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Assignment 2

1. Identify all the inputs and outputs for your sequential circuit.

FSM has 3 states:

- Requires 2 bits: y1, y0

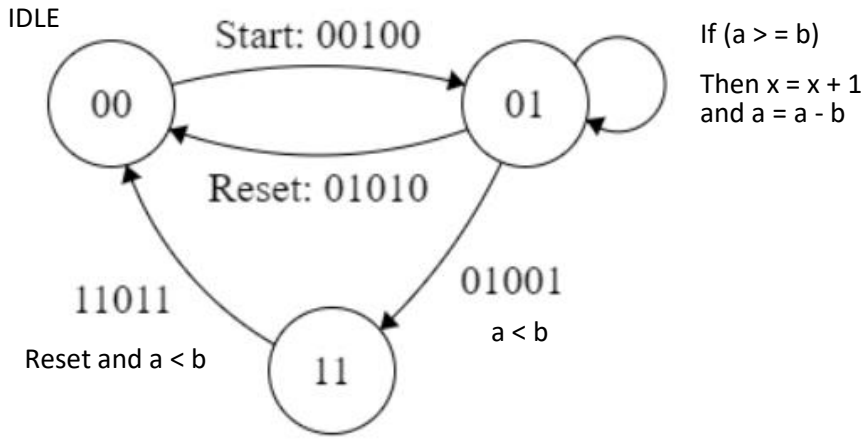
Inputs include states and external inputs:

- Current states (2 bits): y1, y0
- Start
- Reset
- CMP (if a < b then CMP = 1, else CMP = 0)

Outputs: next states and external outputs

- Next states: y1, y0
- Selector for a, selector for x, enable for a, enable for x.

2. Design a finite state machine that will provide the required signals to the circuit in the template.



3. Design the combinational logic (or ROM programming) to implement your finite state machine.

Inputs						Outputs							
Current States		Inputs				Next States			Outputs				
Y1	Y0	Start	Reset	Cmp	0x	Y1	Y0	0x	Ea	Sa	Ex	Sx	0x
0	0	1	0	0	4	0	1	1	1	0	1	0	A
		1	0	1	5	0	1	1	1	0	1	0	A
		Otherwise			X	0	0	0	0	0	0	0	0
0	1	0	0	0	8	0	1	1	1	1	1	1	F
		0	0	1	9	1	1	3	0	0	0	0	0
		0	1	0	A	0	0	0	0	0	0	0	0
		Otherwise			X	0	1	1	0	0	0	0	0
1	1	0	1	1	27	0	0	0	0	0	0	0	0
		otherwise			0	1	1	3	0	0	0	0	0

4. Implement your design in Logisim. (See file attached)

- Press and hold Start button until states change in ROM and start the loop.

- Press and hold reset button to restart the circuit, state in ROM goes back to 00.