

CSCI 338

Homework 4

Assigned 9/20/2022, due by start of class (3:05 pm) on 9/27/2022. 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). Show that the language $L = \{0^{2^n} : n \in \mathbb{N}\}$ is not regular.

Problem 2 (5 points). Show that the language $L = \{www : w \in \{0, 1\}^*\}$ is not regular.

Problem 3 (5 points). Show that the language $L = \{0^n 1^m 0^n : m, n \geq 0\}$ is not regular.

Problem 4 (5 points). Why can the string $s = 0^p 1^0 0^p$ not be used to prove that $L = \{0^n 1^m 0^n : m, n \geq 0\}$ is not regular?