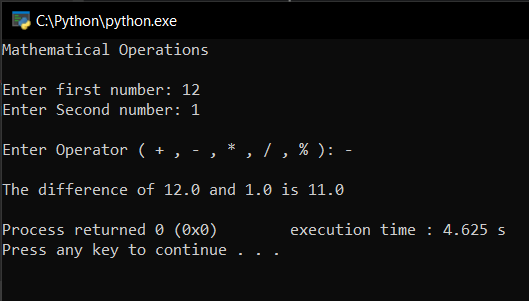
print("The modulo of",n1,"and",n2,"is",(n1%n2))

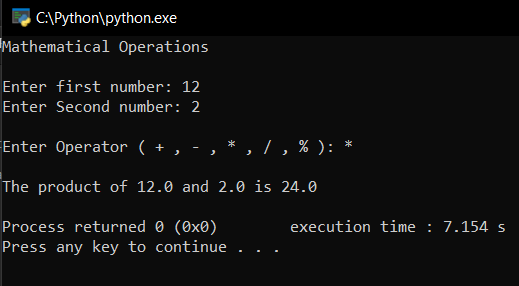
else: #when input is not a valid operator

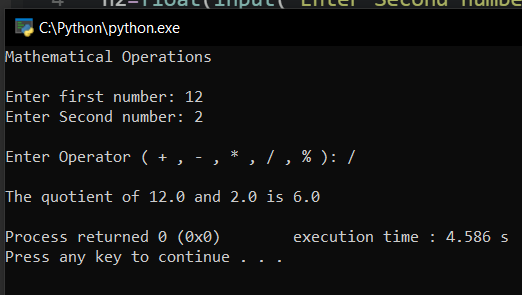
print("Invalid operator!")

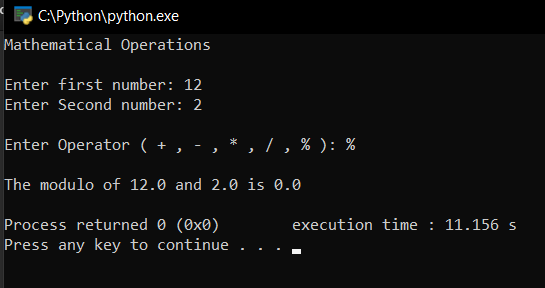
**Output-**











Program 3

Write a Python program that inputs a student’s marks in five subjects (out of 100), then prints the

percentage of marks, and calculates grades as per the following rules:

|  |  |
| --- | --- |
| Marks | Marks |
| 85% and above | A |
| 75% -84% | B |
| 65% - 74% | C |
| 50% - 64% | D |
| 40% - 49% | E |
| 39% and below | Fail |

**Source Code-**

subjects, iter , marks= ["English" , "Physics" , "Chemistry" , "Maths" , "Computer Science"] , 0 , [0,0,0,0,0]

for sub in subjects:

marks[iter]=(int(input(("Marks in "+sub+": "))))

iter+=1

iter=0

for sub in subjects:

if(marks[iter]>39):

print("\nYour Grade in",sub,"is ",end="")

if (marks[iter]>=85):

print("A")

elif (marks[iter]>=75):

print("B")

elif (marks[iter]>=65):

print("C")

elif (marks[iter]>=50):

print("D")

elif (marks[iter]>=40):

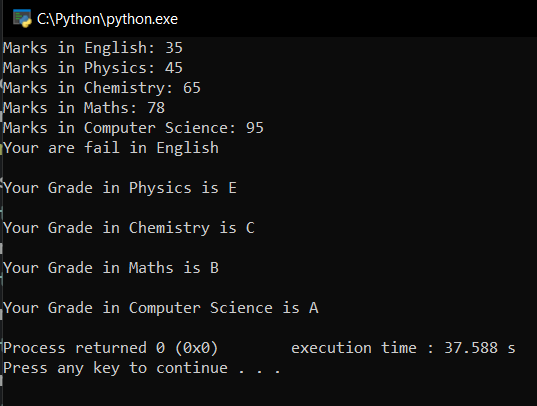
print("E")

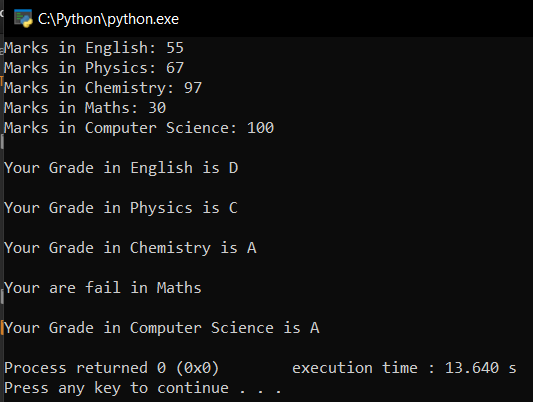
else:

print("\nYour are fail in",sub)

iter+=1

**Output-**

****



Program 4

Write a Python program to display all multiples between 2 and 100 of a number input from user.

**Source Code-**

print("Multiples between 2 and 100")

num = int(input("Enter a number between 2 and 100: "))

if (num>2 and num<100):

print("The multiples of",num,"are :")

for j in range(3,100):

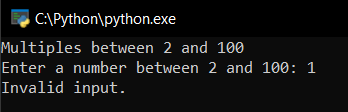
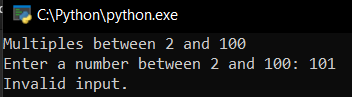
if((j%num)==0):

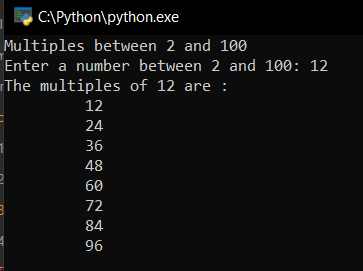
print('\t',j)

else:

print("Invalid input.")

**Output-**





Program 5

Write a Python program to take an integer input N from the user. Print N Fibonacci numbers. Recall that Fibonacci series progresses as 0 1 1 2 3 5 8 13………….…

**Source Code-**

print("Fibonacci Series Calculator")

a1,a2,n,an=0,1,int(input("Number of terms for Fibonacci Series: ")),1

if (n<1):

print("Invalid Input")

elif (n==1):

print("0")

elif (n==2):

print("0 \n1")

else:

print("0 \n1")

for j in range(3,n+1):

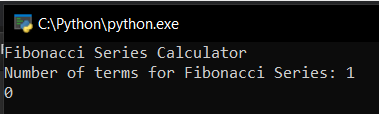
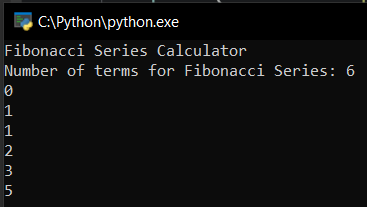
an = a1 + a2

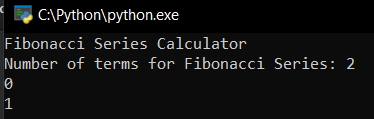
a1 = a2

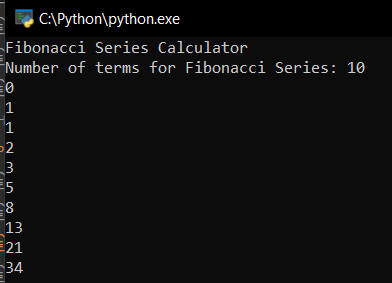
a2 = an

print(an)

**Output-**







Program 6

Write a Python program to take an integer input N from the user and print the factorial of N. Program should print an error for negative numbers.

