Write a function to check if a given number is a power of two.

#number is poer of 2

n = int(input("enter any number : "))

i = n

if i > 0:

    while i%2==0:

        i=i//2

if i==1:

    print("it is power of two")

else:

    print("it is not power of two")

Write a program to convert a binary number to a decimal number.

#binary to decimal

count = 0

sum=0

n = input("enter binary digit : ")

n = n[::-1]

listn = []

ones=[]

for i in n:

    listn.append(i)

print(listn)

for k in listn:

    if k == '1':

       count = count+1

       sum = sum + 2\*\*(count-1)

    else:

        count=count+1

print(sum)

Write a function to find the greatest common divisor (GCD) of a list of numbers.

n = int(input("enter any number 1 : "))

m = int(input("enter any number 2 : "))

fact1=[]

fact2=[]

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

    if n % i == 0:

        fact1.append(i)

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

    if m%i==0:

        fact2.append(i)

multi=1

mul=[]

for i in fact1:

    for j in fact2:

        if i == j:

            mul.append(i)

for m in mul:

    if m > multi:

        multi = m

print(multi)

Write a program to find the length of the longest palindrome in a given string.

#longest palindrome in the string

def longestPalSubstr(string):

    n = len(string)

    if (n < 2):

        return n

    start=0

    maxLength = 1

    for i in range(n):

        low = i - 1

        high = i + 1

        while (high < n and string[high] == string[i] ):

            high=high+1

        while (low >= 0 and string[low] == string[i] ):

            low=low-1

        while (low >= 0 and high < n and string[low] == string[high] ):

          low=low-1

          high=high+1

        length = high - low - 1

        if (maxLength < length):

            maxLength = length

            start=low+1

    print ("Longest palindrome substring is:",end=" ")

    print (string[start:start + maxLength])

    return maxLength

string = input("enter string : ")

print("Length is: " + str(longestPalSubstr(string)))

Write a function to check if a given string is a pangram.

import string

def ispangram(str):

    alphabet = "abcdefghijklmnopqrstuvwxyz"

    for char in alphabet:

        if char not in str.lower():

            return False

    return True

string = input("enter any string : ")

if(ispangram(string) == True):

    print("Yes")

else:

    print("No")

Write a program to find the number of characters in the longest word in a string.

#no of char in longest word

# sun flower is nice => so o/p is flower having length 6

str = input("enter the string : ")

max\_length = 1

str = str.split(" ")#gives the list of words in the string

for i in str:

    if len(i) > max\_length:

        max\_length = len(i)

        word = i

print("word is ",word," "," length is ",max\_length)

Write a function to find the mode of a list of numbers.

#mode of the list of no

# def get\_key(val,mode\_dict):

#     for key, value in mode\_dict.items():

#         if val == value:

#             return key

#     return "key doesn't exist"

# listn = []

# mode\_dict = {}

# n = int(input("how many no in the list : "))

# for i in range(n):

#     b = int(input("enter : "))

#     listn.append(b)

# for k in listn:

#     mode\_dict[k] = listn.count(k)

# print("mode is : ",get\_key(max(mode\_dict),mode\_dict))

#2nd method

import statistics

listn = []

n = int(input("how many no in the list : "))

for i in range(n):

    b = int(input("enter : "))

    listn.append(b)

print("mode is ",statistics.mode(listn))

Write a program to generate a random number between two given numbers.

#generate random no between two no

import random

n = int(input("enter start no : "))

m = int(input("enter end no : "))

print(random.randint(n,m))

Write a function to find the sum of the first n odd numbers.

#sum of first n odd numbers

n = int(input("how many sum  of n odd no do you want : "))

sum = 0

for i in range(1,n\*2):

    if i%2 != 0:

        sum=sum+i

print("sum of ",n," odd no is ",sum)

Write a program to count the number of even and odd numbers in a list.

#no of odd and even no in the list

n = int(input("how many no in the list : "))

listn=[]

count\_odd=0

count\_even=0

for i in range(n):

    b = int(input("enter : "))

    listn.append(b)

for j in listn:

    if j%2==0:

        count\_even = count\_even+1

    else:

        count\_odd=count\_odd+1

print("no of odd no are : ",count\_odd)

print("no of even no are : ",count\_even)

Write a function to find the maximum and minimum elements in a list.

#minimum and maximum from the list

def MinMax(listn):

    #using built-in function

    # print("max no is : ",max(listn))

    # print("max no is : ",min(listn))

    #using own logic

    min=listn[0]

    max=listn[0]

    for i in listn:

        if i > max:

            max = i

        elif i<min:

            min = i

    print("max is : ",max)

    print("min is : ",min)

n = int(input("how many no in the list : "))

listn=[]

for i in range(n):

    b = int(input("enter : "))

    listn.append(b)

MinMax(listn)

Write a program to calculate the sum of all elements in a list.

#sum of all elements in the list

def sumList(listn):

    #using own logic

    sum = 0

    for i in listn:

        sum = sum + i

    return sum

n = int(input("how many no in the list : "))

listn=[]

for i in range(n):

    b = int(input("enter : "))

    listn.append(b)

#using built-in function

print("sum of all elements is : ",sum(listn))

result = sumList(listn)

print("using own logic sum is : ",result)

Write a function to calculate the factorial of a number.

#fuction to find factorial of a no

def factorial(n):

    ans = 1

    while n>0:

        ans = ans\*n

        n=n-1

    return ans

n = int(input("enter any number : "))

if n < 0:

    print("not a valid number")

elif n == 0:

    print('1')

else:

    print(factorial(n))

Write a program to print the Fibonacci sequence up to a given number.

#print the Fibonacci sequence up to a given number

num = int(input("enter any no : "))

n1, n2 = 0, 1

print("Fibonacci Series:", n1, n2, end=" ")

for i in range(2, num):

    n3 = n1 + n2

    n1 = n2

    n2 = n3

    print(n3, end=" ")

Write a function to check if a given number is a palindrome.

#palindrome check

def CheckPalindromeNo(n):

    if str(n) == str(n)[::-1]:

        return True

    else:

        return False

n = int(input("enter any no : "))

if CheckPalindromeNo(n) == True:

    print("yes")

else:

    print("no")