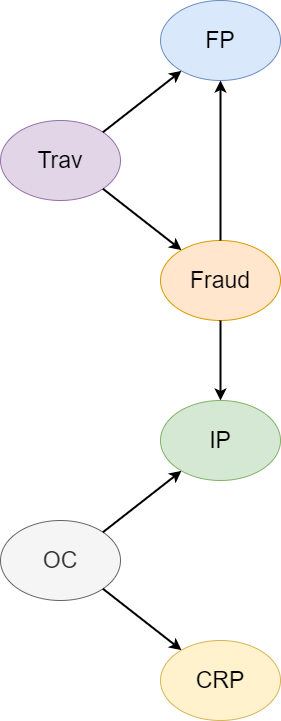
|  |  |  |  |
| --- | --- | --- | --- |
| **Trav** | **Fraud** | **FP** | **P(FP | Trav, Fraud)** |
| +trav | +fraud | +fp | 0.9 |
| +trav | +fraud | -fp | 0.1 |
| +trav | -fraud | +fp | 0.9 |
| +trav | -fraud | -fp | 0.1 |
| -trav | +fraud | +fp | 0.1 |
| -trav | +fraud | -fp | 0.9 |
| -trav | -fraud | +fp | 0.01 |
| -trav | -fraud | -fp | 0.99 |

|  |  |
| --- | --- |
| **Trav** | **P(Trav)** |
| +trav | 0.05 |
| -trav | 0.95 |



|  |  |  |
| --- | --- | --- |
| **Trav** | **Fraud** | **P(Fraud | Trav)** |
| +trav | +fraud | 0.01 |
| +trav | -fraud | 0.99 |
| -trav | +fraud | 0.004 |
| -trav | -fraud | 0.996 |

|  |  |  |
| --- | --- | --- |
| **OC** | **CRP** | **P(CRP | OC)** |
| +oc | +crp | 0.1 |
| +oc | -crp | 0.9 |
| -oc | +crp | 0.001 |
| -oc | -crp | 0.999 |

|  |  |
| --- | --- |
| **OC** | **P(OC)** |
| +oc | 0.7 |
| -oc | 0.3 |

|  |  |  |  |
| --- | --- | --- | --- |
| **OC** | **Fraud** | **IP** | **P(IP | OC, Fraud)** |
| +oc | +fraud | +ip | 0.02 |
| +oc | +fraud | -ip | 0.98 |
| +oc | -fraud | +ip | 0.01 |
| +oc | -fraud | -ip | 0.99 |
| -oc | +fraud | +ip | 0.011 |
| -oc | +fraud | -ip | 0.989 |
| -oc | -fraud | +ip | 0.001 |
| -oc | -fraud | -ip | 0.999 |

2bi) Calculate P(Fraud)

Initial factors:

P(Trav), P(Fraud|Trav), P(OC), P(CRP|OC), P(FP|Trav,Fraud), P(IP|OC,Fraud)

After eliminating Trav:

P(OC), P(CRP|OC), P(IP|OC,Fraud), P(Fraud,FP)

After eliminating FP:

P(OC), P(CRP|OC), P(IP|OC,Fraud), P(Fraud)

After eliminating IP:

P(OC), P(CRP|OC), P(Fraud), P(|OC,Fraud)

After eliminating OC:

P(Fraud), P(CRP|Fraud)

After eliminating CRP:

P(Fraud), P(|Fraud)

Solution:

P(Fraud)

2bii) Calculate P(Fraud|+fp, -ip, +crp)

Initial factors:

P(Trav), P(Fraud|Trav), P(OC), P(CRP|OC), P(FP|Trav,Fraud), P(IP|OC,Fraud)

After eliminating Trav:

P(OC), P(+crp|OC), P(-ip|OC,Fraud), P(+fp,Fraud)

After eliminating OC:

P(+fp,Fraud), P(+crp,-ip|Fraud)

Solution:

P(Fraud|+fp,-ip,+crp)