**Source Code-**

print("Multipliation Tables")

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

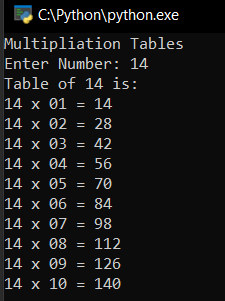
print("Table of",n,"is:")

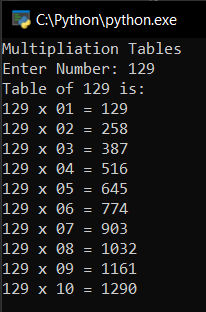
for j in range(1,11):

nj = n \* j

print(n,"x",str(j).zfill(2),"=",nj)

**Output-**





Program 7

Write a Python program to take an integer input N from the user and print the factorial of N. Program should print an error for negative numbers.

**Source Code-**

print("Factorials")

Fac , n = 1 , int(input("Enter Positive Number: "))

if(n<0):

print("Invalid Input")

elif (n==0):

print("Factorial of 0 is 1")

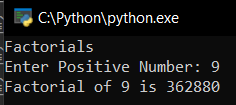
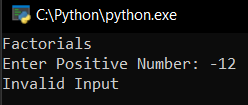
elif(n>0):

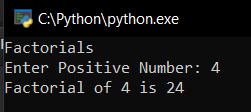
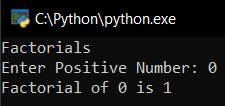
for fact in range(1,n+1):

Fac\*=fact

print("Factorial of",n,"is",Fac)

**Output-**





Program 8

Write a Python program to input a string from the user and check for vowels and consonants. Remove all vowels, change the case of the consonants and generate the resultant string.

**Source Code-**

print("String Mutation \n The program will remove vowels and uppercase the consonants")

Sen , ts=input("Enter a few Lines: \n") , []

for j in range(0,len(Sen)):

ts.append(Sen[j])

for num in range(0,len(Sen)):

a=ts[num]

if a in "AEIOUaeiou" :

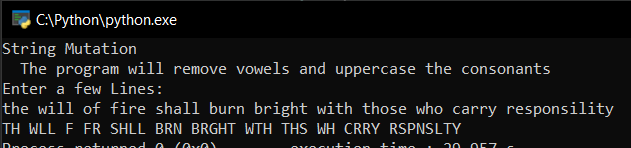
ts[num] = ""

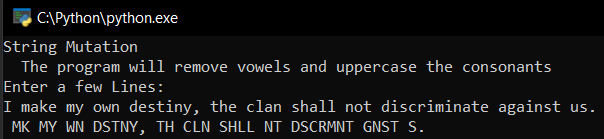
else:

ts[num] = ts[num].upper()

print(ts[num], end="")

**Output-**





Program 9

Write a Python program to input a string and replace all spaces with hyphen (without using inbuilt functions)

**Source Code-**

n = input("Enter String: ")

for j in range(len(n)):

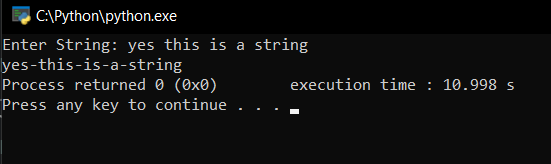
if n[j] == " ":

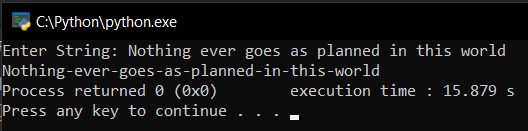
print('-',end="")

else:

print(n[j],end="")

**Output-**





Program 10

Write a Python Program to calculate the average length of a word in a string input by user.

**Source Code-**

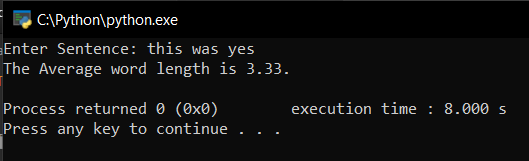
n , charCount = input("Enter Sentence: ").split() , 0

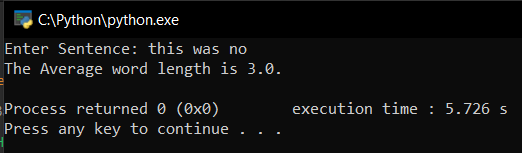
for j in n:

charCount+=len(j)

print("The Average word length is ",round((charCount/len(n)),2),'.',sep='')

**Output-**





Program 11

Write a program to delete elements using index value and storing the deleted value.

**Source Code-**

print(" Welcome to List Index Deletion and Storage")

LS = 0

while True:

try: LS = eval(input(" Enter List: "))

except: pass

if type(LS)==type([]): break

print(' Invalid, Try Again')

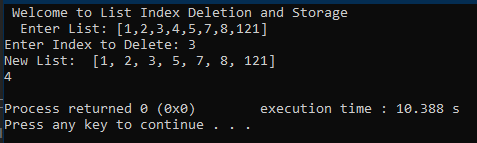
de = int(input("Enter Index to Delete: "))

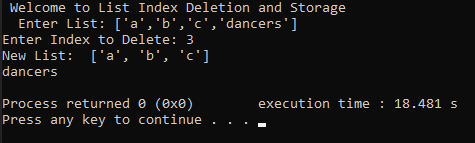
a = LS.pop(de)

print("New List: ",LS)

print(a)

**Output-**





Program 12

Write a program with list functions and methods

**Source Code-**

print("List Functions and Methods")

lost = [1,2,3,4,6,7,121,-31.41,2,3,2,2]

print("The list is",lost,"\n")

print("""

You can select from functions to perform on the list:

1) index()

2) append()

3) extend()

4) count()

5) reverse()

6) sort()

7) insert()

8) pop()

""")

while True:

option = int(input("Enter the Option: "))

if option==1:

print(lost.index(eval(input("index() \nEnter the item (use appropriate variable

format): "))))

elif option==2:

print(lost.append(eval(input("append() \nEnter Item to Append (use

appropriate variable format): "))))

elif option==3:

print(lost.extend(eval(input("extend() \nEnter List to Extend (use appropriate

variable format): "))))

elif option==4:

print(lost.count(eval(input("count() \nEnter the Item (use appropriate variable

format): "))))

elif option==5:

print(lost.reverse())

elif option==6:

if bool(input("sort() \nIf you want to reverse press 1: ")) == 0:

lost.sort() ; print(lost)

else:

lost.sort(reverse=True) ; print(lost)

elif option==7:

lost.insert(eval(input("count() \nEnter index: ")),eval(input("Enter Item (in format): ")))

print(lost)

elif option==8:

a = lost.pop(int(input("Enter index to pop: ")))

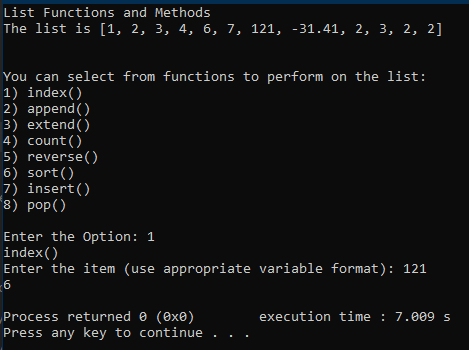
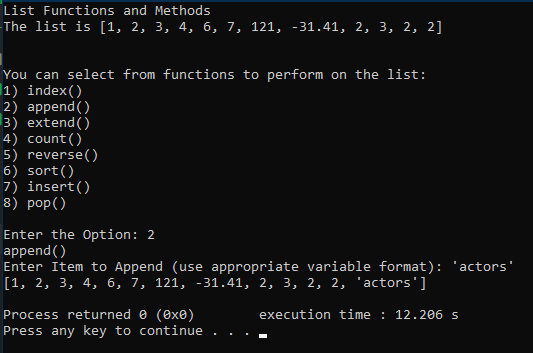
print(lost)

