1. Model the following net with the net description language of Maria. Find the unwanted states by using reject-statement or fact transitions. A fact transition can be represented by a transition with gate \texttt{gate fatal;}. Examine the paths leading to unwanted states with \texttt{path} command. You can get a graphical representation of the path by adding a command \texttt{visual} in front of \texttt{path}.

![Net Diagram]

2. Model the presented reader-writer system with Maria. Use suitably small values for $m$ and $n$, for example 3 and 2. Reader processes can read concurrently, but if a writer process wants to write, no other process can neither read nor write. Check that the system works correctly.

![Reader-Writer System Diagram]
3. Model the net, modeling Peterson’s algorithm for mutual exclusion, with Maria. The gate $\alpha$ is $in = 0 \lor turn = 0$ and the gate $\beta$ is $in = 0 \lor turn = 1$. Check if it is possible that both processes are in the critical section at the same time.