

Table 5.12. Data set for Exercise 11.

Mileage	Engine	Air Conditioner	Number of Records with Car Value=Hi	Number of Records with Car Value=Lo
Hi	Good	Working	3	4
Hi	Good	Broken	1	2
Hi	Bad	Working	1	5
Hi	Bad	Broken	0	4
Lo	Good	Working	9	0
Lo	Good	Broken	5	1
Lo	Bad	Working	1	2
Lo	Bad	Broken	0	2

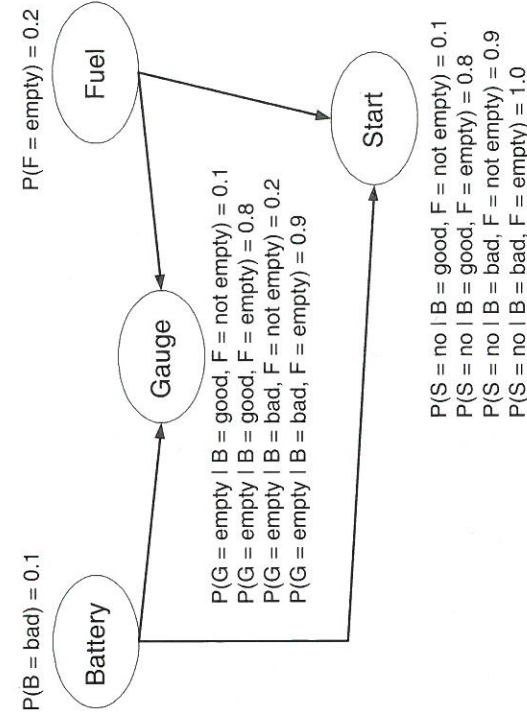


Figure 5.48. Bayesian belief network for Exercise 12.

- Classify the data point $x = 5.0$ according to its 1-, 3-, 5-, and 9-nearest neighbors (using majority vote).
- Repeat the previous analysis using the distance-weighted voting approach described in Section 5.2.1.

14. The nearest-neighbor algorithm described in Section 5.2 can be extended to handle nominal attributes. A variant of the algorithm called PEBLS (Parallel Exemplar-Based Learning System) by Cost and Salzberg [171] measures the distance between two values of a nominal attribute using the modified value difference metric (MVDM). Given a pair of nominal attribute values, V_1 and