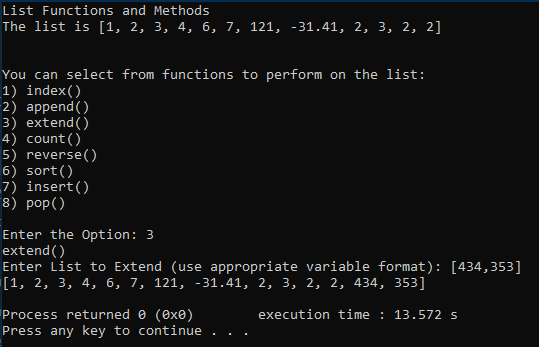
print("Removed Item:",a)

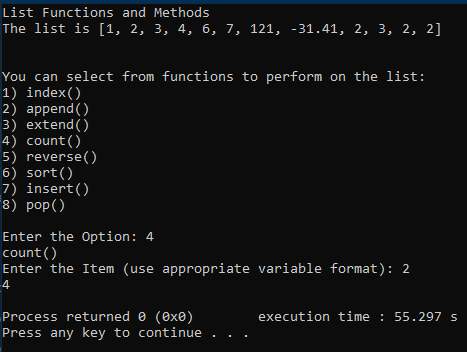
else: continue

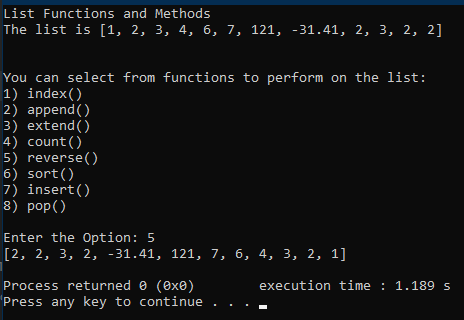
break

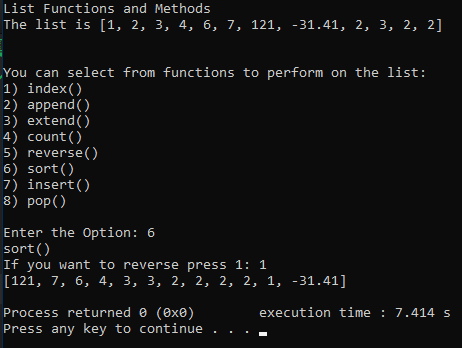
**Output-**

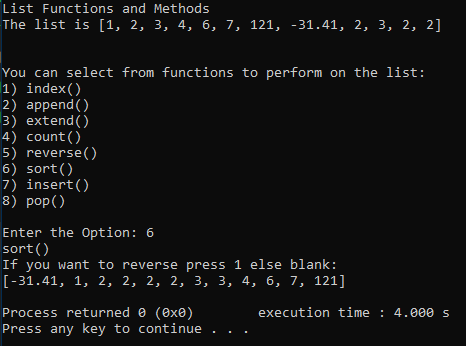


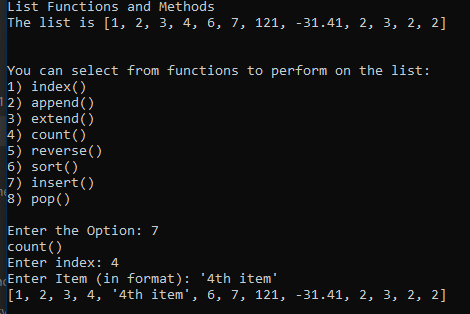
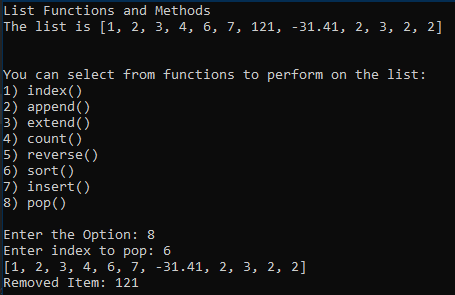












**FUNCTIONS IN PYTHON**

Program 13

Mean Average (Multiple Forms

**Source Code-**

def avg(n1,n2,n3,n4):

av=(n1+n2+n3+n4)/4

print(av)

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

b=int(input("Enter a number: "))

c=int(input("Enter a number: "))

d=int(input("Enter a number: "))

avg(a,b,c,d)

def avg2(n1,n2,n3,n4):

s=0

l=4

for k in n1,n2,n3,n4:

if k=="":

k=0

l-=1

s+=float(k)

av=(s)/l

print(av)

a=input("Enter a number: ")

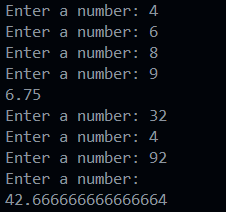
b=input("Enter a number: ")

c=input("Enter a number: ")

d=input("Enter a number: ")

avg2(a,b,c,d)

**Output-**



Program 14

Cubing (Multiple Forms)

**Source Code-**

#23/3/22

#Method 1:

def cube(n):

a=n\*n\*n

return a

num=float(input("Enter a number: "))

print(cube(num))

#Method 2:

def cube2(n): return n\*\*3

num2 = float(input("Enter a Number: "))

print(cube2(num2))

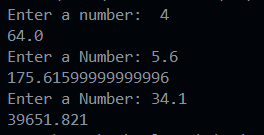
#Method 3:

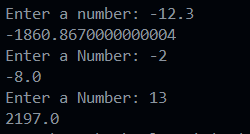
cube3 = lambda n : n\*\*3

num3 = float(input("Enter a Number: "))

print(cube3(num3))

**Output-**





Program 15

Area of Circle (Multiple Forms)

**Source Code-**

#25/3/22

from math import \*

#Method 1:

def ar(rad):

a=pi\*rad\*rad

return a

r=float(input("Enter the radius: "))

print("The area is: ",ar(r))

#Method 2:

def ar2(rad):

return pi\*(rad\*\*2)

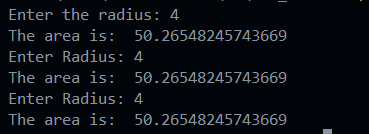
print("The area is: ",ar2(float(input("Enter Radius: "))))

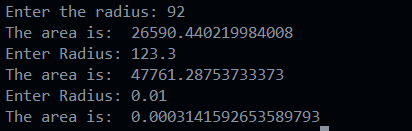
#Method 3:

ar3 = lambda rad : pi\*(r\*\*2)

print("The area is: ",ar3(float(input("Enter Radius: "))))

