EXPERIMENT 8

Academic Year	**2024-25**	**Estimated Time**	**Experiment No. 8 – 02 Hours**
Course & Semester	**T.E. (CE) – Sem. VI**	**Subject Name**	**CSL604: Artificial Intelligence**
Chapter No.	**04**	**Chapter Title**	**Reasoning Under Uncertainty**
Experiment Type	Modelling	**Software**	**Python/PROLOG**

AIM: To Create a Bayesian Network for the given Problem Statement and draw inferences from it. (You can use any Belief and Decision Networks Tool for modelling Bayesian Networks).

I. OBJECTIVES

- To review probability concepts to fully understand Bayesian Belief Networks. .

2. DEMONSTRATION OF USEFUL RESOURCES

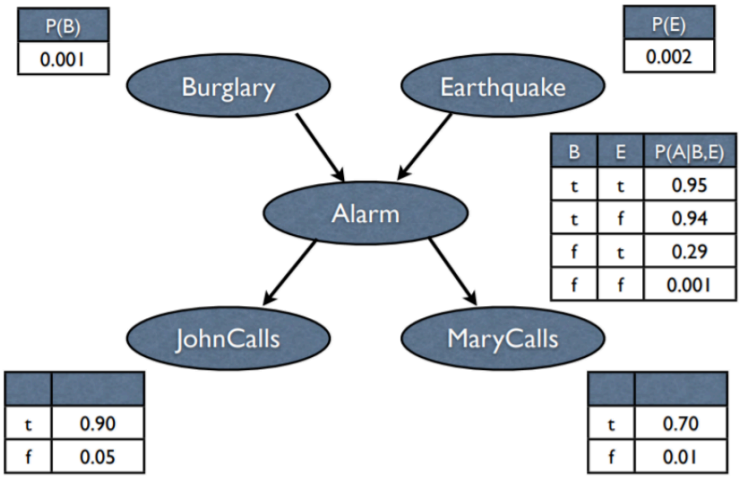
Bayesian Belief Networks and their Components:

- Bayesian Belief Networks are simple, graphical notation for conditional independence assertions.
- Bayesian network models capture both conditionally dependent and conditionally independent relationships between random variables.
- They also compactly specify the joint distributions.
- They provide a graphical model of causal relationship on which learning can be performed.

Let us consider the below mentioned example to explain Directed Acyclic Graphs and Conditional Probability Tables:

Let us consider a problem where:

- There is an **Alarm** in a house, which can be set of by events: **Burglary** and **Earthquake** with certain conditional probabilities.
- The owner of the house has gone for work to office.
- The 2 neighbours are **Mary** and **John**, who call the owner if they hear an alarm go off with certain conditional probabilities.



3. Attach the screenshot of the code.

4. Attach the screenshot of the output.

5. Conclusion