

# Theory of Computations

## Assignment 2

### Finite Automata

#### Set 1 DFA Design

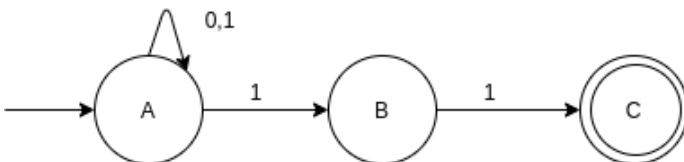
1. design DFA that accepts all strings over  $\{0, 1\}$  and contain only one occurrence of 01
2. design DFA that accepts all strings over  $\{0, 1\}$  and starts with 00 or 11
3. design a DFA that accepts all strings over  $\{0, 1\}$  and contain an even number of 1's.
4. design a DFA that accepts all strings over  $\{0, 1\}$  and do not end with 00.

#### Set 2 NFA Design

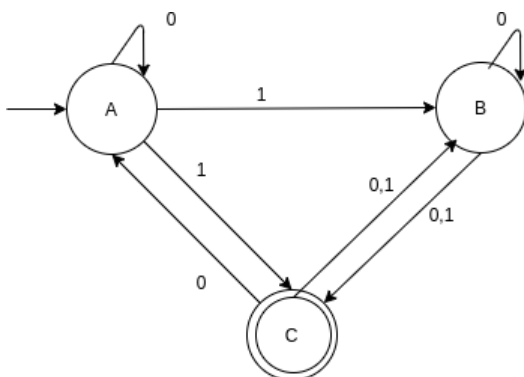
5. design an NFA that accepts the string over  $\{0,1\}$  and contains 0101
6. design an NFA that accepts the string over  $\{0,1\}$  and contains at least two 0s, or exactly two 1s
7. design an NFA that accepts all strings over  $\{0, 1\}$  that contain "1" at the third or second position from the end.
8. design an NFA that accepts all strings over  $\{0, 1\}$  that contain 01011.

#### Set 3 NFA to DFA

9. Convert the following NFA to DFA



10. Convert the following NFA to DFA



Submission :

- Deadline is Friday 6/5/2022 @11:59PM
- The assignment is individual.
- Cheating could lead to serious consequences.