**Output-**





Program 16

Calculator

**Source Code-**

#28/3/22

from math import \*

def conNum(x):

if float(x) == round(float(x)):

return round(float(x))

elif float(x) != round(float(x)):

return round(float(x),3)

def simpleCalc():

print("Welcome to Simple Calculator, + adds , - subtracts , x multiplies , / divides , ^ exponents, exit by typing 'out' in operation")

cv = conNum(input("Enter number: "))

while True:

fun = input("Enter operation: ")

if (fun == "+"):

cv += conNum(input("Enter number: "))

print(cv)

if (fun == "-"):

cv -= conNum(input("Enter number: "))

print(cv)

if (fun.lower() in ("x","\*") ):

cv \*= conNum(input("Enter number: "))

print(cv)

if (fun == "/"):

cv /= conNum(input("Enter number: "))

print(cv)

if (fun == "^"):

v = conNum(input("Enter number: "))

cv=pow(cv,v)

print(cv)

if (fun.lower() == "out"):

break

def VolumeCalc():

print("Welcome to Volume Calculator, write shape name to find volume ")

shapeType = input("Enter Shape (Cube, Cuboid, Cone, Cylinder, Sphere, Hemisphere, Frustrum): ")

if shapeType.lower() == "cube":

print("The Volume of Cube is",

conNum(input("Enter Side: "))\*\*3)

if shapeType.lower() == "cuboid":

print("The Volume of Cuboid is",

conNum(input("Enter Length: "))\*conNum(input("Enter Breadth: "))\*conNum(input("Enter Height: ")))

if shapeType.lower() == "cone":

print("The Volume of Cone is",

pi\*(conNum(input("Enter radius: "))\*\*2)\*conNum(input("Enter height: "))/3)

if shapeType.lower() == "cylinder":

print("The Volume of cylinder is",

pi\*(conNum(input("Enter radius: "))\*\*2)\*conNum(input("Enter height: ")))

if shapeType.lower() == "sphere":

print("The Volume of Sphere is",

4\*pi/3\*conNum(input("Enter radius: "))\*\*3)

if shapeType.lower() == "hemisphere":

print("The Volume of Hemisphere is",

2\*pi/3\*conNum(input("Enter radius: "))\*\*3)

if shapeType.lower() == "frustrum":

print("The Volume of Frustrum is",fabs(

(conNum(input("Enter radius 1: "))\*\*3 - conNum(input("Enter radius 2: "))\*\*3) \* pi / 3 \* conNum(input("Enter height: ")) ))

def SAcalc():

print("Welcome to Surface Area Calculator, write shape name to find Surface Area ")

shapeType = input("Enter Shape (Cube, Cuboid, Cone, Cylinder, Sphere, Hemisphere, Frustrum): ")

if shapeType.lower() == "cube":

print("The Surface Area of Cube is",

6\*conNum(input("Enter Side: "))\*\*2)

if shapeType.lower() == "cuboid":

l=conNum(input("Enter Length: "))

b=conNum(input("Enter Breadth: "))

h=conNum(input("Enter Height: "))

print("The Surface Area of Cuboid is",2\*(l\*b + b\*h + h\*l))

if shapeType.lower() == "cone":

r = conNum(input("Enter radius: "))

h = conNum(input("Enter height: "))

print("The Surface Area of Cone is",

pi \* r \* (r + (r\*\*2 + h\*\*2)\*\*(1/2) ))

if shapeType.lower() == "cylinder":

r = conNum(input("Enter radius: "))

h = conNum(input("Enter height: "))

print("The Surface Area of cylinder is",

2\*pi\*r\*(r+h))

if shapeType.lower() == "sphere":

print("The Surface Area of Sphere is",

4\*pi\*conNum(input("Enter radius: "))\*\*2)

if shapeType.lower() == "hemisphere":

print("The Surface Area of Hemisphere is",

3\*pi\*conNum(input("Enter radius: "))\*\*2)

if shapeType.lower() == "frustrum":

print("The Surface Area of Frustrum is ",

(conNum(input("Enter radius 1: ")) + conNum(input("Enter radius 2: "))) \* pi \* (conNum(input("Enter height: ")) + 2) )

def TrigCalc():

a = lambda x,y: x+" of "+str(y)+" is "+str(eval(x+"("+str(y)+")"))

print("Welcome to trignometric calculator, What operation would you like to perform?")

trigOp = input("Enter function(sin,cos,tan,asin,acos,atan): ").lower()

if trigOp == "sin": print(a(trigOp , float(input("Enter Value: "))))

elif trigOp == "cos": print(a(trigOp , float(input("Enter Value: "))))

elif trigOp == "tan": print(a(trigOp , float(input("Enter Value: "))))

elif trigOp == "asin": print(a(trigOp , float(input("Enter Value: "))))

elif trigOp == "acos": print(a(trigOp , float(input("Enter Value: "))))

elif trigOp == "atan": print(a(trigOp , float(input("Enter Value: "))))

def CashCalc():

print("Welcome to Currency convertor: it converts the currencies to different forms")

base = input("Enter a supported currency(USD,EUR,JPY,GBP,AUD,CAD,INR): ").upper()

val = float(input("Enter amount:"))

convertto = input("Enter 2nd supported currency(USD,EUR,JPY,GBP,AUD,CAD,INR): ").upper()

if base=="USD":

if convertto=="USD":print("Exchange Value is",val\*1)

if convertto=="EUR":print("Exchange Value is",val\*0.93)

if convertto=="JPY":print("Exchange Value is",val\*127.71)

if convertto=="GBP":print("Exchange Value is",val\*0.78)

if convertto=="AUD":print("Exchange Value is",val\*1.4)

if convertto=="CAD":print("Exchange Value is",val\*1.27)

if convertto=="INR":print("Exchange Value is",val\*76.69)

if base=="EUR":

if convertto=="USD":print("Exchange Value is",val\*1.07)

if convertto=="EUR":print("Exchange Value is",val\*1)

if convertto=="JPY":print("Exchange Value is",val\*136.97)

if convertto=="GBP":print("Exchange Value is",val\*0.84)

if convertto=="AUD":print("Exchange Value is",val\*1.5)

if convertto=="CAD":print("Exchange Value is",val\*1.37)

if convertto=="INR":print("Exchange Value is",val\*82.17)

if base=="JPY":

if convertto=="USD":print("Exchange Value is",val\*0.0078)

if convertto=="EUR":print("Exchange Value is",val\*0.0073)

if convertto=="JPY":print("Exchange Value is",val\*1)

if convertto=="GBP":print("Exchange Value is",val\*0.0062)

if convertto=="AUD":print("Exchange Value is",val\*0.011)

if convertto=="CAD":print("Exchange Value is",val\*0.010)

if convertto=="INR":print("Exchange Value is",val\*0.60)

if base=="GBP":

if convertto=="USD":print("Exchange Value is",val\*1.27)

if convertto=="EUR":print("Exchange Value is",val\*1.19)

if convertto=="JPY":print("Exchange Value is",val\*162.54)

if convertto=="GBP":print("Exchange Value is",val\*1)

if convertto=="AUD":print("Exchange Value is",val\*1.78)

if convertto=="CAD":print("Exchange Value is",val\*1.62)

if convertto=="INR":print("Exchange Value is",val\*97.62)

if base=="AUD":

if convertto=="USD":print("Exchange Value is",val\*0.71)

if convertto=="EUR":print("Exchange Value is",val\*0.67)

if convertto=="JPY":print("Exchange Value is",val\*91.2)

if convertto=="GBP":print("Exchange Value is",val\*0.56)

if convertto=="AUD":print("Exchange Value is",val\*1)

if convertto=="CAD":print("Exchange Value is",val\*0.91)

if convertto=="INR":print("Exchange Value is",val\*54.77)

if base=="CAD":

if convertto=="USD":print("Exchange Value is",val\*0.78)

if convertto=="EUR":print("Exchange Value is",val\*0.73)

if convertto=="JPY":print("Exchange Value is",val\*100.04)

if convertto=="GBP":print("Exchange Value is",val\*0.62)

if convertto=="AUD":print("Exchange Value is",val\*1.10)

if convertto=="CAD":print("Exchange Value is",val\*1)

if convertto=="INR":print("Exchange Value is",val\*60.08)

if base=="INR":

if convertto=="USD":print("Exchange Value is",val\*0.013)

if convertto=="EUR":print("Exchange Value is",val\*0.012)

if convertto=="JPY":print("Exchange Value is",val\*1.67)

if convertto=="GBP":print("Exchange Value is",val\*0.010)

if convertto=="AUD":print("Exchange Value is",val\*0.018)

if convertto=="CAD":print("Exchange Value is",val\*0.017)

if convertto=="INR":print("Exchange Value is",val\*1)

optionType = 0

print("Welcome to General Calculator, It has many options such as volume, area, trigonometry, currency, general.")

