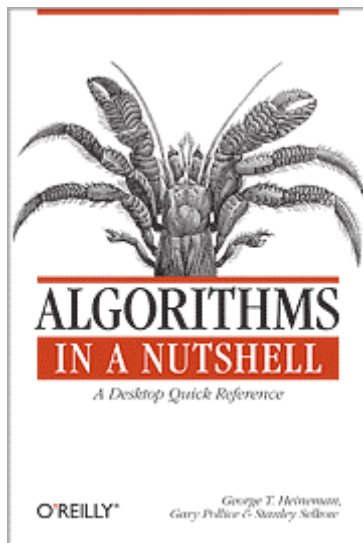


Algorithms in a Nutshell



Session 5

Tutorial Deliverables

11:40 – 12:00

Outline

- Overview of software supplied on digital media
 - Site-license of book in PDF form
- Overview of book
 - Copy in your hand (right?)
- Goal
 - Make sure you can run the basic code from ADK



Book

- **Sorting (7)**
 - INSERTION SORT, MEDIAN SORT, QUICKSORT, SELECTION SORT, HEAP SORT, COUNTING SORT, BUCKET SORT
- **Searching (4)**
 - SEQUENTIAL SEARCH, BINARY SEARCH, HASH-BASED SEARCH, BINARY TREE SEARCH
- **Graph Algorithms (6)**
 - DEPTH-FIRST SEARCH, BREADTH-FIRST SEARCH, DIJKSTRA'S ALGORITHM, BELLMAN-FORD ALGORITHM, FLOYD-WARSHALL ALGORITHM, PRIM'S ALGORITHM
- **Path Finding in AI (6)**
 - MINIMAX, NEGMAX, ALPHABETA
 - DEPTH-FIRST SEARCH, BREADTH-FIRST SEARCH, A*SEARCH
- **Network Flow Algorithms (2)**
 - FORD-FULKERSON, EDMONDS-KARP
- **Computational Geometry (4)**
 - CONVEX HULL SCAN, LINE SWEEP, NEAREST NEIGHBOR QUERY, RANGE QUERY

Guide to the ADK

- JavaCode
 - All Java algorithms
- Code
 - C/C++ algorithms
- Examples
 - Example applications showing algorithms in use
- Tests
 - JUnit test cases
- codeIndex.txt
 - Separate index for every C function or C++/Java class mentioned in the book
- Figures
 - Most figures in the book are generated using the instructions found here
- PerformanceTests
 - Various benchmarking JUnit test cases for timing purposes

Code subproject in ADK

- Code C/C++ project
 - Scripts for automatic execution of various scenarios
 - Generates lots of executables
- Code for today's seminar
 - Stripped down minimal set

Run some examples

- **Examples**

- `algs.example.gui.problems.tictactoe`
- `algs.example.gui.problems.nearestNeighbor.Launcher`
- `algs.example.gui.problems.segmentIntersection.Launcher`
- `algs.example.gui.problems.rangeQuery.Launcher`

- **Figures**

- Figure 7-11

- **Testing**

- Foreshadows later session on Software Engineering
- 93.6% coverage (as judged by EclEmma plugin)