MUHAMMAD SHERAZ

BSDSF21AOO2

LAB 12

PROGRAMMING FUNDAMENTALS

TASK1

from random import randint

def main():

n = int(input("enter no of files: "))

for i in range(n):

fname=input("write name of files: ")

f=createNlists(fname)

def createNlists(fname):

no\_of\_lists = randint(3,9)

size = randint(3,6)

file =open(fname,"w")

file.write(str(no\_of\_lists)+"\n")

for j in range(no\_of\_lists):

size = randint(3,6)

a =[randint(1,99) for s in range(size)]

file.write(str(size)+" ")

for t in range(size):

file.write(str(a[t])+" ")

file.write("\n")

main()

TASK2

"""

Roll NoName Crs Md Ss Fn

======================================== ====== == ==

BSEF09M001Hammad Khan ITC 22 21 31

BSEF09M001Hammad Khan PF 14 15 25

BSEF09M001Hammad Khan DLD 20 18 22

BSEF09M003Younas Ahmad ITC 30 00 29

BSEF09M003Younas Ahmad PF 34 25 30

BSEF09M003Younas Ahmad DLD 10 15 10

BSEF09M005Riffat Kaleem ITC 33 20 33

BSEF09M005Riffat Kaleem PF 26 11 35

BSEF09M005Riffat Kaleem DLD 30 24 38

BSEF09M012Barkat Jan ITC 25 18 34

BSEF09M012Barkat Jan PF 19 20 28

BSEF09M012Barkat Jan DLD 28 21 34

BITF09M002Khawer Hayat ITC 11 18 37

BITF09M002Khawer Hayat PF 19 17 27

BITF09M002Khawer Hayat DLD 31 22 34

BITF09M003Kishwar Hameed ITC 24 20 33

BITF09M003Kishwar Hameed PF 28 24 37

BITF09M003Kishwar Hameed DLD 19 15 26

BITF09M010Yasir Ubaid ITC 18 20 31

BITF09M010Yasir Ubaid PF 25 21 34

BITF09M010Yasir Ubaid DLD 29 22 33

BSEF09M011MUHAMMAD sheraz ICT 32 18 45

BSEF09M011MUHAMMAD sheraz PF 34 22 39

BSEF09M011MUHAMMAD sheraz DLD 24 23 33

BSEF09M012Hassan fareed ICT 32 18 45

BSEF09M012Hassan fareed PF 34 22 39

BSEF09M012Hassan fared DLD 24 23 33"""

def grade(a,b,c):

sum = int(a) + int(b) + int(c)

if sum <= 100 and sum>=85:

return "A+"

elif sum <= 84 and sum>=80:

return "A"

elif sum <= 79 and sum>=75:

return "B+"

elif sum <= 74 and sum>=70:

return "B"

elif sum <= 69 and sum>=65:

return "C+"

elif sum <= 64 and sum>=60:

return "C"

elif sum <= 59 and sum>=55:

return "C-"

elif sum <= 54 and sum>=50:

return "D"

elif sum <50:

return "F"

def total(a,b,c):

sum = int(a) + int(b) + int(c)

return sum

def main():

f1 = open("result\_data.txt","r")

f2 = open("result\_report.txt","w")

a = f1.readline()

b = f1.readline()

rollno = ["" for i in range(9)]

name = ["" for st in range(9)]

blank = " "

sub1 = ["" for i in range(9)]

sub2 = ["" for i in range(9)]

sub3 = ["" for i in range(9)]

ict = [[0 for st in range(3)]for i in range(9)]

pf = [[0 for st in range(3)]for i in range(9)]

dld = [[0 for st in range(3)]for i in range(9)]

for i in range(9):

rollno[i]+=f1.read(10)

c = f1.read(1)

while c !="\t":

name[i] += c

c = f1.read(1)

k = c

while k =="\t" or k ==" ":

blank +=k

k = f1.read(1)

c = k

sub1[i]+= c + f1.read(3).strip()

ict[i][0] =int(f1.read(3).strip())

ict[i][1] =int(f1.read(3).strip())

ict[i][2] =int(f1.read(2))

f1.read(1)

f1.read(10)

c = f1.read(1)

while c !="\t":

blank += c

c = f1.read(1)

k = c

while k =="\t" or k ==" ":

