**Part1**

**ANSWER 1:**

import pandas as pd

import matplotlib.pyplot as plt

import math

cough = []

types = []

allTypes = []

df = pd.read\_csv("Train.csv")

test = pd.read\_csv("Test.csv")

for symptom in df:

plt.scatter(df.index.values,df[symptom].values, color='red')

plt.scatter(df.index.values ,df.TYPE.values)

plt.show()

**ANSWER 2:**

for j in range(len(test)): #n

minDiff = math.inf # n-1

index = 0

for i in range(len(df)): #(n-1)n

diff = 0 #(n-1)(n-1)

sum = 0

for k in range(len(test)): # (n-1)(n-1)(n)

testNum = test.iloc[j][k] #(n-1)(n-1)(n-1)

trainNum = df.iloc[i][k] #(n-1)(n-1)(n-1)

diff = diff + (testNum - trainNum)\*\*2 # (n-1)(n-1)(n-1)

diff = math.sqrt(diff) #(n-1)(n-1)

if (diff < minDiff): #(n-1)(n-1)

minDiff = diff #(n-1)(n-1)

index = i #(n-1)(n-1)

print("Patient: "+str(j+1)+" has "+str(df.iloc[i][20])) # (n-1)

**ANSWER 3:**

from pandas import \*

import matplotlib.pyplot as plt

import math

Train = read\_csv("Train.csv")

correct = 0

wrong = 0

Testarray = Train.iloc[j].tolist()

for j in range(len(Train)//2+1,len(Train)): #iterates from middle of the dataframe to the end

minDiff = math.inf #minimum set to infinity

Testarray = Train.iloc[j].tolist() #returns a row to be checked

index = 0

for i in range(len(Train)//2+1): # iterates from start to mid of the array

Actualarray = Train.iloc[i].tolist() #returns the row to be compared with testing data

diff = 0

for k in range(len(Testarray)-1):

diff = diff + (Testarray[k] - Actualarray[k])\*\*2

diff = math.sqrt(diff)

if diff <= minDiff:

minDiff = diff

index = i

ExperimentalDisease = Train.iloc[index][20]

ActualDisease = Train.iloc[j][20]

if (ExperimentalDisease == ActualDisease):

correct+=1

else:

wrong+=1

print("Patient Predicted: "+str(j+1)+" has "+ExperimentalDisease)

print("Patient Actual: "+str(j+1)+" has "+ActualDisease)

print(correct)

print(wrong)

**ANSWER 5:**

for j in range(len(test)): n

minDiff = math.inf n-1

index = 0 n-1

for i in range(len(df)): (n-1)n

diff = 0 (n-1)(n-1)

sum = 0 (n-1)(n-1)

for k in range(len(test)): (n-1)(n-1)(n)

testNum = test.iloc[j][k] (n-1)(n-1)(n-1)

trainNum = df.iloc[i][k] (n-1)(n-1)(n-1)

diff = diff + (testNum - trainNum)\*\*2 (n-1)(n-1)(n-1)

diff = math.sqrt(diff) (n-1)(n-1)

if (diff < minDiff): (n-1)(n-1)

minDiff = diff (n-1)(n-1)

index = i (n-1)(n-1)

print("Patient: "+str(j+1)+" has "+str(df.iloc[i][20])) (n-1)

Time Complexity: O(n3)

**Answer 6:**

accuracy = (2302 / 2850) \*100

print(accuracy)