Final Exam: Notes

The final exam will be Wednesday August 14, 6:00-8:20, WWH 101. It will be closed book and closed notes. No electronic devices permitted.

Topics:

• Order of magnitude comparison
• Worst case asymptotic running time analysis.
• Sorting algorithms: Insertion sort, selection sort, heapsort, mergesort, quicksort, bin sort, bucket sort.
• Lower bound on comparison sort.
• Set implementations: hash tables (chaining), heaps, 2-3 trees.
• Graph implementations
• Depth-first search, topological sort.
• Shortest path algorithms: Dijkstra’s and Floyd-Warshall
• Minimum spanning tree algorithms: Prim’s and Kruskal’s
• Union-find. Union-find trees with rank-based merging and path-compression.
• Dynamic programming.

Not on the exam: The derivation of the average case running time for Quicksort. The technique for probabilistically hashing sets of large elements (Bloom filters). NP-completeness and any new material presented in the lectures of July 31 and August 7.