Faculty of Computers and Artificial Intelligence

CS222: Computer Architecture

Assignment no 04:
Chapter 3: Sequential Logic Design

Note: You can check the exercises after the Chapter of the Book. In our assignment, we are using 2nd Edition of "Digital Design and Computer Architecture" By David harris and Sarah harris.

Exercise 3.23 Describe in words what the state machine in Figure 3.70 does. Using binary state encodings, complete a state transition table and output table for the FSM. Write Boolean equations for the next state and output and sketch a schematic of the FSM.
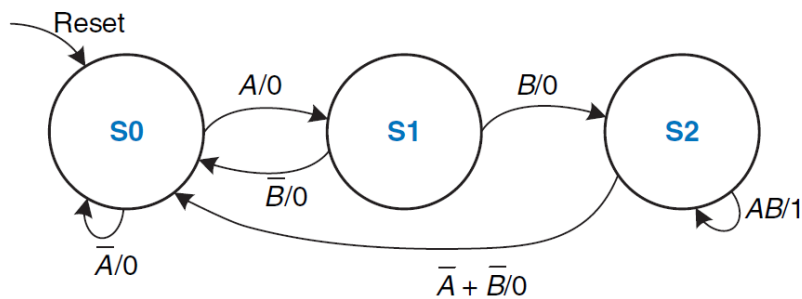

Figure 3.70 State transition diagram

Exercise 3.25 Layla's snail from Section 3.4.3 has a daughter with a Mealy machine FSM brain. The daughter snail smiles whenever she slides over the pattern 1101 or the pattern 1110. Sketch the state transition diagram for this happy snail using as few states as possible. Choose state encodings and write a combined state transition and output table using your encodings. Write the next state and output equations and sketch your FSM schematic.