# PYTHON PROGRAMS

### **Program 1: To add three numbers.**

num1=float(input("Enter first number:"))

num2=float(input("Enter second number:"))

num3=float(input("Enter third number:"))

num\_sum = float(num1) + float(num2) + float(num3)

print("The sum of the three numbers is:", num\_sum)

### **Program 2: To swap the values of two numbers.**

first\_num=float(input("Enter first number:"))

second\_num=float(input("Enter second number:"))

temp = first\_num

first\_num = second\_num

second\_num = temp

print('The value of first number after swapping:', (first\_num))

print('The value of second number after swapping:', (second\_num))

### **Program 3:To accept height in centimetres and convert it into feet and inches.**

cm=int(input("Enter the height in centimetres:"))

inches=0.394\*cm

feet=0.0328\*cm

print("The length in inches",round(inches,2))

print("The length in feet",round(feet,2))

### **Program 4: To convert miles into kilometres.**

conv= 0.621371

miles=float(input("Enter the miles to be converted:"))

kilometres = miles / conv

print('%0.3f miles is equal to %0.3f kilometres' %(miles, kilometres))

### **Program 5: To convert Fahrenheit into Celsius.**

Fahr=float(input("Enter the temperature in Fahrenheit to be converted:"))

Celsius = (Fahr - 32) / 1.8

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

### **Program 6: To calculate the prime factors of a number.**

num=int(input("Enter an integer:"))

print("The prime factors of the number entered are:")

ctr1=1

while(ctr1<=num):

z=0

if(num%ctr1==0):

ctr2=1

while(ctr2<=ctr1):

if(ctr1%ctr2==0):

z=z+1

ctr2=ctr2+1

if(z==2):

print(ctr1)

ctr1=ctr1+1

### **Program 7: To check for a leap year.**

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

if (year % 4) == 0:

if (year % 100) == 0:

if (year % 400) == 0:

print(year, "is a leap year")

else:

print(year, "is not a leap year")

else:

print(year, "is a leap year")

else:

print(year, "is not a leap year")

### **Program 8: To find the factorial of a number (example: 5!=1\*2\*3\*4\*5=120).**

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

factorial = 1

if num< 0:

print("Sorry, factorial does not exist for negative numbers")

elifnum == 0:

print("The factorial of 0 is 1")

else:

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

factorial = factorial\*i

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

### **Program 9: To calculate the length of a string.**

str = input("Enter a string: ")

ctr = 0

for i in str:

ctr = ctr+1

print("The length of the input string is:", ctr)

### **Program 10: To generate a Fibonacci series (0, 1, 1, 2, 3, 5, 8...).**

terms = int(input("Enter the number of terms to be generated:"))

n1 = 0

n2 = 1

ctr = 0

if terms <= 0:

print("Please enter a positive integer")

elif terms == 1:

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

print(n1)

else:

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

while ctr< terms:

print(n1,end=' , ')

nth = n1 + n2

# update values

n1 = n2

n2 = nth

ctr += 1

### **Program 11: To check Armstrong number for any 3-digit number (Armstrong number for 371 will be 3\*3\*3+7\*7\*7+1\*1\*1=371).**

num = int(input("Enter a three digit number: "))

sum = 0

temporary\_var = num

while temporary\_var> 0:

digit = temporary\_var % 10

sum += digit \*\* 3

temporary\_var //= 10

if num == sum:

print(num,"is an Armstrong number")

else:

print(num,"is not an Armstrong number")

### **Program 12: To find the sum of n natural numbers.**

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

if num< 0:

print("Enter a positive number")

else:

sum = 0

while(num> 0):

sum += num

num -= 1

print("The sum is",sum)

### **Program 12: Program to add two matrices.**

M1 = [[8,12,4],

[6, 2, 15],

[7 ,8,9]]

M2 = [[9,9,3],

[2,4,6],

[9,4,3]]

M\_res = [[0,0,0],

[0,0,0],

[0,0,0]]

for ctr1 in range(len(M1)):

for ctr2 in range(len(M1[0])):

M\_res[ctr1][ctr2] = M1[ctr1][ctr2] + M2[ctr1][ctr2]

for ctr3 in M\_res:

print(ctr3)

### **Program 13: Program to transpose a matrix using a nested loop.**

M = [[2,4],

[6,8],

[10,12]]

result = [[0,0,0],

[0,0,0]]

for ctr1 in range(len(M)):

for ctr2 in range(len(M[0])):

result[ctr2][ctr1] = M[ctr1][ctr2]

for ctr3 in result:

print(ctr3)

### **Program 14:** T**o find the sum of series: 1 + x^2/2 + x^3/3 + … x^n/n.**

num=int(input("Enter the number of terms:"))

x=int(input("Enter the value of x:"))

sum\_series=1

for ctr in range(2,num+1):

sum\_series=sum\_series+((x\*\*ctr)/ctr)

print("The sum of series is", round(sum\_series,2))

### **Program 15: To display the multiplication table of a number.**

num = int(input("Enter the number whose multiplication table id to be displayed:"))

for i in range(1, 11):

print(num,'x',i,'=',num\*i)

# Program 16: To Print Largest Even and Largest Odd number in a list.

num=int(input("Enter the number of elements to be in the list:"))

my\_list1=[]

for ctr in range(0,num):

ele=int(input("Element: "))

my\_list1.append(ele)

my\_list2=[]

my\_list3=[]

for ctr in my\_list1:

if(ctr%2==0):

my\_list2.append(ctr)

else:

my\_list3.append(ctr)

my\_list2.sort()

my\_list3.sort()

count 1=0

count2=0

for k in my\_list2:

count 1=count 1+1

for j in my\_list3:

count 2=count 2+1

print("Largest even number:",my\_list2[count 1-1])

print("Largest odd number",my\_list3[count 2-1])

### **Program 17: To find if a number is a Perfect number.**

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

sum1 = 0

for ctr in range(1, num):

if(num % ctr == 0):

sum1 = sum1 + ctr

if (sum1 == num):

print("The number is a Perfect number!")

else:

print("The number is not a Perfect number!")

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### **Program 18: To check if a number is a prime number.**

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

if num> 1:

for ctr in range(2,num):

if (num % ctr) == 0:

print(num,"is not a prime number")

print(ctr,"times",num//ctr,"is",num)

break

else:

print(num,"is a prime number")

else:

print(num,"is not a prime number")

### **Program 19:To find circumference of a circle.**

Pi=3.1416

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

circ=2\*Pi\*radius

print("The circumference of the circle is:", circ)