2.1

Bayes theorem Is a mathematical formula that indicates a events likelihood based on past knowledge of potential contributing factors. In Bayesian statistics, the theorem is used to update probabilities when new data become available

Bayesian network is a probabilistic graphical model, used to depict a set of random variables and their conditional dependencies. The graph's edges show the conditional dependencies between the random variables, while the graph's nodes stand in for the variables themselves. In order to understand complicated systems and generate predictions based on lacking or ambiguous data, Bayesian networks are utilized.

Bayesian networks are related to Bayes’ theorem because they use the theorem to calculate the probability of an event given the probabilities of its parent events.

2.2

a/

Ảnh có chứa ảnh chụp màn hình, vòng tròn, biểu đồ, thiên văn học

Mô tả được tạo tự động

b/ The conditional probability tables (CPTs) for the network are as follows:

* P(Drinking alcohol) = 0.3
* P(Stomach cancer | Drinking alcohol = false ) = 0.001
* P(Stomach cancer | Drinking alcohol = true) = 0.01
* P(Heartburn | Drinking alcohol, Stomach cancer) =
  + P(Heartburn | Drinking alcohol = True, Stomach cancer = True) = 0.9
  + P(Heartburn | Drinking alcohol = True, Stomach cancer = False) = 0.6
  + P(Heartburn | Drinking alcohol = False, Stomach cancer = True) = 0.8
  + P(Heartburn | Drinking alcohol = False, Stomach cancer = False) = 0.01

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