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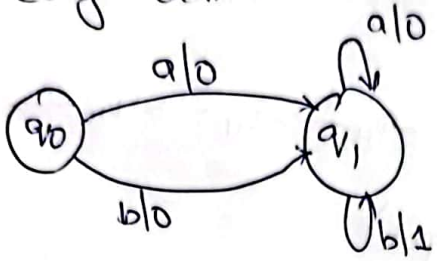
Question-1:

Given Mealy Machine



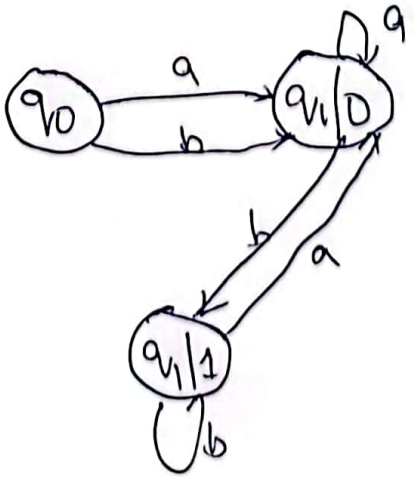
Transition table for Mealy Machine

	Input a		Input b	
	state	output	state	output
q_0	q_1	0	q_1	0
q_1	q_1	0	q_1	1

Corresponding Transition table for Moore Machine

	Input a	Input b	Output
q_0	q_{10}	q_{10}	–
q_{10}	q_{10}	q_{11}	0
q_{11}	q_{10}	q_{11}	1

After Conversion the fine Moore Machine is



Output for the following strings

1. ababab → $q_0 \xrightarrow{a} q_{10} \xrightarrow{b} q_{11} \xrightarrow{a} q_{10} \xrightarrow{b} q_{11} \xrightarrow{a} q_{10} \xrightarrow{b} q_{11}$

(Input string)

010101 (Output)

2. aababa → $q_0 \xrightarrow{a} q_{10} \xrightarrow{a} q_{10} \xrightarrow{b} q_{11} \xrightarrow{a} q_{10} \xrightarrow{b} q_{11} \xrightarrow{a} q_{10}$

(Input string)

001010 (Output)

3. bbbbbb → $q_0 \xrightarrow{b} q_{10} \xrightarrow{b} q_{11} \xrightarrow{b} q_{11} \xrightarrow{b} q_{11} \xrightarrow{b} q_{11} \xrightarrow{b} q_{11}$

(Input string)

011111 (Output)

Key difference between Mealy Machine and Moore Machine:

Mealy:

↳ Input = Output

↳ Output on the transition

$M_e \rightarrow M_e$

↳ Move output from transition to state

Moore:

↳ Input ≠ output

↳ Output on the state

$M_0 \rightarrow M_e$

↳ Move the moore machine output to the mealy machine input transition