# Exercise Questions: Bayesian Networks

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As a developer of a security equipment company, you are going to design an alarm that senses when an infra-red sensor gauge exceeds a given threshold. The infra-red sensor measures the infra-red temperature and the gauge measures the infra-red temperature obtained from the infra-red sensor. Consider the Boolean variables $A$ (alarm sounds), $F_a$ (alarm is faulty), $F_g$ (gauge is faulty) and the $G$ (gauge reading: normal and high) and $T$ (actual infra-red temperature: normal and high).

1. Draw a Bayesian network for this problem.
2. Write down the joint probability distribution represented by this Bayesian network.
3. How many parameters are required to describe this joint probability distribution? Show your working.