

## Lab-8 Practice Questions

### FSM using Structural Modelling

1. Write Verilog code using structural modelling for the Lab-7 Vending Machine question. Implement the FSM using the T flip-flop equations derived earlier for the vending machine.
2. Design a Mealy machine (FSM) using JK flip-flops for a system that recognises the overlapping 2-bit binary input pattern 10 within a continuous stream of input bits. The FSM should output 1 whenever the pattern 10 is detected, even if it overlaps with previous bits, and 0 otherwise. Implement the FSM using JK flip-flops, and write Verilog code in structural modelling for the FSM. Assume JKFF has active-high synchronous reset.

e.g Input 0010010

Output 0001001

**Note:** You can use the **assign** statement to store the inputs of the flip-flops in wires.