print("Select what you want to use")

while True:

optionType = input("Enter your calculator type:\n 1)Volume\n 2)Surface Area\n 3)Trigonometry\n 4)Currency\n 5)General\n 6)Exit\n\n ")

if optionType.lower() == "volume" or optionType.lower() == "1":

VolumeCalc()

if optionType.lower() == "surface area" or optionType.lower() == "2":

SAcalc()

if optionType.lower() == "trigonometry" or optionType.lower() == "3":

TrigCalc()

if optionType.lower() == "currency" or optionType.lower() == "4":

CashCalc()

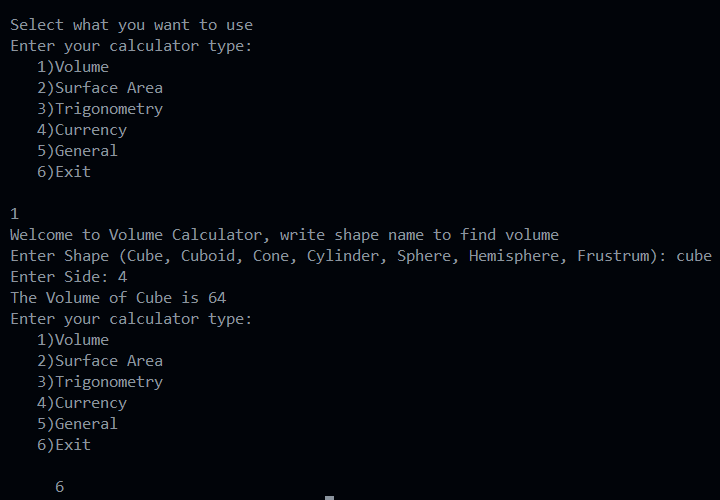
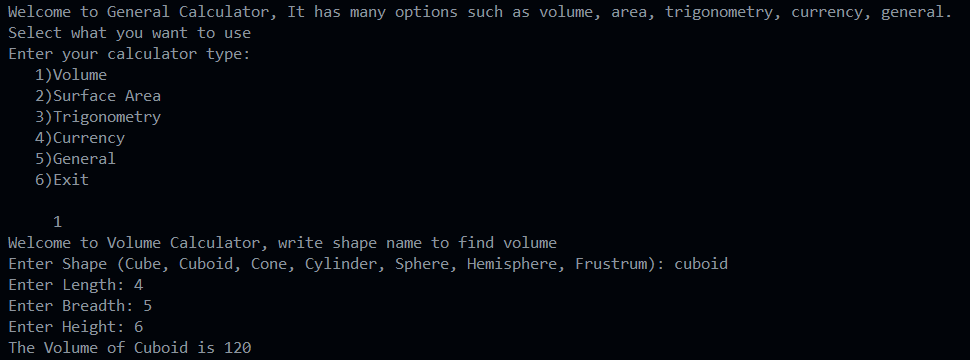
if optionType.lower() == "general" or optionType.lower() == "5":

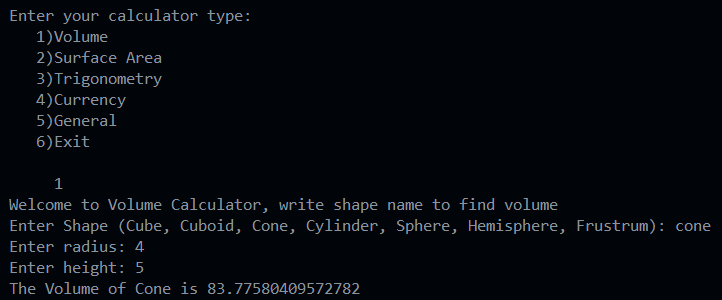
simpleCalc()

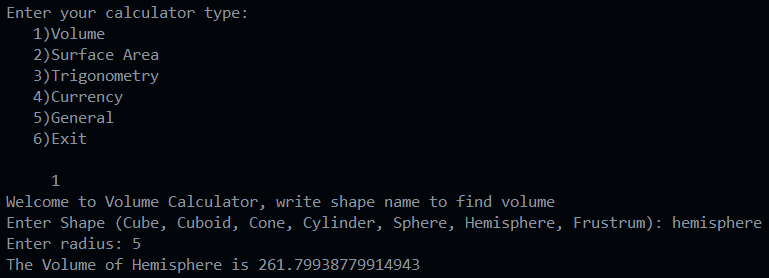
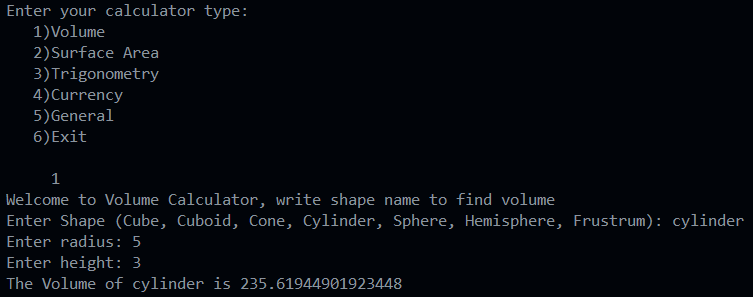
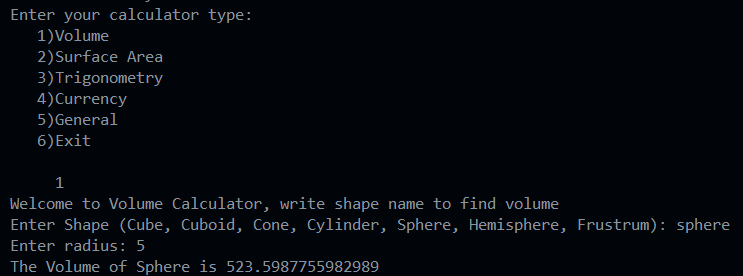
if optionType.lower() == "exit" or optionType.lower() == "6":