blank +=k

k = f1.read(1)

c = k

sub2[i]+= c + f1.read(3).strip()

pf[i][0] = int(f1.read(3).strip())

pf[i][1] =int(f1.read(3).strip())

pf[i][2] =int(f1.read(2))

f1.read(1)

f1.read(10)

c = f1.read(1)

while c !="\t":

blank += c

c = f1.read(1)

k = c

while k =="\t" or k ==" ":

blank +=k

k = f1.read(1)

c = k

sub3[i]+= c + f1.read(3).strip()

dld[i][0] = int(f1.read(3).strip())

dld[i][1] =int(f1.read(3).strip())

dld[i][2] =int(f1.read(2))

f1.read(1)

for i in range(9):

f2.write(str(i+1)+". "+rollno[i]+" " + name[i]+"\n")

f2.write("sub\t"+"Mid\t"+"Sessional\t"+"Final\t"+" "+"Total\t"+" "+"Grade"+"\n")

f2.write(sub1[i]+"\t")

f2.write(str(ict[i][0])+"\t "+str(ict[i][1])+"\t\t"+str(ict[i][2])+"\t ")

f2.write(str(total(ict[i][0],+ict[i][1],ict[i][2]))+"\t")

f2.write(grade(ict[i][0],ict[i][1],ict[i][2])+"\n")

f2.write(sub2[i]+"\t")

f2.write(str(pf[i][0])+"\t "+str(pf[i][0])+"\t\t"+str(pf[i][0])+"\t ")

f2.write(str(total(pf[i][0],pf[i][1],pf[i][2]))+"\t")

f2.write(grade(pf[i][0],pf[i][1],pf[i][2])+"\n")

f2.write(sub3[i]+"\t")

f2.write(str(dld[i][0])+"\t "+str(dld[i][1])+"\t\t"+str(dld[i][2])+"\t ")

f2.write(str(total(dld[i][0],dld[i][1],dld[i][2]))+"\t")

f2.write(grade(dld[i][0],dld[i][1],dld[i][2])+"\n")

f1.close()

f2.close()

main()

TASK3

from math import \*

def index(c,city):

i= 0

while i < len(city):

if c == city[i]:

return i

else:

pass

i+=1

raise Exception(f"{c} is incorrect city,write correct name")

def main():

c1= input("Enter name of first city: ")

c2= input("Enter name of second city: ")

f1 =open("pakcities.txt","r")

blank =""

cities = [""for j in range(74)]

d1 = [0.0 for k in range(74)]

d2 = [0.0 for m in range(74)]

i = 0

while i < 74:

a=f1.read(20)

cities[i]=a.strip()

d1[i]=float(f1.read(7))

blank+=f1.read(1)

d2[i]=float(f1.read(7))

blank+=f1.read(1)

i+=1

"""

c1=φ1

c2=φ2

const1=Δφ

const2=Δλ

"""

R = 6371e3

lat1 = d1[index(c1,cities)]

lon1 = d2[index(c1,cities)]

lat2 = d1[index(c2,cities)]

lon2 = d2[index(c2,cities)]

co1 = lat1 \* (pi/180)

co2 = lat2 \* (pi/180)

const1=(lat2-lat1) \* (pi/180)

const2=(lon2-lon1) \* (pi/180)

a = sin(const1/2) \* sin(const1/2) +cos(co1) \* cos(co2) \* sin(const2/2) \* sin(const2/2)

c = 2 \* atan2(sqrt(a), sqrt(1-a))

d = R \* c

print(f"distance of {c1} and {c2}={d}")

main()

TASK4

def main():

f = open("Lab03t1.pgm","r")

f2 = open("Lab03t2.pgm","w")

f2.write(f.readline())

m = f.read(4)

k = f.read(4)

f2.write(k.strip()+" ")

f2.write(m.strip()+"\n")

f2.write(f.readline())

data1 = [[0for j in range(274)] for i in range(302)]

data2 = [[0for j in range(302)] for i in range(274)]

for i in range(302):

for j in range(274):

a = f.read(4)

data1[i][j] = a.strip()

for i in range(302):

for j in range(274):

data2[j][i] = data1[i][j]

f2.write(str(data2[j][i])+" ")

f2.write("\n")

f.close()

f2.close()

main()