

# CS5800: Algorithms — Virgil Pavlu

## Homework 2

Name:

Collaborators:

Instructions:

- Make sure to put your name on the first page. If you are using the  $\text{\LaTeX}$  template we provided, then you can make sure it appears by filling in the `yourname` command.
- Please review the grading policy outlined in the course information page.
- You must also write down with whom you worked on the assignment. If this changes from problem to problem, then you should write down this information separately with each problem.
- Problem numbers (like Exercise 3.1-1) are corresponding to CLRS 4<sup>th</sup> edition. While the 3<sup>rd</sup> edition has similar problems with similar numbers, the actual exercises and their solutions are different, so make sure you are using the 4<sup>th</sup> edition.

1. **(Extra Credit)** Implement MergeSort without recursive calls.

2. **(5 points)** Exercise 6.1-4, explain why.

**Solution:**

3. **(5 points)** Exercise 6.1-7, explain why.

**Solution:**

4. **(10 points)** Exercise 6.2-1.

**Solution:**

5. **(10 points)** Exercise 6.3-1.

**Solution:**

6. **Optional (0 points)** Problem 6-2.

**Solution:**

7. **(5 points)** Exercise 7.2-1.

**Solution:**

8. **(5 points)** Exercise 7.2-2, explain why.

**Solution:**

9. **(5 points)** Exercise 7.2-3.

**Solution:**

10. **(15 points)** Exercise 7.4-1.

**Solution:**

11. **(15 points)** Exercise 7.4-2.

**Solution:**

12. **(10 points)** Exercise 7.4-3.

**Solution:**

13. **(Extra credit)** Problem 6-3.