ICS 6D—Winter 2024 (Dillencourt)
Homework 4

For the induction proofs in this homework assignment, it is important that you label the base case(s) and the inductive step. It is also important that you begin the inductive step with a clear statement about what you are assuming and what you will prove. In the proof of the inductive step, you need to label each case (if there are multiple cases), and where you are using the inductive hypothesis. Please refer to the examples in the zyBook for the correct format.

Note that in addition to the examples in the text, there are also a few exercises with exposed solutions which you can use as a model.

1. Zybook exercise 8.8.1
2. Zybook exercise 8.8.2, part(a)
3. Zybook exercise 8.8.2, part(c)
4. Zybook exercise 8.8.2, part(d)
5. Zybook exercise 8.8.4, part(a)
6. Zybook exercise 8.8.4, part(c)
7. Zybook exercise 8.8.6, part(a)
8. Zybook exercise 8.8.6, part(c)
9. Zybook exercise 8.8.7
10. Zybook exercise 8.9.2, part(a)
11. Zybook exercise 8.9.2, part(b)
12. Zybook exercise 8.9.2, part(c)
13. Zybook exercise 8.9.2, part(d)
14. Zybook exercise 8.9.3, part(a)
15. Please put your solutions to the following related two ZyBook exercises on the same page.
    (a) Zybook exercise 8.10.2
    (b) Zybook exercise 8.11.2
16. Please put your solutions to the following related two ZyBook exercises on the same page. (Note: Assume that the function `IsPrime` described in the problem statement exists and behaves as described. You may call it, and you do not have to write it. We will see how to test whether a number is prime in the next chapter.)
    (a) Zybook exercise 8.10.5
    (b) Zybook exercise 8.11.5
17. Zybook exercise 8.15.3, part(a)
18. Zybook exercise 8.15.3, part(c)
19. Zybook exercise 8.15.3, part(e)