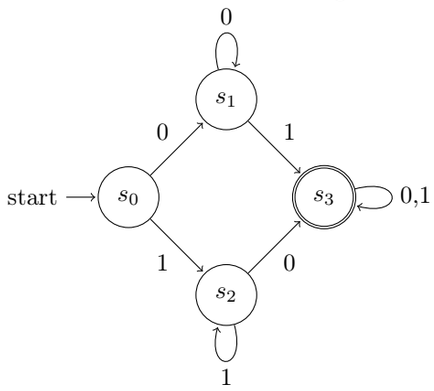
CPSC 121 - DFAS

Problem 1. Convert the following DFA to a sequential circuit.



Make sure that your sequential circuit has an output and that the output is true when the DFA is in the accepting state given the input.

Problem 2. Describe in English which inputs will lead the DFA to an accepting state.

Problem 3. Design a deterministic finite-state automaton (DFA) that accepts exactly the strings over the alphabet $\{A, B, \ldots, Z\}$ that

- contain at most two E's
- contain fewer T's than E's
- and in which no L that comes after two E's is immediately followed by an Y

For instance, your DFA should accept the strings

- VADER
- MEETING
- PINKELMERFLOYD

but not the strings

- EXTREME (there are three E's)
- MERELY (two E's followed by LY)
- DINOSAUR (there are as many T's as E's (zero))
- TETRAODON (there are more T's than E's)
- VOLDEMORT (there are as many T's as E's (one of each))

Clearly indicate the meaning of each state. Hint: Our solution uses 9 states.