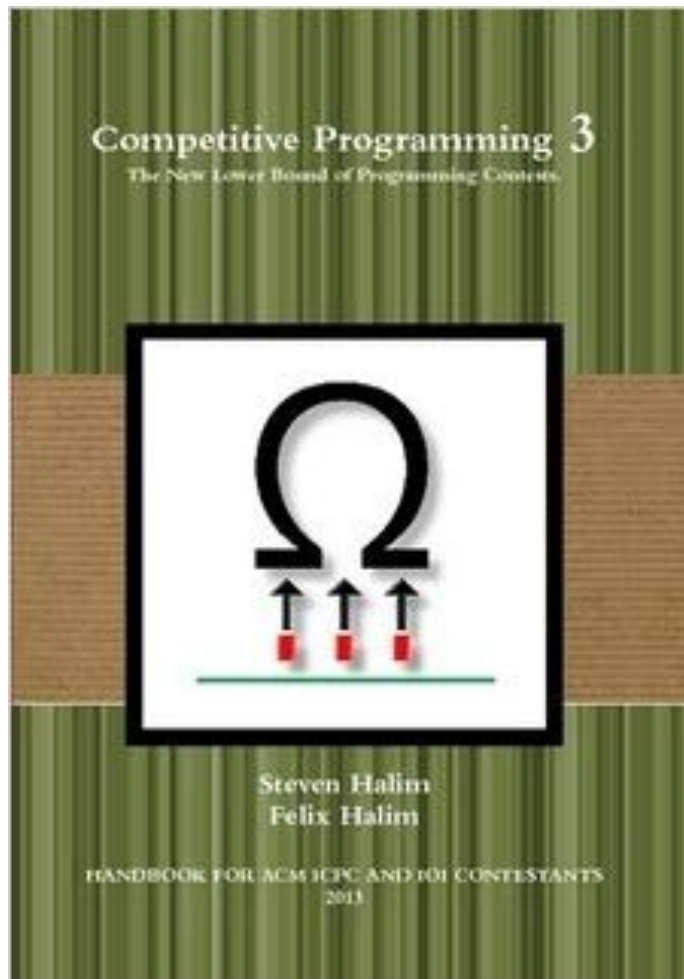


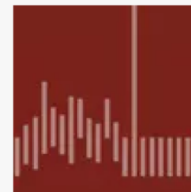
- Hashtables
- Binary Search
- Binary search trees / Red-Black trees
- Sorting
 - Merge sort, Quicksort
 - Radix sort
- Big O-notation. Time and Space complexity.
- Graphs
 - Undirected graphs
 - Directed graphs / Directed Acyclic Graphs (DAGs)
 - Depth-first search
 - Breadth-first search
 - Cycle detection
- Shortest Paths, etc., etc.

Examples

- You are given 1 billion 10-bit numbers. Find the *median*.
 - What is the memory and time complexity?
 - Make it better.
- Implement a Regex parser.
 - Regular expression: “a(ab)*c”
 - Matches, aabc, aababc, etc.



Courses & Specializations



Algorithms, Part I

Course · Princeton University



Algorithms, Part II

Course · Princeton University

Last week on CSC 665

1. Apply Random Forest to a Real Dataset

- Create features
- Measure accuracy: R^2

2. Understand Accuracy Measurement

- Train / test sets
- Calculation of R^2

3. Homework:

- Create a library csc665
 - Features
 - Metric

Today

- Quiz / 20 min/ 2 points
- Random Forest Review
 - Random forest as ensemble of trees
 - Overfitting
- Decision Trees
 - Apply to simple dataset
 - CART algorithm
 - Build a tree by hand
- Homework
 - **Implement a decision tree**
- Project
 - Select teams
 - Assign data science project