CS 8750

HW #2: Bayesian Networks (10 points)

Spring 2017
(Due 2/14, Tuesday, midnight)

Part I (2 points)

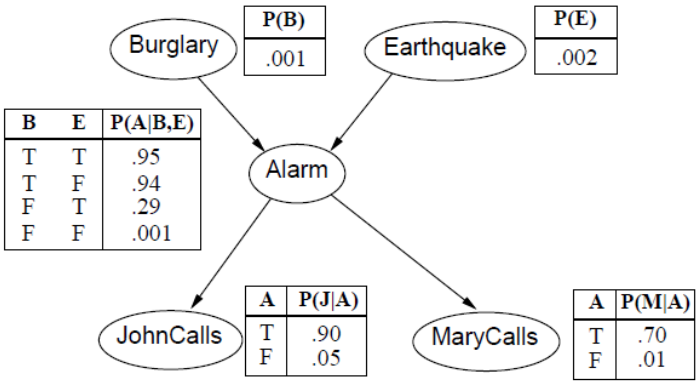
Given the Bayesian network below, answer the following queries by hand. Show intermediate steps.

1) $P(m)$

2) $P(a, j, m)$

3) $P(b|\neg m)$

4) $P(b|m, j)$



Part II (4 points)

Use SamIam to construct the Bayesian network in Part I and then answer the following queries.

1) $P(m)$

2) $P(a, j, m)$

3) $P(b|\neg m)$

4) $P(b|m, j)$

5) $P(b|e, j, m)$

6) $P(j|m)$

7) $P(e|m, j)$

8) $P(e|a, m, j)$

In your submission, show a printout of SamIam's BN graph, tell what inference algorithm you used, and the solution of each query.

Part III (4 points)

Use the paper-reading and literature survey method in How to read a paper (slides) to do a literature survey on the application of Bayesian networks for solving a particular problem (you decide the target problem) and write a 1-page review on one paper. Specifically, the requirements are as follows:

1. Use Google Scholar to find 10 technical papers published in the recent 5 years on your topic.
2. In your submission, describe how you find the 10 papers, give complete citations of the 10 papers and write 1-2 sentences to summarize each paper.
3. Select a good paper from the 10 papers.
4. In your submission, explain why you select this paper, and then write a 1-page review of it by following the guideline in How to read a paper (slides).

Later, everyone will be given 5 minutes in class to present these results. You don't need to prepare slides, just to tell the class what you did and learned.