In [1]:
```
import numpy as np
import pandas as pd
```

In [2]:
```
examlevel=np.zeros(shape=(1,2))
IQlevel=np.zeros(shape=(1,2))
marks=np.zeros(8).reshape(4,2)
admission=np.zeros(shape=(2,2))
```

In [3]:
```
examlevel[0][0]=float(input('enter the conditional probabilty of easy exam : '
))
examlevel[0][1]=float(input('enter the conditional probabilty of difficult exa
m : '))
IQlevel[0][0]=float(input('enter the conditional probability of bad IQ level :
'))
IQlevel[0][1]=float(input('enter the conditional probability of good IQ level
 : '))
```

```
enter the conditional probabilty of easy exam : 0.7
enter the conditional probabilty of difficult exam : 0.3
enter the conditional probability of bad IQ level : 0.8
enter the conditional probability of good IQ level : 0.2
```

In [4]:
```
examlevelCPT=pd.DataFrame(examlevel,columns=['e0','e1'])
print(examlevelCPT)
```

```
    e0   e1
0  0.7  0.3
```

In [5]:
```
IQlevelCPT=pd.DataFrame(IQlevel,columns=['i0','i1'])
print(IQlevelCPT)
```

```
    i0   i1
0  0.8  0.2
```

In [6]:
```
for i in range(0,4):
    for j in range(0,2):
        marks[i][j]=float(input(f'enter the conditional probability: '))
print(marks)
```

```
enter the conditional probability: 0.6
enter the conditional probability: 0.4
enter the conditional probability: 0.9
enter the conditional probability: 0.1
enter the conditional probability: 0.5
enter the conditional probability: 0.5
enter the conditional probability: 0.8
enter the conditional probability: 0.2
[[0.6 0.4]
 [0.9 0.1]
 [0.5 0.5]
 [0.8 0.2]]
```

In [7]:
```
indx=['i0e0','i0e1','i1e0','i1e1']
marksCPT=pd.DataFrame(marks,columns=['m0','m1'])
```

In [8]:
```
marksCPT['row']=indx
```

In [22]:
```
#run this by uncommenting
#marksCPT.set_index('row',inplace=True)
marksCPT
```

Out[22]:

	m0	m1
row		
i0e0	0.6	0.4
i0e1	0.9	0.1
i1e0	0.5	0.5
i1e1	0.8	0.2

In [10]:
```
admcols=['a0','a1']
admindx=marksCPT.columns
for i in range(0,2):
    for j in range(0,2):
        admission[i][j]=float(input(f'enter the {admindx[i]} and {admcols[j]}
 :'))
print(admission)
```

```
enter the m0 and a0 :0.6
enter the m0 and a1 :0.4
enter the m1 and a0 :0.9
enter the m1 and a1 :0.1
[[0.6 0.4]
 [0.9 0.1]]
```

In [24]:
```
admindx=marksCPT.columns
admindx=list(admindx)
admindx
admissionCPT=pd.DataFrame(admission,columns=admcols)
admissionCPT['row']=admindx
admissionCPT.set_index('row',inplace=True)
print(admissionCPT)
```

Out[24]:

	a0	a1
row		
m0	0.6	0.4
m1	0.9	0.1

In [28]:
```
s=input('enter P( ..... ) ').split(',')
print(s)
```

```
enter P( ..... ) a1,m1,i0,e1
['a1', 'm1', 'i0', 'e1']
```

In [40]:
```
print(admissionCPT.loc[s[1],s[0]]*marksCPT.loc[s[2]+s[3],s[1]]*examlevelCPT.lo
c[0,s[3]]*IQlevelCPT.loc[0,s[2]])
```

```
0.0024000000000000007
```