

Computer Science 223

Fall 2013

Homework 5 / Quiz 3 – Combined (200 points)

Due 12-04-2013 at the start of class

Write a paper discussing a topic from the class.

Background

Research one of the below topics:

1. B-Trees
2. K-d Trees
3. Red-Black Trees
4. Suffix Arrays / PATRICIA Trees
5. Priority Queues
6. Heap Sort
7. Quick Sort
8. Merge Sort
9. Short URL

Your source can be a journal article (research or technology note) or an article online in a tech-trade magazine. Blogs are not allowed unless they are comparing and contrast (If you have trouble accessing any articles see the Consolidated Information Center or contact me if they cannot help). Your work may not directly use the textbook implementation we discussed (e.g. Google's Big Table). But you must identify what is different about the approach.

Discuss how the topic was applied to solve a particular problem. Your text should identify who was involved, what they did, when they did it, where it is being used, and why they used it.

The Assignment Deliverable

1. Format
 - a. Write a 2 page double spaced report.
 - b. 12 point font (Times New Roman).
 - c. 1" Margins and only your name for a header. Adding additional text will result in 20 points off (e.g. 10% of the total grade)
2. Paper Structure
 - a. Introduction (1 paragraph)
 - b. Background to Problem they solved
 - c. Methods of Solving (what data structures did they use)
 - d. Discussion (1 paragraph)
3. Submit a copy through ANGEL (<http://lms.wsu.edu>)
4. Bring a hardcopy to class.

Possibly References

Some possible places to start your search

1. Google's Big Table
 - a. <http://static.googleusercontent.com/media/research.google.com/en/us/archive/bigtable-osdi06.pdf>
2. k-d trees for ray-tracing
 - a. [http://en.wikipedia.org/wiki/Ray_tracing_\(graphics\)](http://en.wikipedia.org/wiki/Ray_tracing_(graphics))
3. k-d trees for proteomics
 - a. <http://www.pnas.org/content/early/2009/08/25/0904100106.full.pdf>
4. MD5 Hash
 - a. <http://en.wikipedia.org/wiki/MD5>
5. Suffix Arrays / TRIES
 - a. <http://en.wikipedia.org/wiki/Trie>

Also have a look at Slashdot for ideas. Google Scholar has great references. Or have a look at CiteSeerX from Princeton.