from \_\_future\_\_ import division

import math,os

from multiprocessing import Process,Queue

#probability for categorical attribute

def info(title):

print title

print 'module name:', \_\_name\_\_

if hasattr(os, 'getppid'): # only available on Unix

print 'parent process:', os.getppid()

print 'process id:', os.getpid()

#print gaussian\_dis(30,18,6)

#print categorical\_prob(20,[12,10,10,13,14,32,43],len([12,20,10,13,14,32,43]))

def readfile(filename):

f = open(filename,"r")

dictionary = {}

dictionary['age']=[]

dictionary['income']=[]

dictionary['student']=[]

dictionary['credit\_rating'] = []

dictionary['buys\_computer'] = []

for line in f:

x = line.split(" ")

dictionary['age'].append(x[0])

dictionary['income'].append(x[1])

dictionary['student'].append(x[2])

dictionary['credit\_rating'].append(x[3])

dictionary['buys\_computer'].append(x[4].rstrip())

return dictionary

def getIncome(q):

#income

info('function getIncome')

income\_high\_yes = 0

income\_high\_no = 0

income\_low\_no = 0

income\_low\_yes = 0

income\_medium\_yes = 0

income\_medium\_no = 0

len\_yes=0

len\_no=0

for x in xrange(tnor):

if dicti['income'][x]=='high':

if dicti['buys\_computer'][x]=='yes':

income\_high\_yes+=1

len\_yes+=1

else:

income\_high\_no+=1

len\_no+=1

elif dicti['income'][x]=='low':

if dicti['buys\_computer'][x]=='yes':

income\_low\_yes+=1

len\_yes+=1

else:

income\_low\_no+=1

len\_no+=1

else:

if dicti['buys\_computer'][x]=='yes':

income\_medium\_yes+=1

len\_yes+=1

else:

income\_medium\_no+=1

len\_no+=1

income\_high\_yes\_prob=income\_high\_yes/len\_yes

income\_high\_no\_prob=income\_high\_no/len\_no

income\_low\_yes\_prob=income\_low\_yes/len\_yes

income\_low\_no\_prob=income\_low\_no/len\_no

income\_medium\_yes\_prob = income\_medium\_yes/len\_yes

income\_medium\_no\_prob = income\_medium\_no/len\_no

q.put([income\_high\_yes\_prob,income\_high\_no\_prob,income\_low\_yes\_prob,income\_low\_no\_prob,income\_medium\_yes\_prob,income\_medium\_no\_prob])

def getCreditRating(q):

credit\_fair\_yes = 0

credit\_fair\_no = 0

credit\_exc\_yes = 0

credit\_exc\_no = 0

len\_yes=0

len\_no=0

for x in xrange(tnor):

if dicti['credit\_rating'][x]=='excellent':

if dicti['buys\_computer'][x]=='yes':

credit\_exc\_yes+=1

len\_yes+=1

else:

credit\_exc\_no+=1

len\_no+=1

else:

if dicti['buys\_computer'][x]=='yes':

credit\_fair\_yes+=1

len\_yes+=1

else:

credit\_fair\_no+=1

len\_no+=1

credit\_fair\_yes\_prob = credit\_fair\_yes/len\_yes

credit\_exec\_yes\_prob = credit\_exc\_yes/len\_yes

credit\_fair\_no\_prob = credit\_fair\_no/len\_no

credit\_exec\_no\_prob = credit\_exc\_no/len\_no

q.put([credit\_fair\_yes\_prob,credit\_fair\_no\_prob,credit\_exec\_yes\_prob,credit\_exec\_no\_prob])

def getStudentStatus(q):

#student

info('function getStudentStatus')

studno\_yes = 0

studyes\_yes = 0

studno\_no = 0

studyes\_no = 0

len\_yes=0

len\_no=0

for x in xrange(tnor):

if dicti['student'][x]=='no':

if dicti['buys\_computer'][x]=='yes':

studno\_yes+=1

len\_yes+=1

else:

studno\_no+=1

len\_no+=1

else:

if dicti['buys\_computer'][x]=='yes':

studyes\_yes+=1

len\_yes+=1

else:

studyes\_no+=1

len\_no+=1

studyes\_yes\_prob = studyes\_yes/len\_yes

studyes\_no\_prob = studyes\_no/len\_no

studno\_yes\_prob = studno\_yes/len\_yes

studno\_no\_prob = studno\_no/len\_no

q.put([studyes\_yes\_prob,studyes\_no\_prob,studno\_yes\_prob,studno\_no\_prob])

if \_\_name\_\_ == '\_\_main\_\_':

dicti = readfile("data\_nb.txt")

print dicti

#Total number of rows in the record

tnor = len(dicti['buys\_computer'])

aprior\_num\_yes = 0

for x in dicti['buys\_computer']:

if x=='yes':

aprior\_num\_yes+=1

print len(dicti['buys\_computer'])

aprior\_yes = aprior\_num\_yes/len(dicti['buys\_computer'])

