CptS 540 Artificial Intelligence

HW8

Jinyang Ruan

011696096



Table

Description automatically generated

Similarly, we get:

Bayesian network is shown on the next page:

|  |  |  |
| --- | --- | --- |
| P(Weather) | | |
| clear | cloudy | rainy |
| 0.40 | 0.34 | 0.26 |

|  |  |
| --- | --- |
| P(Uniform) | |
| crimson | gray |
| 0.52 | 0.48 |

|  |  |  |  |
| --- | --- | --- | --- |
| Uniform | Weather | P (Win | Uniform, Weather) | |
| true | false |
| crimson | clear | 0.75 | 0.25 |
| crimson | cloudy | 0.53 | 0.47 |
| crimson | rainy | 0.38 | 0.62 |
| gray | clear | 0.50 | 0.50 |
| gray | cloudy | 0.53 | 0.47 |
| gray | rainy | 0.69 | 0.31 |

1. For the brevity, let:

U=Uniform, W=Weather, C=CallFriends, B=BuyJersey

,

Thus,



,

Thus,



Sample is [crimson, cloudy, true, true, true]

The sampling probability for this event is:

1. If two independent events P(X) and P(Y) are information consistent with the full joint probability distribution, they should satisfy:

In this case, a simple example can be given like:

Thus,

Therefore, we can say *Uniform* and *Weather* are not information consistent with the full joint probability distribution.