

Homework Assignment #0

Due Time/Date

2:20PM Wednesday, September 23, 2020.

Note

The purpose of this homework is for you to get warmed up and will not be counted as part of your grade of this course. Please write or type your answers on A4 (or similar size) paper. Put your completed homework on the instructor's desk before the class starts. For late submissions, please drop them in Yih-Kuen Tsay's mail box on the first floor of Management Building 2. You may discuss the problem with others, but copying answers is strictly forbidden.

The Problem

Consider the “untangling line segments” problem discussed in class. Your task is to refine the rank function given in class so that it maps program states to *non-negative integers*. Try to be precise (using mathematical concepts and notations). You must show in sufficient details that the execution of an untangling operation, if enabled, will decrease the value of the function by *at least one*.