1.Square root

Program:

import math

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

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

print(math.sqrt(a))

print(math.sqrt(b))

output:

enter a number:7

enter a number:8

2.6457513110645907

2.8284271247461903

2.area of triangle

Program:

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

h=int(input("enter a number:"))

area=1/2\*b\*h

print(area)

output:

enter a number:4

enter a number:6

12.0

3.quadratic equation

Program:

import cmath

a=int(input("enter a num:"))

b=int(input("enter a num:"))

c=int(input("enter a num:"))

d=(b\*\*2)-(4\*a\*c)

sol1 = (-b-cmath.sqrt(d))/(2\*a)

sol2 = (-b+cmath.sqrt(d))/(2\*a)

print('The solution are {0} and {1}'.format(sol1,sol2))

output:

enter a num:6

enter a num:5

enter a num:8

The solution are (-0.4166666666666667-1.076903998610007j) and (-0.4166666666666667+1.076903998610007j)

4.swap two variables

Program:

x = 5

y = 10

print('the value of x before swapping:{}'.format(x))

print('the value of y before swapping:{}'.format(y))

temp = x

x = y

y = temp

print('The value of x after swapping: {}'.format(x))

print('The value of y after swapping: {}'.format(y))

output:

the value of x before swapping:5

the value of y before swapping:10

The value of x after swapping: 10

The value of y after swapping: 5

5.random number

Program:

import random

print(random.randint(1,30))

output:

24

6.convert kilometers to mile

Program:

kilometers = float(input("Enter value in kilometers: "))

n = 0.621371

miles = kilometers \* n

print('%0.2f kilometers is equal to %0.2f miles' %(kilometers,miles))

output:

Enter value in kilometers: 7

7.00 kilometers is equal to 4.35 miles

7.convert Celsius to farhernheit

Program:

celsius = 37.5

fahrenheit = (celsius \* 1.8) + 32

print('%0.1f degree Celsius is equal to %0.1f degree Fahrenheit' %(celsius,fahrenheit))

output:

37.5 degree Celsius is equal to 99.5 degree Fahrenheit

8.largest among three numbers

Program:

num1=int(input("enter a number:"))

num2=int(input("enter a number:"))

num3=int(input("enter a number:"))

if (num1 >= num2) and (num1 >= num3):

print("largest is num1")

elif (num2 >= num1) and (num2 >= num3):

print("largest is num2")

else:

print("largest is num3")

output:

enter a number:8

enter a number:9

enter a number:0

largest is num2

9. prime number in interval

Program:

lower = 900

upper = 1000

print("Prime numbers between", lower, "and", upper, "are:")

for num in range(lower, upper + 1):

if num > 1:

for i in range(2, num):

if (num % i) == 0:

break

else:

print(num)

output:

Prime numbers between 900 and 1000 are:

907

911

919

929

937

941

947

953

967

971

977

983

991

997

10.factorial of a number

Program:

num=int(input("enter a number:"))

fact=1

if num<0:

print("factorial does not exist for negative number")

elif num==0:

print("the factorial of 0 is 1")

else:

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

fact=fact\*i

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

output:

enter a number:7

the factorial of 7 is 5040

11.fibonacci sequence

Program:

nterms = int(input("How many terms: "))

n1, n2 = 0, 1

count = 0

if nterms <= 0:

print("Please enter a positive integer")

elif nterms == 1:

print("Fibonacci sequence upto",nterms,":")

print(n1)

else:

print("Fibonacci sequence:")

while count < nterms:

print(n1)

nth = n1 + n2

n1 = n2

n2 = nth

count += 1

output:

How many terms: 14

Fibonacci sequence:

0

1

1

2

3

5

8

13

21

34

55

89

144

233

12.Armstrong number in an interval

Program:

lower = 100

upper = 2000

for num in range(lower, upper + 1):

order = len(str(num))

sum = 0

temp = num

while temp > 0:

digit = temp % 10

sum += digit \*\* order

temp //= 10

if num == sum:

print(num)

output:

153

370

371

407

1634

13.find factors of number

Program:

def print\_factors(x):

print("The factors of",x,"are:")

for i in range(1, x + 1):

if x % i == 0:

print(i)

num=int(input("enter a number:"))

print\_factors(num)

output:

enter a number:50

The factors of 50 are:

1

2

5

10

25

50

14.make a simple calculator

Program:

print("Calculator")

print("1.Add")

print("2.Substract")

print("3.Multiply")

print("4.Divide")

ch=int(input("Enter Choice(1-4): "))

if ch==1:

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

b=int(input("Enter B:"))

c=a+b

print("Sum = ",c)

elif ch==2:

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

b=int(input("Enter B:"))

c=a-b

print("Difference = ",c)

elif ch==3:

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

b=int(input("Enter B:"))

c=a\*b

print("Product = ",c)

elif ch==4:

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

b=int(input("Enter B:"))

c=a/b

print("Quotient = ",c)

else:

print("Invalid Choice")

output:

Calculator

1.Add

2.Substract

3.Multiply

4.Divide

Enter Choice (1-4): 4

Enter A:6

Enter B:3

Quotient = 2.0

15.fibonacci sequence using recursion

Program:

def recur\_fibo(n):

if n<=1:

return n

else:

return(recur\_fibo(n-1)+recur\_fibo(n-2))

nterms=10

if nterms <=0:

print("please enter a positive integer")

else:

print("fibonacci sequence:")

for i in range(nterms):

print(recur\_fibo(i))

output:

fibonacci sequence:

0

1

1

2

3

5

8

13

21

34

16.sum of natural numbers using recursion

Program:

def recur\_sum(n):

if n <= 1:

return n

else:

return n + recur\_sum(n-1)

num = 16

if num < 0:

print("Enter a positive number")

else:

print("The sum is",recur\_sum(num))

output:

The sum is 136

17.add two numbers

Program:

num1=int(input("enter a number:"))

num2=int(input("enter a number:"))

sum=num1+num2

print('the sum of {0} and {1} is {2}'.format(num1,num2,sum))

output:

enter a number:8

enter a number:5

the sum of 8 and 5 is 13

18.multiply two matrices

Program:

X = [[12,7,3],

[4 ,5,6],

[7 ,8,9]]

Y = [[5,8,1,2],

[6,7,3,0],

[4,5,9,1]]

result = [[0,0,0,0],

[0,0,0,0],

[0,0,0,0]]

for i in range(len(X)):

for j in range(len(Y[0])):

for k in range(len(Y)):

result[i][j] += X[i][k] \* Y[k][j]

for r in result:

print(r)

output:

[114, 160, 60, 27]

[74, 97, 73, 14]

[119, 157, 112, 23]

19.check whether a string is palindrome or not

Program:

my\_str="mom"

my\_str=my\_str.casefold()

rev\_str=reversed(my\_str)

if list(my\_str)==list(rev\_str):

print("the string is a palindrome.")

else:

print("the string is not a palindrome.")

output:

the string is a palindrome.

20.count the number of each vowels

Program:

vowels="aeiou"

ip\_str="hello,how are you?"

ip\_str=ip\_str.casefold()

count={}.fromkeys(vowels,0)

for char in ip\_str:

if char in count:

count[char]+=1

print(count)

output:

{'a': 1, 'e': 2, 'i': 0, 'o': 3, 'u': 1}