Algorithms 1

Princeton MOOC

March 11, 2017

1 Week 1

1.1 Introduction

Course topics

- Data types - stack, queue, bag, union-find, priority queue
- Sorting - quicksort, mergesort, heapsort, radix sorts
- Searching - BST, red-black BST, hash table
- Graphs - BFS, DFS, Prim, Kruskal, Dijkstra
- Strings - KMP, regexp, TST, Huffman, LZW
- Advanced - B-tree, suffix array, maxflow

Booksite is at `http://algs4.cs.princeton.edu/home/`.

Lectures overview:

1. Union-Find Data Type: introduction, implementations, example implementation.

2. Analysis of Algorithms: Measuring algorithm performance, modelling behaviour, analyzing memory usage.
3. Exercises
4. Assignment: Percolation in physical chemistry.
5. Interview questions
6. Readings: Sections 1.4 and 1.5 in *Algorithms, 4th ed.*