break

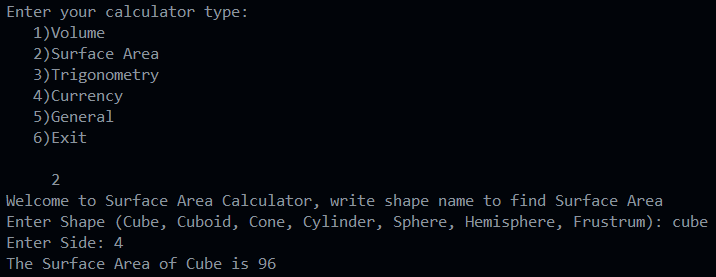
**Output-**

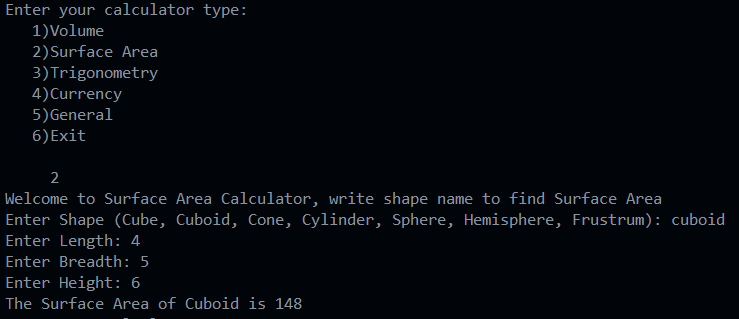


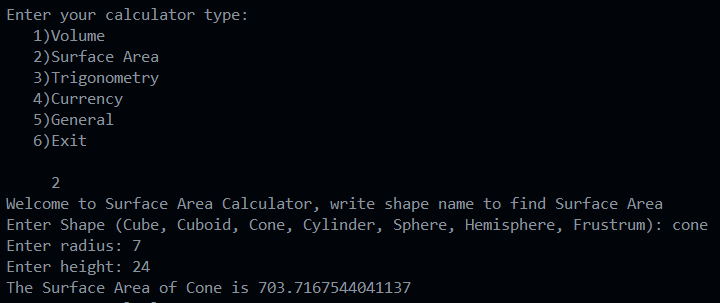


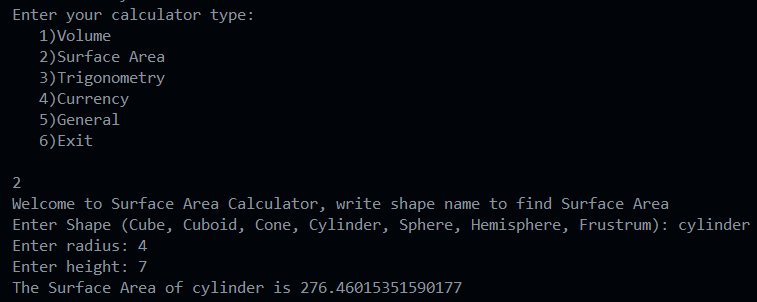


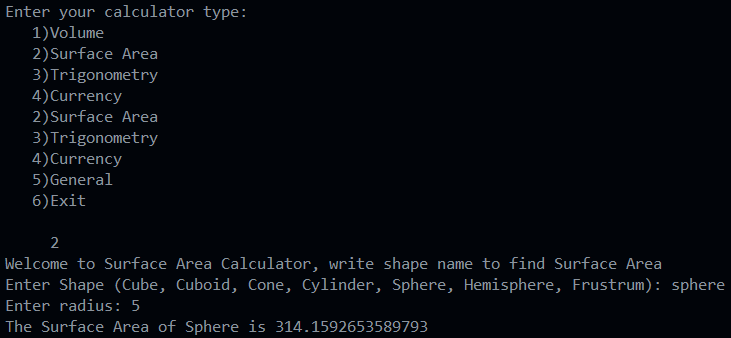


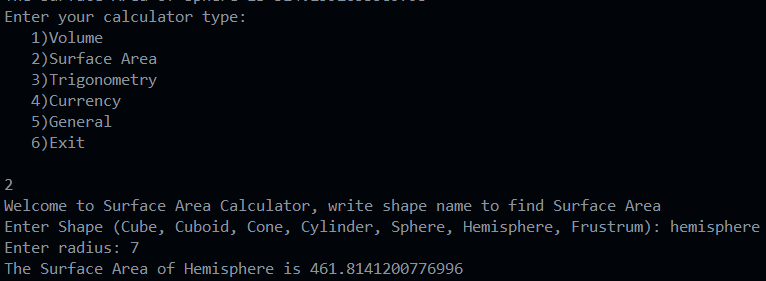












Program 17

Line Drawing function for parameter usage

**Source Code-**

#4/4/22

def drawline(sym,t=20):

for i in range(t):

print(sym,end='')

print()

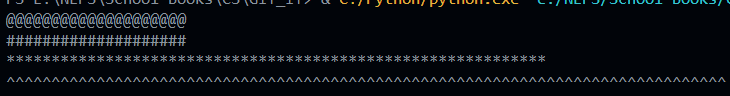
drawline(sym='@')

drawline('#')

drawline('\*',60)

drawline(t=80 ,sym='^')

**Output-**



Program 18

Random Selection (Multiple Methods)

**Source Code-**

#8/4/22

import random

subj = ["Computer Science", "IP", "Physics", "Maths"]

#Method 1:

print(random.choice(subj))

#Method 2:

print(subj[random.randrange(3)])

#Method 3:

random.shuffle(subj)

print(subj[0])

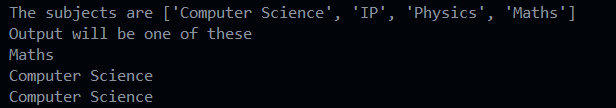
f=['Apple','Mango','Orange','Banana','Avacado']

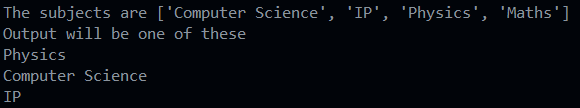
print('Original list: ',f)

random.shuffle(f)

print('Reshuffled list: ',f)

**Output-**







Program 19

Random 3 digit number and Sum (with Alternate methods)

**Source Code-**

#8/4/22

from random import random,randint

n=(random()\*900+100)//1

print('The number is: ',n)

s = 0

while n >0:

s +=n%10

n//=10

print('The sum of the digits is:',s)

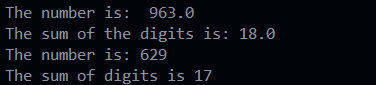
#Alternate Method

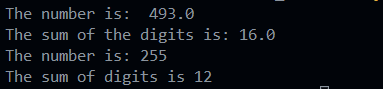
n2 = randint(100,999)

print("The number is:",n2)

print("The sum of digits is",sum([int(k) for k in str(n2)]))

**Output-**





Program 20

List Fillers (random library application for dummy Data Strucuture Analysis)

**Source Code-**

#11/4/22

from random import randint

def fill\_list(L , num , min , max):

for \_ in range(num): L.append(randint(min,max))

low , up , elem = int(input("Enter Minimum: ")) , int(input("Enter Maximum: ")) , int(input("Enter total terms: "))

a = []

b = []

fill\_list(b,elem,low,up)

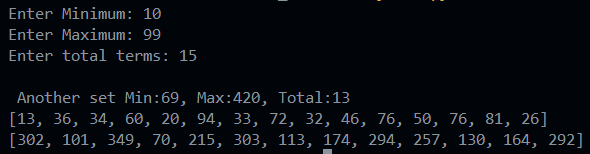
print("\n Another set Min:69, Max:420, Total:13")

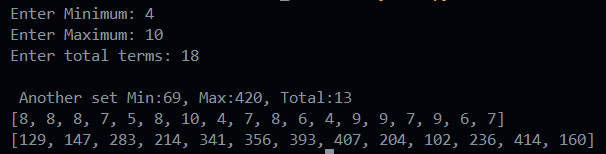
fill\_list(a , min=69 , max=420 , num=13)

print(b)

print(a)

**Output-**





Program 21

Binary Search Algorithm to reduce time complexity

**Source Code-**

#18/4/22

from random import randint

def bin (l,el):

mid=len(l)//2

low=(0)

high=len(l)-1

passes=0

while l[mid]!=el and low<=high:

if el>l[mid]:

low=mid+1

else:

high=mid-1

mid=(high+low)//2

passes+=1

if low>high:

return None

else:

return mid,passes

a=[]

for \_ in range(12):

a.append(randint(1,100))

a.sort()

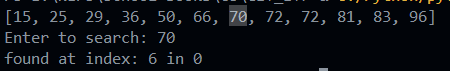
print(a)

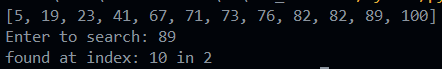
v=int(input('Enter to search: '))

op = bin(a,v)

print("found at index:",op[0],"in",op[1])

**Output-**





Program 22

Random application (Lottery Generation)

**Source Code-**

#19/4/22

from random import uniform

print("Lottery number is between 1-100")

a = round(uniform(0,100),4)

