I have a doubt in hash tables. The lecture slides deal with topics on open addressing, probing methods and perfect hashing, which were not discussed in the class. Is that a part of the syllabus?

Answer: No.

Thanks

-Vinay

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Regarding the midterm:

1-The outline doesn't mention chapter 18 although we did cover it in class. Are we responsible for all of chapter 18?

Answer: you are responsible for all serial algorithms in the 2-3 tree chapter of my class notes.

2-For chapter 13 Red Black Trees, is deletion section 13.4 also required?

Answer: Yes

3-Chapter 16 Gready Algorithms, is the last chapter required for the midterm, correct?

Answer: You are only responsible for Chapter 16.1-3, but not 16.4-5

4-Are we allowed to use a calculator?

Answer: No.

Thank you very much and sorry for the trouble.

Regards,

Seyed Abdulaziz Esmaeili

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I was wondering if it might be possible for you to go over two past exams, with answers and explanation for how one would approach and get to the solutions.  In particular, the algorithm/problem presented in question 2 of the 2013 exam is very hard for me to follow.

Answer: the relevant material is yet to be taught.

I’m also not sure show to approach coming up with an algorithm for question

3.  I had a bit of an idea, but I get lost in trying to finalize it in order to find the complexity.

Answer: review answer in class.

I was also wondering if you might be able to provide a solutions manual for the two older exams, as I seem to be getting a little stuck, and I have some answers that I want to compare to the solutions so I can figure out what I did wrong.

One big thing that I seem to be struggling a little bit with is time complexity for algorithms, so it would be great if you could go over that a bit.  It seems to be the main theme of the exams.

Answer: sorry. This review can only address specific questions.

Thanks,

Paul Watrobski

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My questions about midterm of ENEE641 and the part that I hope to be reviewed:

1. Is the midterm based on the materials/slides discussed in class or based on the schedule on the class website?  I notice that some parts of chapter are excluded on the

schedule but they are discussed in the slides.

Answer: Generally, go by the schedule.

Is Res-black tree and 2-3 tree included in the midterm?

Answer: yes.

2. Could you please review the Dynamic Programming, Huffman codes part and the methods for solving recurrences?

Answer: will review

There are some problems on the previous midterm you gave to us to solve the recurrence. However, that is not applied to the master theorem. How should we choose the methods to solve?

Answer: I am not aware of a comprehensive way that will ensure solving all recurrences. The more you know about functions and their rate of growth the better you will be.

Example. Log 2 n = n

3. Is Graph going to be included? I found them on the previous midterm, but I think we haven't talked about it in class?

Answer: no. we have not reached them

Thank you!

Bowen

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    There are some points that I would like to be discussed in the class tomorrow (Monday, 19th Oct), which I feel will also be of help to other students.

1) We had an assignment problem 11.2-4 (page 261 in 3rd edition) where we were asked how we can allocate and deallocate storage for elements within a hash table using .... free list. I would be glad if we discuss this tomorrow.

Answer: see the solution set.

2) In Radix sort, lemma 8.4 gives us the running for the two different ranges of b, less than log n and >= log n. Can we discuss the intuition behind this conclusion ?

Answer: if the number of bits is <= log n, the range is n.

If it is higher, radix sort would require a proper number of rounds

3) Lastly,Can we discuss section 9.3 Selection in Worst Case linear time, where we divided elements in groups of 5.....

Answer: what exactly?

Thank you

Ankit Mondal

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I would like to better understand the section on  "Deleting a node in a Red Black Tree" and the steps to fix the Red Black Tree after a node is deleted. If this topic is relevant for the midterm, kindly review it in Monday's class.

Answer: not directly relevant for the midterm. However, you are expected to know this.

Thanks,

Dishank

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Here are some of the questions I had, ordered by my curiosity in them:

1. Two-Person Traversal of a Sequence of Cities: You are given an ordered sequence of n cities, and the distances between every pair of cities. Design an algorithm to partition the cities into two subsequences (not necessarily contiguous) such that person A visits all cities in the first subsequence (in order), person B visits all cities in the second subsequence (in order), and the sum of the total distances travelled by A and B is minimized  Assume that person A and person B start initially at the first city in their respective subsequences.

This is a question from a [class handout at MIT](http://courses.csail.mit.edu/6.006/fall10/handouts/dpproblems-sol.pdf), although they give a terse solution it is not easy to understand.

Answer: Does not look right.

For i=0, person B visit all cities. Fine.

For i >= 1, person A should minimize the total distance traveled by both A and B, by making city i his last visited city. The computation accounts for minimizing the prior city that A visits, but what is missing is that where the visit of city i is subtracted from B.

2. How would you find the rank of an element in a 2-3 tree?

Answer: Maintain the number of children. Then: simple.

3. For 2-3 trees, you mentioned that “A qualitative difference will arise in going from 2 to 3 children, this is the first time we are seeing more than 2 children. But this qualitative difference doesn’t exist going from 3 to 4 children, or so on.” What is this qualitative difference? The obvious special qualities of 2-3 trees that stick out include their variable degree noes, which gives rise to the combinatorial problems of insert+delete, and that the data is stored in the leaves. But what is special about going from 2 to 3 children?

Answer: that the tree can be balanced, regardless of the number of children.

Thank you,

Ilya Kavalerov