!pip install pandas

import pandas as pd

import math

import time

df=pd.read\_csv('C:/Users/MJC/Desktop/C\_16\_DAA/data500.csv')

cf=pd.read\_csv('C:/Users/MJC/Desktop/C\_16\_DAA/data500.csv')

print(df)

data=df['numbers']

print(data)

def insertionSort(data):

n=len(data)

if n <= 1:

return

for i in range(1, n):

key = data[i]

j = i-1

while j >= 0 and key < data[j]:

data[j+1] = data[j]

j -= 1

data[j+1] = key

start=time.perf\_counter()

insertionSort(data)

end=time.perf\_counter()

print(data)

timetaken=end-start

print("Start Time : ",start)

print("End Time : ",end)

print("Time Taken : ",timetaken)

min=data[0]

print("Minimum : ",min)

max=data[len(data)-1]

print("Maximum : ",max)

print(cf)

data1=cf['numbers']

print(data1)

def merge(data1, l, m, r):

n1 = m - l + 1

n2 = r - m

L = [0] \* (n1)

R = [0] \* (n2)

for i in range(0, n1):

L[i] = data1[l + i]

for j in range(0, n2):

R[j] = data1[m + 1 + j]

i = 0

j = 0

k = l

while i < n1 and j < n2:

if L[i] <= R[j]:

data1[k] = L[i]

i += 1

else:

data1[k] = R[j]

j += 1

k += 1

while i < n1:

data1[k] = L[i]

i += 1

k += 1

while j < n2:

data1[k] = R[j]

j += 1

k += 1

def merge\_sort(data1, l, r):

if l < r:

m = (l + r) // 2

merge\_sort(data1, l, m)

merge\_sort(data1, m + 1, r)

merge(data1, l, m, r)

n1=len(data1)

start=time.perf\_counter()

mergeSort(data1,0,n1-1)

end=time.perf\_counter()

print(data1)

print(data1)