CECS 451
Assignment 8
Total: 20 Points

General Instruction

- Submit your work in the Dropbox folder via BeachBoard (Not email or in class).
- Simple reasoning is required, otherwise you will get half of the points.

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1. Given the full joint distribution shown in Figure 1, calculate the following (Write answers with a scale of 2, i.e., 0.12.)
   (a) (2 points) $P(toothache)$
   (b) (3 points) $\vec{P}(Cavity)$
   (c) (3 points) $\vec{P}(Toothache|cavity)$

	$toothache$		$\neg toothache$	
	$catch$	$\neg catch$	$catch$	$\neg catch$
$cavity$	0.108	0.012	0.072	0.008
$\neg cavity$	0.016	0.064	0.144	0.576

Figure 1: A full joint distribution for the Toothache, Cavity, Catch world.

2. Consider the Bayes net shown in Figure 2. Write answers with a scale of 2, i.e., 0.12.
   (a) (3 points) Calculate the value of $P(b, i, \neg m, g, j)$.
   (b) (4 points) Calculate the value of $\vec{P}(J|b, i, m)$.
   (c) (5 points) Calculate the value of $\vec{P}(J|\neg b, \neg i, m)$.

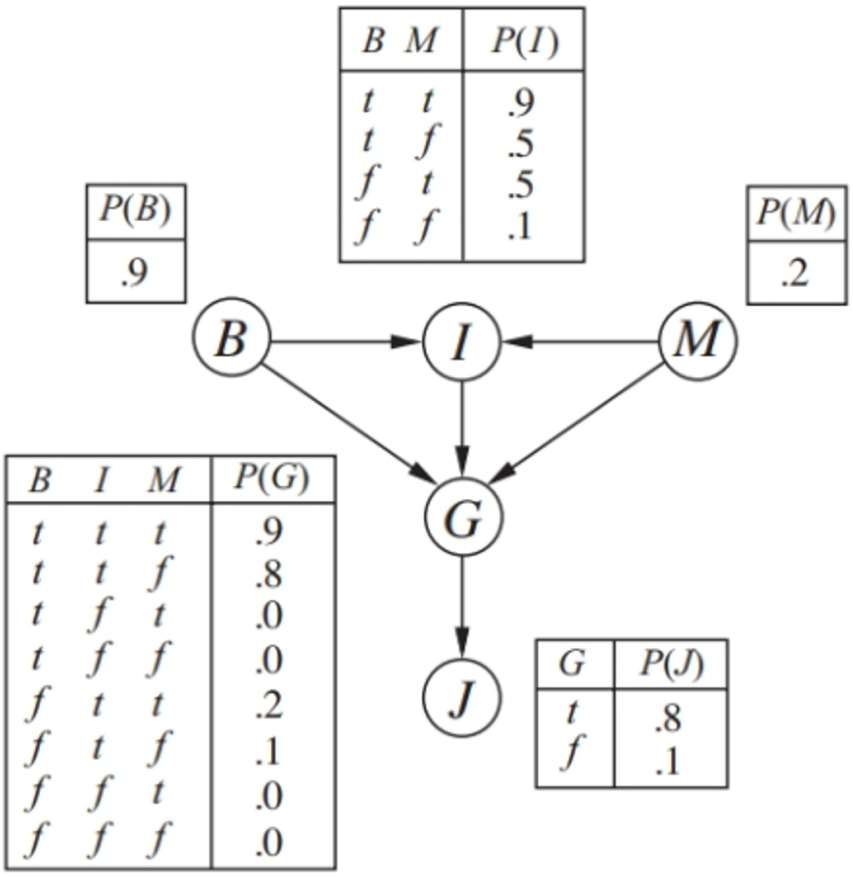

Figure 2: A simple Bayes net with Boolean variables.