ASSIGNMENT 8 (DUE ON 15 OCTOBER 2021 AT 11:59PM)

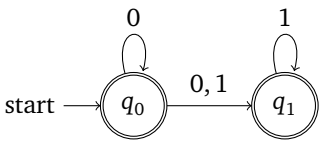
MATH2301, SEMESTER 2, 2021

INSTRUCTOR: ASILATA BAPAT

(1) Give state diagrams of NFAs with the specified number of states recognising each of the following languages. Justifications not required.
   (a) $L = \{w \mid w \text{ ends with } 00\}$; three states.
   (b) The language $L = \{0\}$; two states.
   (c) The language $L = L(1^*0^*1^*)$; three states.

(2) Convert the following regular expressions to equivalent NFAs using the procedure discussed in class. (You do not have to use the product automaton construction for the "or"-type regular expressions. You can use the NFA you constructed in the worksheet.) Show your steps and work, but justifications are not required.
   (a) $r = (0|1)^*000(0|1)^*$
   (b) $r = (((00)^*(11))|01)^*$
   (c) $r = \emptyset^*$

(3) Convert the following NFA into an equivalent DFA using the procedure discussed in class. Show your work. (Hint: your DFA will have four states.)



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