

# CSE2315 — Assignment 2

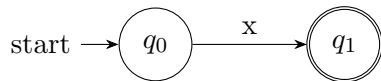
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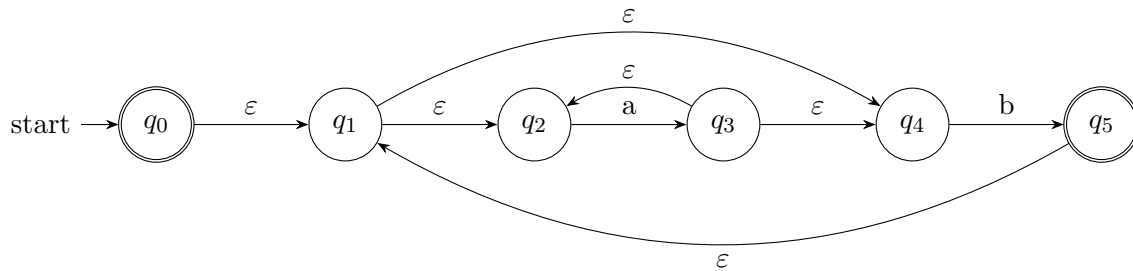
## Exercise 1

Consider the language  $L = (a^*b)^*$ . Construct an NFA  $N$  for which  $L(N) = L$ . To this end, answer the following:

(a) Construct an NFA  $N_1$  for which  $L(N_1) = \{x\}$ .

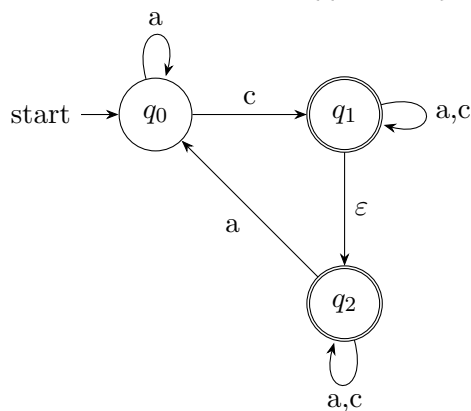


(b) Construct  $N$  in a systematic way starting from  $N_1$ .

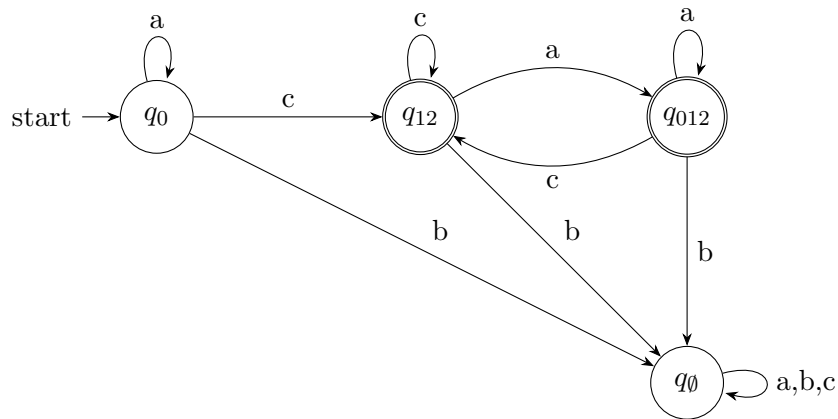


## Exercise 2

Consider the NFA  $N = \{\{q_0, q_1, q_2\}, \{a, b, c\}, \delta, q_0, \{q_1, q_2\}\}$  depicted below:

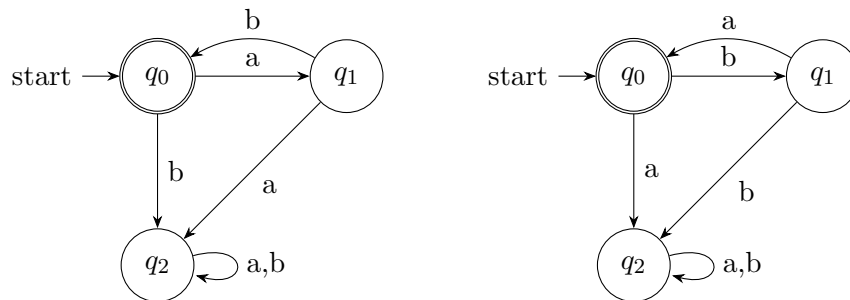


Construct a DFA  $D$  such that  $L(D) = L(N)$ :



### Exercise 3

Consider the following two DFAs  $D_1, D_2$ :



(a) Describe the languages of  $D_1$  and  $D_2$

### Exercise 4

### Exercise 5

### Exercise 6

### Bonus Exercise