CS580 Homework 4
Fall 2024
September 11, 2024
(Due 4:10pm, September 18, 2024)

Email homework assignments to ldojcsak@vols.utk.edu by the beginning of class time.

1. Use the Myhill-Nerode theorem to prove whether or not each language is regular. If the language is regular, you do not have to give the corresponding DFA.

   a. $L = \{ a^{i^2} \mid i \geq 0\}$

   b. $L = \{x \mid x$ has an equal number of a's and b's$\}$

   c. $L = \{x \mid x$ has an equal number of ab and ba strings$\}$

   d. $L = \{x \mid$ The 3rd to last symbol in x is an a.$\}$

   e. $L = \{ a^i b^j c^k \mid i \neq j \neq k\}$

   f. $L = \{ a^i \mid i \mod (6) = 4\}$