#Aim: Write Python program to sort n numbers using Merge sort algorithm. Discuss the complexity of algorithm used.

def mergeSort(mylist):

print("splitting ",mylist)

if len(mylist)>1:

mid=len(mylist)//2

left=mylist[ :mid]

right=mylist[mid: ]

mergeSort(left)

mergeSort(right)

i=0

j=0

k=0

while i<len(left) and j<len(right):

if left[i]<right[j]:

mylist[k]=left[i]

i=i+1

else:

mylist[k]=right[j]

j=j+1

k=k+1

while i<len(left):

mylist[k]=left[i]

i=i+1

k=k+1

while j<len(right):

mylist[k]=right[j]

j=j+1

k=k+1

mylist=[ ]

n=int(input("Enter the elements in the list: "))

while(n>0):

x=int(input("Enter elements:"))

mylist.append(x)

n=n-1

print("Original list ",mylist)

mergeSort(mylist)

print("Sorted list ",mylist)