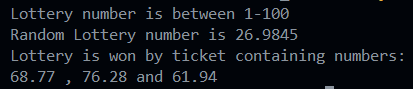
print("Random Lottery number is",a)

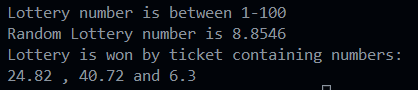
print("Lottery is won by ticket containing numbers: ")

a = lambda : uniform(1,100)//0.01 /100

print(a(),",",a(),"and",a())

**Output-**





Program 23

Random application (Direction Selector, Treasure map-precursor)

**Source Code-**

#21/4/22

import random

direction = random.choice(["East", "West", "North","South"])

print("Randomly selected cardinal direction is",direction)

def d():

dir = random.choice(["East", "West", "North","South"])

return dir

print("Random non cardinal Direction is",d()+"-"+d())

**Output-**







Program 24

Vowel Counter (Multiple Methods)

**Source Code-**

#22/4/22

#Method 1:

def countvowel(s):

c=0

for ch in s:

if ch in 'aeiouAEIOU':

c+=1

return c

sin=input('Enter a string: ')

count=countvowel(sin)

print('Total number of vowels in the string are: ',count)

#Method 2:

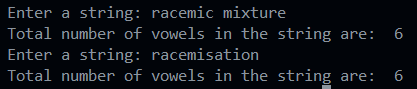
def vowelcount(st): return len(['' for k in st if st.lower() in "aeiou"])

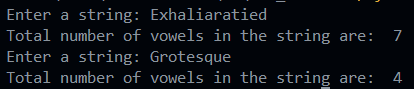
a=input('Enter a string: ')

d=countvowel(a)

print('Total number of vowels in the string are: ',d)

**Output-**





Program 25

Higher Lower (Simple Guessing Game)

**Source Code-**

#22/4/22

#Higher lower game

import random

initial = round(100000 \* random.random())

while True:

print("number is: ",initial)

print("Higher or lower\n")

new = round(100000 \* random.random())

input()

if new>initial:

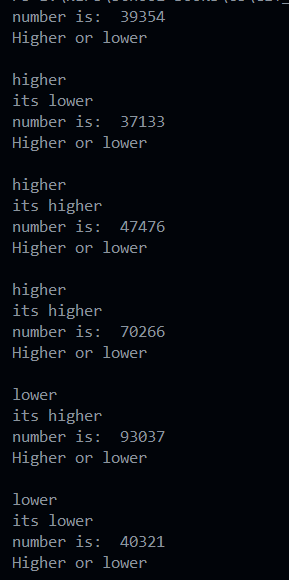
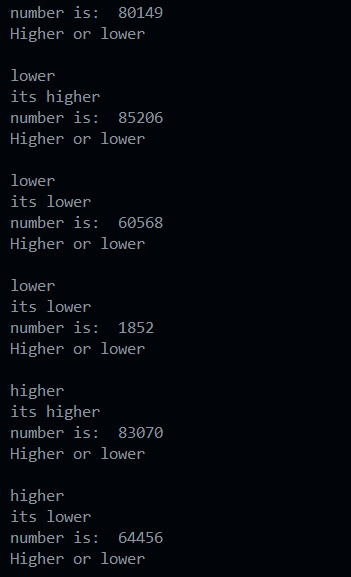
print('its higher')

if new<initial:

print('its lower')

initial = new

**Output-**



Program 26

Character counter

**Source Code-**

#22/4/22

def countChar(s,ch):

c=0

for i in s:

if i==ch:

c+=1

return c

sin=input('Enter a string: ')

ch1=input('Enter the character to count: ')

f=countChar(sin,ch1)

if f==0:

print(ch1, "does not exist.")

else:

print(ch1,'exist',f,'times.')

#Alernate Method

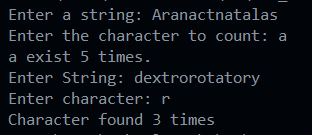
chCount = lambda x,y : len(["" for k in x if k == y])

v = chCount(input("Enter String: "),input("Enter character: "))

if v!=0: print("Character found",v,"times")

else: print("Character not found")

**Output-**



Program 27

Passing Immutables as parameters

**Source Code-**

#22/4/22

#passing immutable tuple to a function

def ttl(A):

A=list(A)

A[0]=A[0]\*2

A[1]=A[1]+10

print(A)

t=(100,200)

print(t)

ttl(t)

**Output-**



Program 28

Tuple Sotrage and Multi Value Return Unpacking

**Source Code-**

#22/4/22

def countOddEven(t):

odd = len(['' for k in t if k%2==1])

return odd , len(t) - odd

store = tuple()

times = int(input("Number of elements: "))

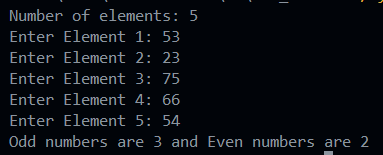
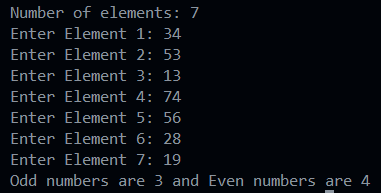
for \_ in range(times):

store+= (int(input("Enter Element "+str(\_+1)+": ")),)

a,b = countOddEven(store)

print("Odd numbers are",a , "and Even numbers are",b)

**Output-**



Program 29

Functions for Dictionary undates

**Source Code-**

#22/4/22

def marksu(s,nm):

s['Marks']+=nm

s["Status"]="Updated"

s1={'Name':'Akash','Marks':56,'Status':'Old'}

s2={'Name':'Chinmay','Marks':60,'Status':'Old'}

s3={'Name':'Chirag','Marks':50,'Status':'Old'}

print("Original data: ")

print(s1)

print(s2)

print(s3)

marksu(s1,70)

marksu(s2,80)

marksu(s3,75)

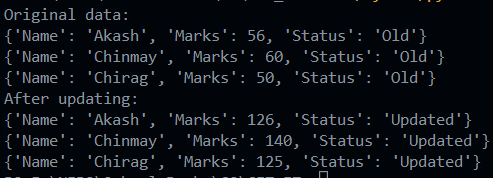
print("After updating: ")

print(s1)

print(s2)

print(s3)

**Output-**



Program 30

Frequncy Distribution by dictionary purposing

**Source Code-**

#23/4/22

def freq(l):

d={}

for i in l:

if i not in d:

d[i]=1

else:

d[i]+=1

return d

l1=[1,2,31,4,1,4,6,2,1,6,6,2]

print(freq(l1))

**Output-**



Program 31

Treasure Hunt Map System, It makes a treasure hunt hap based on map number (consistent across reruns)

**Source Code-**

#4/6/22

import random

def dist():

return str(random.randrange(1,15)\*50)

print("Treasure map Hunting")

print("This generates a set of instructions for you to follow")

cardinalDirL = ["North" , "South"]

cardinalDirB = ["East", "West"]

localDirL = ["Forward" , "backward" ]

localDirB = ["Left", "Right"]

type = ["cardinal" , "local"]

#cardinal is north south east west

#local is left right forward backward

mapno = int(input("Enter Map Number: "))

random.seed(mapno)

#same map number yeilds same map each time (psuedo randomism)

steps = random.randrange(10)

path = ""

for k in range(steps):

random.shuffle(type)

if type[0]=="cardinal":

mode = random.choice(["axis" , 'diagonal'])

if mode == "axis":

path+=str(k+1)+") Go " + dist() + "m " + random.choice( cardinalDirB + cardinalDirL )

if mode == "diagonal":

path+=str(k+1)+") Go " + dist() + "m " + random.choice( cardinalDirL) + "-" + random.choice( cardinalDirB)

if type[0]=="local":

mode = random.choice(["axis" , 'diagonal'])

if mode == "axis":

path+=str(k+1)+") Go " + dist() + "m " + random.choice( localDirB + localDirL )

