

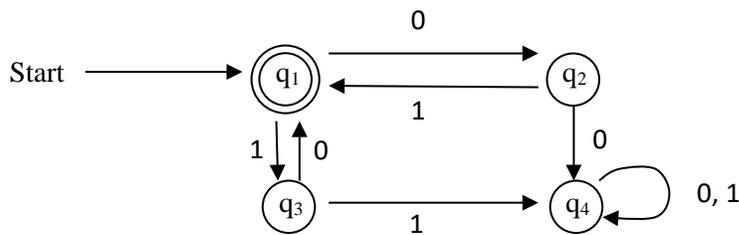
There were no previous questions on Piazza about problems in this assignment.

1. (t-3) 6.2e
2. (t-3) 6.2h
3. (t-3) 6.2l (that's "el", the letter between k and m)
4. (t-3-3-3) 6.3bcd
5. (t-3-3) 6.6

6.2: For the "to-turn-in" parts of 6.2, aim for as simple a regular expression as you can come up with. Some of the credit may be for simplicity. If your expression is very complicated, some annotation may help the grader to know whether it is correct. The "burden of correctness and understandability" is on you. I did not require some of the more complex parts of this problem due to difficulties with grading, but you should try some of them.

6. (t-9) 6.7a Show how you use the construction from the textbook.
7. 6.8

8. (t-18) Consider the DFSM M below. Use the algorithm from class/video instead of the one in the textbook to find a regular expression r such that $L(r) = L(M)$. You should calculate all of the r_{ijk} for $k=0$ and $k=1$. For $k>1$, you are only required to calculate as many of the r_{ijk} as needed to do the recursive steps that the algorithm actually needs to get the answer. Be explicit about the ones that you do calculate. [The proof of the "video" algorithm and a complete example are given in the proof of Theorem 3.4 on the bottom of p33 and on pages 34-35 from [this document](#), taken from "introduction to Automata Theory, Languages, and Computation by Hopcroft and Ullman (Addison-Wesley, 1979).]



9. 6.13d Additional practice with RE \rightarrow FSM
10. 6.15. Do this one if you need extra practice with the DFSM \rightarrow RE algorithm. In the printed book, there is an error in the diagram in the book, that makes it not be a DFSM. The b-transition from q_1 to q_3 should not be there. **Remove that transition before doing the problem.**