Select a problem of your interest and model it by a hidden Markov model (HMM). Provide the following model descriptions.

(1) Describe a state transition diagram. The number of hidden states and observable should be at least two.
(2) Show the collection of possible observable variable values.
(3) Provide an example of state sequence.
(4) Provide an example of observable sequence.
(5) Provide an example of evaluation problem.
(6) Provide an example of decoding problem.
(7) Provide an example of learning problem.