CSCI 338
Homework 3

Assigned 9/13/2022, due by start of class (3:05 pm) on 9/20/2022. Please submit this assignment to the appropriate dropbox on D2L. You must follow the collaboration policy detailed on the course website.

Problem 1 (5 points). Build a regular expression using the notation introduced in class for the following language: $\{w : w \text{ contains exactly two 0's}\}$.

Solution. $1^*01^*01^*$ □

Problem 2 (5 points). Build a regular expression using the notation introduced in class for the following language: $\{w : w \text{ contains an even number of 0's}\}$.

Solution. $1^*(01^*01^*)^*$ □

Problem 3 (5 points). Build a regular expression using the notation introduced in class for the following language: $\{w : w \text{ is not empty and ends with an even number of 0's}\}$.

Solution. $\Sigma^*1(00)^* \cup (00)^+$ □

Problem 4 (5 points). Succinctly describe the language of the following regular expression: Σ^+

Solution. $\{w : w \text{ is not the empty string}\}$. □

Problem 5 (5 points). Succinctly describe the language of the following regular expression: $(1 \cup \epsilon)(0 \cup \epsilon)$

Solution. $\{\epsilon, 0, 1, 10\}$ □