CS3000: Algorithms & Data — Summer 2025 — Laney Strange

APP 2
Due: May 13th, 2025 @ 11:30am via Gradescope

Name:

- APPs will be assigned towards the end of roughly two lectures each week. You'll put together a solution to a short problem that we'll all use in the following lecture. We'll have time set aside to do these in class, or you can work on your own.
- You may handwrite your solutions, or typeset them in LaTeXor another system.
- APPs will be graded on completeness. They must be submitted by 11:30am (just before lecture) on the due date. They will not be accepted late, but we drop 3 of them (out of 8 total).
- Collaboration is strongly encouraged for APPs!

Problem 1.

(a) Use the iteration method to solve the recurrence $T(n) = 2T(n/2) + n + c$, where c is a constant, with base case T(2) = 1.

Solution:

(b) Give a tight bound on the recurrence.

Solution: