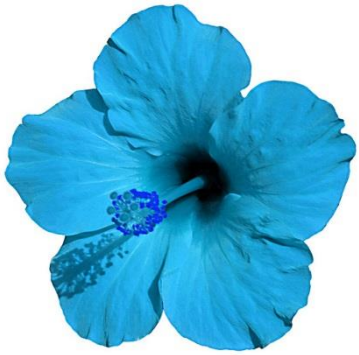
Exercise for Bayesian networks:

As an expert in Data Science you know how to design a network, but the content that the network is about is very often not your area of expertise.

The knowledge that will have to be modeled within the network, needs to be extracted either by careful measurements when that is possible and not too time consuming, or learned from data (which exceeds the contents of this course) or is presented by experts in the application area. However, the problem there is that these experts often know nothing about Bayesian networks and probability theory and cannot provide the knowledge in a way that would provide you with all information that you need to construct a Bayesian network and start simulating.

Flower care instructions.



The plant needs more water than usual plants.
When watered appropriately it has a good chance of flowering.
Too much water causes the roots to mold, which will lead to hanging leaves that might fall off.
The plant needs a good amount of light, but not too much direct sunlight.
In case of too much sun light the leaves will turn brown.
Brown leaves will fall off eventually.

a) Install GeNIe on your computer
b) Build a Bayesian network that models the plant in relation to the conditions mentioned in the instructions.
   Find probability values that matches with the natural language descriptions used in the care instructions (such as *too much*, *appropriately*) and ensure that your network shows clearly how different conditions for the plant (such as amount of water, amount of sunlight, amount of light) influence its wellbeing.
c) In your network try to find the optimal amount of water, light and sunlight for the plant.
d) Explain which of the nodes are dependent and why. Which of the nodes are independent and why.

Examination: When ready, but no later than the deadline, you book a time to demonstrate and discuss your network.