#3.1 读取和写入文件

filein = open("random\_1.txt","r")

fileout = open("P33\_1.txt","w")

n = 0

for i in filein:

n += 1

fileout.write(i)

print("总有{}个神经长度，random\_1.txt的各神经长度已另保存到P33\_1.txt中".format(n))

filein.close

fileout.close

#3.2 计算平均值和标准差

import math

data = []

filein = open("P33\_1.txt","r")

for i in filein:

length = float(i.strip())

data.append(length)

s = sum(data)

l = len(data)

aver = s/l

for j in data:

biao = math.sqrt(((j-aver)\*\*2)/l)

fileout = open("P33\_2.txt","w")

fileout.write("平均数为：%.2f \n" %(aver))

fileout.write("标准差为：%.2f \n" %(biao))

#3.3 核苷酸的频率

filein = open("P33\_3.txt","r")

ge = "ATCG"

for jian in filein:

jian = jian.strip()

count\_d = {}

for i in ge:

n = jian.count(i)

count\_d[i] = n

print("{}:{}".format(i,n))

ls = list(count\_d.items())

ls.sort(key=lambda x:x[1],reverse=True)

print('最常见的碱基出现频率为{}:{}'.format(ls[0][0],ls[0][1]))

filein.close()

#3.4 DNA序列的GC含量

filein = open("P33\_3.txt","r")

P33\_3 = filein.read()

gc = (P33\_3.count('G')+P33\_3.count('C'))/len(P33\_3)

print(str(gc\*100)+'%')

filein.close