**Exercise 25  Clique Tree Propagation I**

Recall the example network from the lecture:

![Network Diagram](image)

- \( P(e_1 \mid c_1) = 0.8 \)
- \( P(d_1 \mid b_1, c_1) = 0.8 \)
- \( P(d_1 \mid b_2, c_1) = 0.8 \)
- \( P(b_1 \mid a_1) = 0.8 \)
- \( P(c_1 \mid a_1) = 0.2 \)
- \( P(a_1) = 0.2 \)
- \( P(e_1 \mid c_2) = 0.6 \)
- \( P(d_1 \mid b_1, c_2) = 0.8 \)
- \( P(d_1 \mid b_2, c_2) = 0.05 \)
- \( P(b_1 \mid a_2) = 0.2 \)
- \( P(c_1 \mid a_2) = 0.05 \)

Determine the a-priori distribution for all five variables!

You may use the HUGIN tool to check your calculations, before using them to address the next assignment.

**Exercise 26  Clique Tree Propagation II**

It becomes evident that the patient has severe headache \((E = e_1)\). Propagate this evidence across the network with the clique tree propagation algorithm presented in the lecture, i.e., compute all five a-posteriori distributions!

**Exercise 27  Clique Tree Propagation III**

In addition to b), we now learn that the patient has no increased serum calcium \((B = b_2)\). Again, propagate this additional evidence!