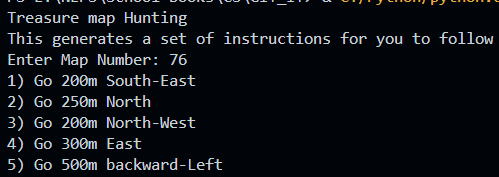
if mode == "diagonal":

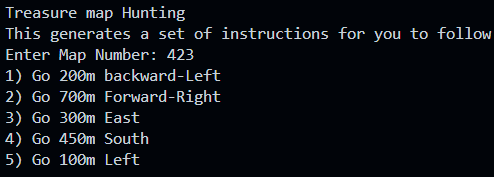
path+=str(k+1)+") Go " + dist() + "m " + random.choice( localDirL) + "-" + random.choice( localDirB)

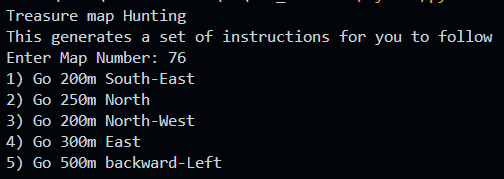
path+="\n"

print(path)

**Output-**







Program 32

WAP using functions as objects and combining them

**Source Code-**

#4/6/22

#using functions as objects and combining them

name = "Madam"

print(name.replace('m','nna').upper())

print(name.upper().replace("M",'NNA'))

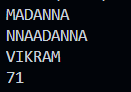
name="Vikram"

print(name.replace('im','nt').upper())

#finding number of numbers with a conditional : odd, divisible by 7, leaves remainder 3 on dividing by 5, less than 5000

print(len([x for x in range(5000+1) if x%2==1 and x%7==0 and x%5==3]))

**Output-**



Program 33

WAP for a List Modifier (even/2 and odd x2)

**Source Code-**

#6/5/22

GivenList1 = [458,646,64,385,48,364,77,62,43,59,78]

print("List Before Function is", GivenList1)

def OddEven1(Ls):

for k in range(len(Ls)):

if Ls[k] %2==0 : Ls[k]//=2

else: Ls[k]\*=2

OddEven1(GivenList1)

print("List After Method is", GivenList1)

**Output-**



Program 34

WAP to apply matrices and find out the transeverse

**Source Code-**

#6/5/22

def MatrixPrintDiagonal(l):

for i in range(len(l)):

for j in range(len(l[i])):

if i==j:

print(l[i][j],end='\t')

else:

print('',end='\t')

print()

m=[

[1,2,3],

[4,5,6],

[7,8,9]

]

MatrixPrintDiagonal(m)

**Output-**



Program 35

WAP input from user processes sum and average

**Source Code-**

#6/5/22

def avgs(l):

s=0

for i in l:

s+=i

avg=s/len(l)

return s,avg

l1=[]

n=int(input('Enter how many numbers: '))

for i in range(n):

num=int(input('Enter any number: '))

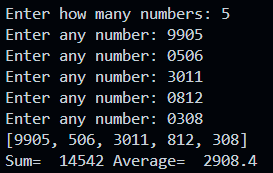
l1.append(num)

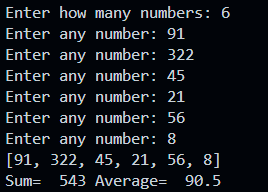
print(l1)

savg=avgs(l1)

print('Sum= ',savg[0],'Average= ',savg[1])

**Output-**





Program 36

WAP

**Source Code-**

#6/5/22

def OEcount(mytuple):

even = len(["" for k in mytuple if k%2==0])

odd = len(mytuple) - even

return odd,even

n = int(input("Number of Numbers: "))

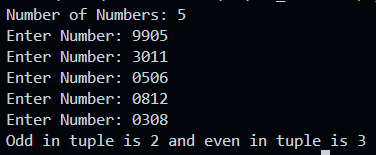
tup = ()

for \_ in range(n): tup += (int(input("Enter Number: ")),)

o,e = OEcount(tup)

print("Odd in tuple is",o,"and even in tuple is",e)

**Output-**



Program 37

WAP to Jumble cases and replace numbers and symbols

**Source Code-**

#19/5/22

def j(s):

sn1=''

for i in range(len(s)):

if s[i].islower(): sn1+=s[i].upper()

elif s[i].isupper(): sn1+=s[i].lower()

elif s[i].isdigit(): sn1+="\*"

else: sn1+='@'

return sn1

print(j("LumberiNATIONi5aster\*2001\*11\*09"))

**Output-**



**FILE HANDLING IN PYTHON**

Program 38

Finding size of text file.

**Source Code-**

#6/6/22

import sd

myfile=open('p28.txt','r')

str1=' '

size=0

tsize=0

while str1:

str1=myfile.readline()

tsize=tsize+len(str1)

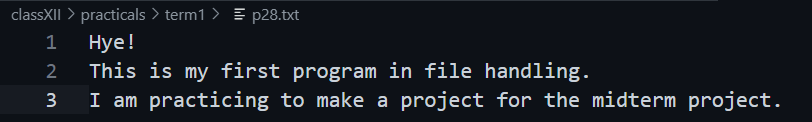
size=size+len(str1.strip())

print('Total size: ',tsize)

print('Size after removing EOL and blank spaces: ',size)

myfile.close()

**Text File-**

****

**Output-**



Program 39

WAP to read from a file

**Source Code-**

#6/6/22

import sd

#method 1 to read

myfile1 = open("p29.txt", "r")

for line in myfile1:

print(line,end="")

print()

myfile1.close()

#method 2 to read

myfile1 = open("p29.txt", "r")

for line in myfile1.readlines():

print(line.rstrip("\n"))

myfile1.close()

#method 3 to read

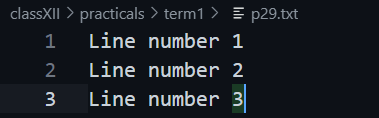
myfile1 = open("p29.txt", "r")

a = [line.strip("\n") for line in myfile1]

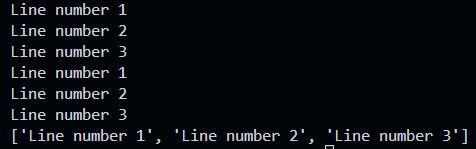
print(a)

myfile1.close()

**Text File-**

****

**Output-**



Program 40

WAP to write data into a file

**Source Code-**

#6/6/22

import sd

myfile=open('p30.txt','w')

myfile.writelines('Line number 4')

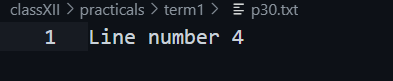
myfile.close()

print('Data saved in the file.')

**Text File before-**

****

**Text File after-**

****

**Output-**



Program 41

WAP to read from File (#1)

**Source Code-**

#6/6/22

import sd

myfile = open("p31.txt" , 'r+')

data = [line for line in myfile]

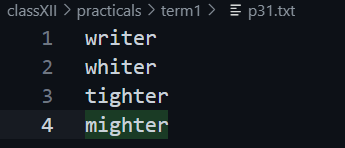
[print(k.rstrip("\n")) for k in data]

myfile.seek(0)

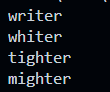
myfile.writelines(data)

myfile.close()

**Text File-**



**Output-**



Program 42

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**

Program

**Source Code-**

**Output-**