

Hi everyone,

Programming project # 0 is due on 1/28 at 11:55 pm. All deadlines are firm in this course. I will do office hours tomorrow. If you still have questions regarding how the algorithms that I have asked you to implement should work, feel free to take advantage of my office hours tomorrow (10:30 - 12:30 pm). I don't read or debug code for students in this course but I will be happy to explain the algorithms to you and provide you suggestions on how to go about implementing them.

This week we will do the following:

1. On Tuesday, I will derive the asymptotic bound of the binary search algorithm by giving a recurrence equation for its time complexity and then solving for a closed-form formula for the recurrence equation using algebraic unrolling. We will then discuss three terms used in characterizing a sorting algorithm: 'stability', 'in-place' and 'asymptotic order optimal'. We will discuss how these terms apply to the sorting algorithms that we have studied and those that we study this week. We will study the 'merge sort' algorithm and derive its asymptotic bounds via a recurrence equation and by hand-waiving using the depth-of-a-binary-tree argument.

2. On Thursday, we will study the 'quick sort' algorithm and derive its asymptotic bounds, both best-case and worst-case analyses, via a recurrence equation and arithmetic series. On Thursday, I will assign the first homework assignment. It will be due on Tuesday, February 4 at the beginning of class. The first homework is based on Asymptotic Time Complexity Analysis. It is essentially a homework based on the math that we have done so far.

3. Continue to take advantage of my office hours when you can. Also, take advantage of the SI sessions whenever you can. Come by my office hours if you need clarification on anything that we have discussed in class so far or on the programming project.

Regards,

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