

Go through the process of designing a full state machine (with help from the students as you go) for a machine with 4 inputs: 'A','R','C','T'. The state machine has one output that signals when a valid word is entered. For simplicity we will only recognize two valid words, "CART" and "ARC". When the valid sequence is entered, the valid word signal (W) is active (W=1), otherwise it equals 0. Have them work you through the possible states and build the state diagram for this state machine.

From this do the input assignment as follows:

Input	I1	I0
"A"	0	0
"C"	0	1
"R"	1	0
"T"	1	1

Problems:

Assume a state machine with two inputs 'A' and 'B' that detects a valid input string of 'A','B','B','A','B'

It has a single output of valid (like the state machine above) that is activated when the valid sequence is recognized.

Make the input assignments, and make the state diagram. Then from that make the next state truth table and output truth table, and design the circuit in logic.