import csv

import math

import random

import statistics

def cal\_probability(x,mean,stdev):

exponent=math.exp(-(math.pow(x-mean,2)/(2\*math.pow(stdev,2))))

return(1/(math.sqrt(2\*math.pi)\*stdev))\*exponent

dataset=[]

dataset\_size=0

with open('lab5.csv') as csvfile:

lines=csv.reader(csvfile)

for row in lines:

dataset.append([float(attr) for attr in row])

dataset\_size=len(dataset)

print("Size of dataset is: ",dataset\_size)

train\_size=int(0.7\*dataset\_size)

print(train\_size)

X\_train=[]

X\_test=dataset.copy()

training\_indexes=random.sample(range(dataset\_size),train\_size)

for i in training\_indexes:

X\_train.append(dataset[i])

X\_test.remove(dataset[i])

classes={}

for samples in X\_train:

last=int(samples[-1])

if last not in classes:

classes[last]=[]

classes[last].append(samples)

print(classes)

summaries={}

for classValue,training\_data in classes.items():

summary=[(statistics.mean(attribute),statistics.stdev(attribute)) for attribute in zip(\*training\_data)]

del summary[-1]

summaries[classValue]=summary

print(summaries)

X\_prediction=[]

for i in X\_test:

probabilities={}

for classValue,classSummary in summaries.items():

probabilities[classValue]=1

for index,attr in enumerate(classSummary):

probabilities[classValue]\*=cal\_probability(i[index],attr[0],attr[1])

best\_label,best\_prob=None,-1

for classValue,probability in probabilities.items():

if best\_label is None or probability>best\_prob:

best\_prob=probability

best\_label=classValue

X\_prediction.append(best\_label)

correct=0

for index,key in enumerate(X\_test):

if X\_test[index][-1]==X\_prediction[index]:

correct+=1

print("Accuracy: ",correct/(float(len(X\_test)))\*100)