#print aprior\_yes

aprior\_no = (len(dicti['buys\_computer'])-aprior\_yes)/len(dicti['buys\_computer'])

yes\_total\_prob = 1

no\_total\_prob = 1

info('main line')

q = Queue()

p = []

p1 = Process(target=getIncome, args=(q,))

p2 = Process(target=getStudentStatus,args=(q,))

p3 = Process(target=getCreditRating,args=(q,))

p.append(p1)

p.append(p2)

p.append(p3)

process\_output = []

for x in p:

x.start()

process\_output.append(q.get())

for x in p:

x.join()

income\_high\_yes\_prob = process\_output[0][0]

income\_high\_no\_prob = process\_output[0][1]

income\_medium\_yes\_prob = process\_output[0][2]

income\_medium\_no\_prob = process\_output[0][3]

income\_low\_yes\_prob = process\_output[0][4]

income\_low\_no\_prob = process\_output[0][5]

studyes\_yes\_prob = process\_output[1][0]

studyes\_no\_prob = process\_output[1][1]

studno\_yes\_prob = process\_output[1][2]

studno\_no\_prob = process\_output[1][3]

credit\_fair\_yes\_prob = process\_output[2][0]

credit\_fair\_no\_prob = process\_output[2][1]

credit\_exec\_yes\_prob = process\_output[2][2]

credit\_exec\_no\_prob = process\_output[2][3]

income\_x = raw\_input("Enter the income:\n>")

credit\_x = raw\_input("Enter the credit rating:\n>")

stud\_x = raw\_input("Enter the student status:\n>")

if income\_x=='high':

yes\_total\_prob\*=income\_high\_yes\_prob

no\_total\_prob\*=income\_high\_no\_prob

elif income\_x=='medium':

yes\_total\_prob\*=income\_medium\_yes\_prob

no\_total\_prob\*=income\_medium\_no\_prob

else:

yes\_total\_prob\*=income\_low\_yes\_prob

no\_total\_prob\*=income\_low\_no\_prob

if credit\_x=='fair':

yes\_total\_prob\*=credit\_fair\_yes\_prob

no\_total\_prob\*=credit\_fair\_no\_prob

else:

yes\_total\_prob\*=credit\_exec\_yes\_prob

no\_total\_prob\*=credit\_exec\_no\_prob

if stud\_x=='yes':

yes\_total\_prob\*=studyes\_yes\_prob

no\_total\_prob\*=studyes\_no\_prob

else:

yes\_total\_prob\*=studno\_yes\_prob

no\_total\_prob\*=studno\_no\_prob

print "No Probablility: "+str(no\_total\_prob)

print "Yes Probability: "+str(yes\_total\_prob)

if no\_total\_prob>yes\_total\_prob:

print "NO"

else:

print "YES"

[pict@localhost ~]$ python 2.py

{'credit\_rating': ['fair', 'excellent', 'fair', 'fair', 'fair', 'excellent', 'excellent', 'fair', 'fair', 'fair', 'excellent', 'excellent', 'fair', 'excellent'], 'buys\_computer': ['no', 'no', 'yes', 'yes', 'yes', 'no', 'yes', 'no', 'yes', 'yes', 'yes', 'yes', 'yes', 'no'], 'age': ['10', '12', '32', '64', '65', '60', '37', '18', '16', '69', '15', '36', '31', '70'], 'student': ['no', 'no', 'no', 'no', 'yes', 'yes', 'yes', 'no', 'yes', 'yes', 'yes', 'no', 'yes', 'no'], 'income': ['high', 'high', 'high', 'medium', 'low', 'low', 'low', 'medium', 'low', 'medium', 'medium', 'medium', 'high', 'medium']}

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main line

module name: \_\_main\_\_

parent process: 8929

process id: 8959

function getIncome

module name: \_\_main\_\_

parent process: 8959

process id: 8960

function getStudentStatus

module name: \_\_main\_\_

parent process: 8959

process id: 8962

Enter the income:

>123

Enter the credit rating:

>2

Enter the student status:

>yes

No Probablility: 0.048

Yes Probability: 0.0987654320988

YES

[pict@localhost ~]$