Reference Material - Data Structures Course Projects

(1) Nadeem Moidu

Parallel Merge

Will be updated soon.

String Matching - KMP, BM

Will be updated soon.

External Mergesort

Will be updated soon.

Randomized Quicksort

Will be updated soon.

(2) Aditya Deshpande

Cuckoo Hashing
(i) http://www.itu.dk/people/pagh/papers/cuckoo-jour.pdf - Definitely read the Introduction (Section 1), Cuckoo Hashing (Section 2), need not focus on section 3 which talks about other related work.

Bloom Filters
(i) www.cs.uchicago.edu/~matei/PAPERS/bf.doc
(ii) http://billmill.org/bloomfilter-tutorial/ - talks about which hashing functions to use, how big the array size should be etc.

Locality Sensitive Hashing
(i) http://www.win-vector.com/dfiles/LocalitySensitiveHashing.pdf - Section 3 talks about what can be a possible LS-Hash function.

Library Sort
(i) http://arxiv.org/pdf/cs/0407003v1.pdf

Sample Sort
(i)
http://www.eli.sdsu.edu/courses/spring96/cs662/notes/sampleSort/sampleSort.html - only read the sample sort section, you need not assume "P" processors, you can just say that you have "P" different arrays created by the "P" splitters.

Odd-Even Sort
(i) http://en.wikipedia.org/wiki/Odd%E2%80%93even_sort - a very simple algorithm, you can just read the wiki page!

Bitonic Sort
(i) http://www.tools-of-computing.com/tc/CS/Sorts/bitonic_sort.htm - talks about bitonic sequence, how to create bitonic sequences from arbitrary sequences and then perform bitonic sort.

Multi-way Merge Sort
(i) http://www.scribd.com/doc/78035619/Multi-Way-Merge-Sort - pay attention to the merge step.

(3) Sanjay Moulik

The following links are just for references and introduction. Prepare the term paper and do the coding by understanding the topics in detail.

BST

- Introduction to Algorithms – Cormen :: Chapter 12

B-Trees

- Introduction to Algorithms – Cormen :: Chapter 18

http://cis.stvincent.edu/carlsond/swdesign/btree/btree.html

B+ Trees

- http://www.mec.ac.in/resources/notes/notes/ds/bplus.htm

Skip Lists

- http://courses.csail.mit.edu/6.046/spring04/handouts/skiplists.pdf
- http://www.inf.fu-berlin.de/inst/ag-bio-expired/FILES/ROOT/Teaching/Lectures/WS0506//AspekteBioinf/dataStructures_skiplists_amortizedAnalysis.pdf

Segment/Interval Trees

- http://wwwisg.cs.uni-magdeburg.de/ag/lehre/SS2009/GDS/slides/S11.pdf
- http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-046j-introduction-to-algorithms-sma-5503-fall-2005/video-lectures/lecture-11-augmenting-data-structures-dynamic-order-statistics

-interval-trees/lec11.pdf

Red-Black Trees

- Introduction to Algorithms – Cormen :: Chapter 13
- http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-046j-introduction-to-algorithms-sma-5503-fall-2005/video-lectures/lecture-10-red-black-trees-rotations-insertions-deletions/lec10.pdf
- http://www.cs.nthu.edu.tw/~wkhon/algo08-tutorials/tutorial-redblack.pdf

(4) Dr. Kishore

Parallel Graph Algorithms - APSP, HC, SV :

For HC, APSP, and SV, read from the book titled Introductin to Parallel Algorithms, by J. JaJa. A copy of this book is avaiable in the library as a reference book.

Vitterbi Algorithm

Read from the relevant Chapter from the Book on Introduction to Algorithms by Cormen et al. THe chapter is on Shortest paths and there is a section on Shortest Paths in Directed Acyclic Graphs.

Integer Data- Structures (VEB)

Read from this URL http://www.daimi.au.dk/~gudmund/dynamicF04/vEB.pdf

Spanning Tree by Deletion of Edges

http://courses.cs.vt.edu/~cs5114/spring2009/lectures/lecture05-greedy-graph-algorithms.pdf -- a few slides in the middle talk about this algorithm.

http://www.iitg.ac.in/rinkulu/algo/slides/mst-algo.pdf -- another resource

External Merge Sort

Read from any book on Data Structures or Algorithms.