BRAC UNIVERSITY
CSE331 : Automata and Computability
Assignment 2

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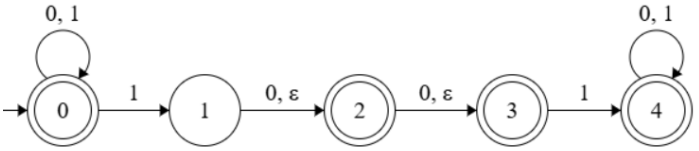
1. Draw the state diagram of an NFA for the following regular languages:

A. L(M) → {w ∈ Σ* | w contains 1001 or 11}, where Σ = {0, 1}. (use 5 states)

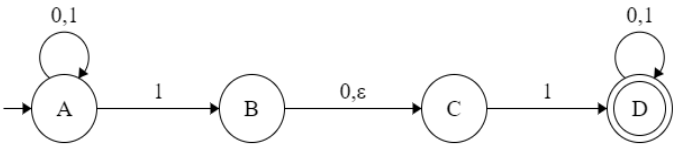


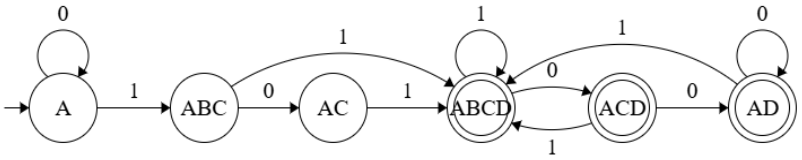
B. L(M) → {w ∈ Σ* | w contains a 1 in the third position from the end}, where Σ = {0, 1}.
See example 1.30 from the book.

C. L(M) → {w ∈ Σ* | length of w is a multiple of 2 or 3}, where Σ = {0, 1}.
See example 1.33 from the book.

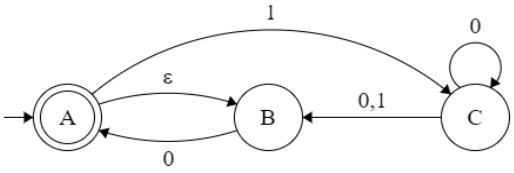
2. Convert the following NFA into DFA:

A.





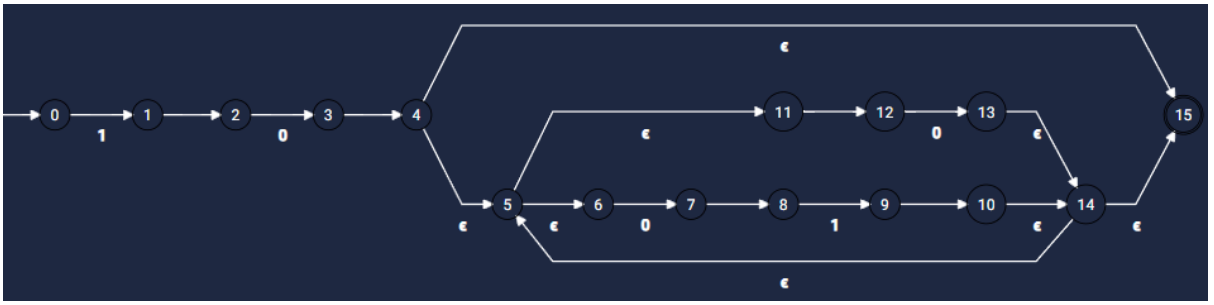
B.



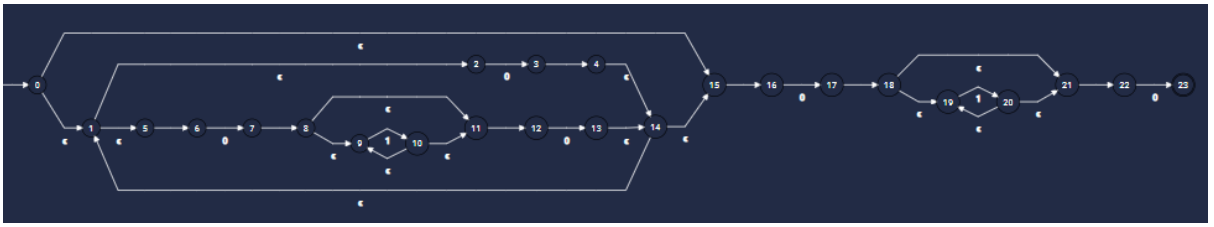
See example 1.41 from the book.

3. Convert the following RE into NFA:

A. 1 0 (0 1 | 0)*

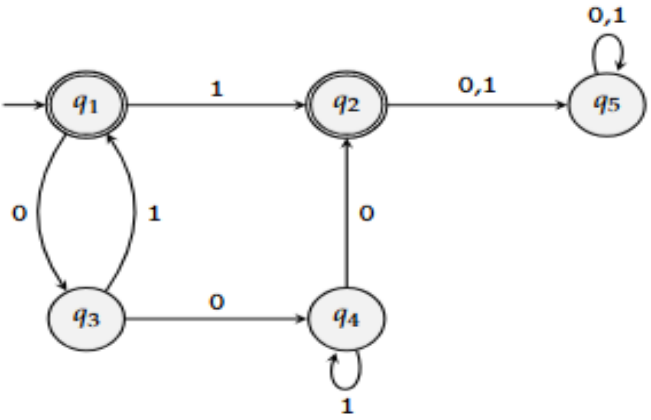


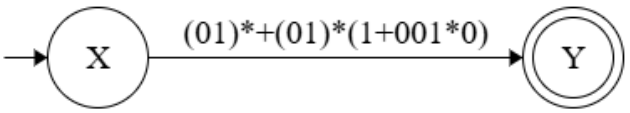
B. (0 | 0 1* 0)* 0 1* 0

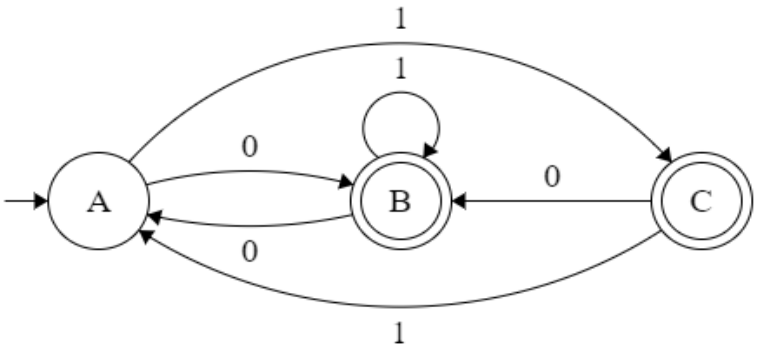


4. Convert the following DFA into RE:

A.







B.

See example 1.68 from the book.