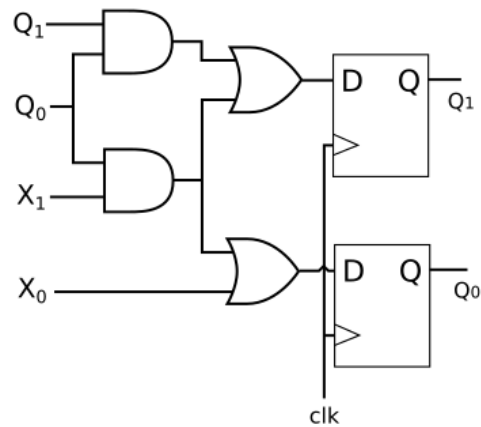


Consider the following state machine implemented with digital hardware.
The output logic has not yet been implemented.



Assume the following state names and encodings:

State	Q_1Q_0
Red	0 0
Blue	0 1
Green	1 0
Fire	1 1

a) Complete all blank entries in the following table based on the above state machine and encodings.

Current state	X_1X_0	Next State
Red	1 1	Blue
Blue	0 1	Blue
Fire	0 0	Green

b) Provide a Boolean expression for an output Z_0 defined as “high when in state Green or Fire”.

$$Z_0 = Q_1$$

c) Provide a Boolean expression for an output Z_1 defined as “the same as X_1 when in state Fire, otherwise low”.

$$Z_1 = X_1 \cdot Q_1 \cdot Q_0$$

d) Of the outputs Z_1 and Z_0 , which is Mealy and which is Moore?

Z_0 is entirely defined by the state, so it is Moore. Z_1 depends on the input, so it is Mealy.