

Quiz 2 Announcement

Quiz 2 will be a take-home. It will be available on the Stellar website starting at **9:00 am on Monday, April 9, 2012**. Your solutions are due **before noon on Friday, April 13, 2012**, uploaded to the Stellar website. You will have a little more than four days. Late quizzes will not be accepted unless you obtain a Dean's support or make prior arrangements with the instructors.

Guide to this quiz: For problems that ask you to design an efficient algorithm for a certain problem, your goal is to find the **most efficient algorithm possible**. Generally, the faster your algorithm, the more points you receive. In particular, a randomized algorithm that is more efficient than its deterministic counterpart is preferable. For two asymptotically equal bounds, worst-case bounds are better than expected or amortized bounds. The best possible solution will receive full points if well written, but ample partial credit will be given for other correct solutions, especially if they are well written. Bonus points may be awarded for exceptionally efficient or elegant solutions. If you can't solve a problem as stated, try to think of a simplification of it that you can solve. Substantial partial credit will be given for a well stated, meaningful simplification.

Plan your time wisely. Do not overwork, and be sure to get enough sleep. Your very first step would be to write up the most obvious algorithm for every problem, even if it is exponential time, and then work on improving your solutions, writing up each improved algorithm as you obtain it. In this way, at all times you have a complete quiz that you could hand in.

Do not delay your preparation until you receive the quiz. You should study ahead of the exam. It is important to understand all the design and analysis paradigms covered in the class. The quiz may require you to apply one or more design paradigms in a non-trivial fashion.

Policy on academic honesty during quiz: The rules for this take-home quiz are like those for an in-class quiz, except that you may take the quiz home with you. As during an in-class quiz, you may not communicate with any person except members of the 6.046 staff about any aspect of the quiz, even if you have already handed in your quiz solutions. In addition, you may not discuss any aspect of the quiz with anyone except the course staff **until you get them back graded**.

This take-home quiz is "limited open book." You may use your course notes, the CLRS textbook, and any of the materials posted on the course web page, but *no other sources whatsoever may be consulted*. For example, you may not use notes or solutions to problem sets, exams, etc. from other times that this course or other related courses has been taught. **You may not use any materials on the World-Wide Web, including OCW**. You probably won't find information in these other sources that will help directly with these problems, but you may not use them regardless. Also, you may not post any questions or comments on the Piazza site.

If at any time you feel that you may have violated this policy, it is imperative that you contact the course staff immediately.

Write-ups: Your write-up for a problem should start with a topic paragraph that provides an executive summary of your solution. This executive summary should describe the problem you are solving, the techniques you use to solve it, any important assumptions you make, and the asymptotic bounds on the running time your algorithm achieves, including whether they are worst-case, expected, or amortized.

Write your solutions cleanly and concisely to maximize the chance that we understand them. When describing an algorithm, give an English description of the main idea of the algorithm. Adopt suitable notation. Use pseudocode if necessary to clarify your solution. Give examples, draw figures, and state invariants. A long-winded description of an algorithm's execution should not replace a succinct description of the algorithm itself.

Provide short and convincing arguments for the correctness of your solutions. Do not regurgitate material presented in class. Cite algorithms and theorems from CLRS, lecture, and recitation to simplify your solutions. Do not waste effort proving facts that can simply be cited.

Be explicit about running time and algorithms. For example, don't just say that you sort n numbers; state that you are using MERGE-SORT, which sorts the n numbers in $O(n \lg n)$ time in the worst case. If the problem contains multiple variables, analyze your algorithm in terms of all the variables, to the extent possible.

Part of the goal of this quiz is to test your engineering common sense. If you find that a question is unclear or ambiguous, make reasonable assumptions in order to solve the problem, and state clearly in your write-up what assumptions you have made. Be careful what you assume, however, because you will receive little credit if you make a strong assumption that renders a problem trivial.

Good Luck!

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