

CS 6515: Homework 6

Due on Wednesday, October 25, 11:59pm via Gradescope.
Late submission with 10% penalty until Thursday, October 26, 11:59pm.

Professor Brito

CS 6515

Instructions.

For the graded problems, expectations are provided.

You are allowed to use algorithms we presented in class as black-boxes.

Do not use pseudocode! Always address the runtime of your design.

You should aim for the fastest (in big- O notation).

It is OK to ignore any reasonable preprocessing.

Suggested reading.

From Algorithms by Dasgupta, Papadimitriou, and Vazirani, chapter 6

If any of your answers incorporate dynamic programming, they should include the following:

- i. A description of your DP states, in plain English, including the dimension of your table.
- ii. A mathematical recurrence relation between subproblems. Don't forget your base case(s). Briefly explain why your recurrence yields the correct answer.
- iii. How do you get the final answer from the entries of your table.
- iv. State the runtime of your design (in big- \mathcal{O} notation) and briefly justify your answer.

Problem 1

(Rooted Minors)