Classwork 2

CS304: Automata and Formal Languages

September 19, 2025

Question 1. *Consider the language L over $\Sigma = \{0, 1\}$ consisting of all strings with odd number of 1s (and any number of 0s).*

- *Design a NFA or DFA that accepts L.*
- *Convert the above DFA or NFA to a RE using the state elimination method.*
- *Write a CFG that generates L.*
- *Convert the above CFG to CNF.*

Question 2. *Consider the DFA $M = (Q = \{A, \ldots, H\}, \Sigma = \{0, 1\}, \delta, q_0 = A, F = \{D, H\})$ with transitions:*

- *State 0 1*
- *A B C*
- *B D E*
- *C F G*
- *D H F*
- *E H F*
- *F D E*
- *G G G*
- *H H F*
- *Draw the state diagram of M.*
- *Minimize M.*
- *Write a regular expression for the language accepted by M.*
- *Write a CFG that generates the language accepted by M.*