L00 Introduction

G54AAD Advanced Algorithms and Data Structures

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October 2nd, 2015

Education Aims

Obtain knowledge and practical skills in the

design

analysis, and

implementation

of advanced

algorithms, and

data structures.

Outline of Topics

Review

- asymptotic notation
- recurrence relations

String Problems

- string matching
- longest common subsequence

Graph Problems

- network flow
- minimum cuts

Data Structures

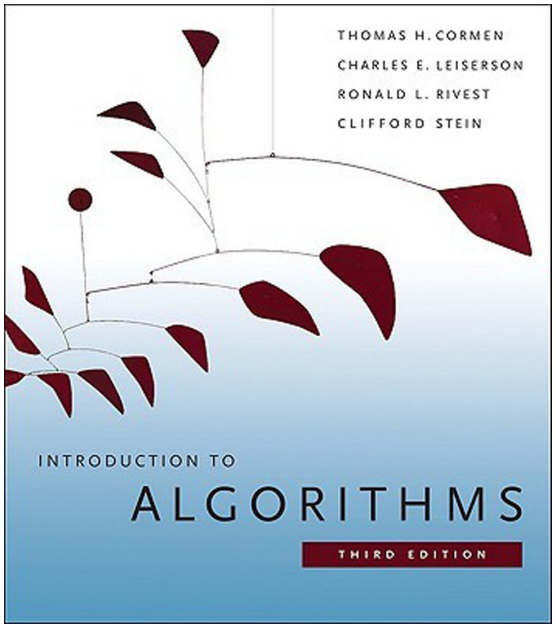
- leftist heaps
- binomial heaps
- red black trees
- Bloom filters (if time)

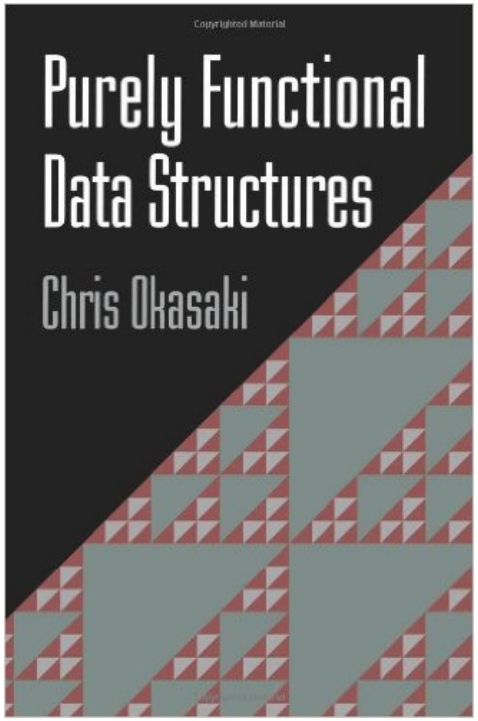
Labs and Coursework

- music recommendation
- in-depth study of a chosen data-structure

(Being a relatively new module, the outline of the module may be adapted to our progress.)

Recommended texts

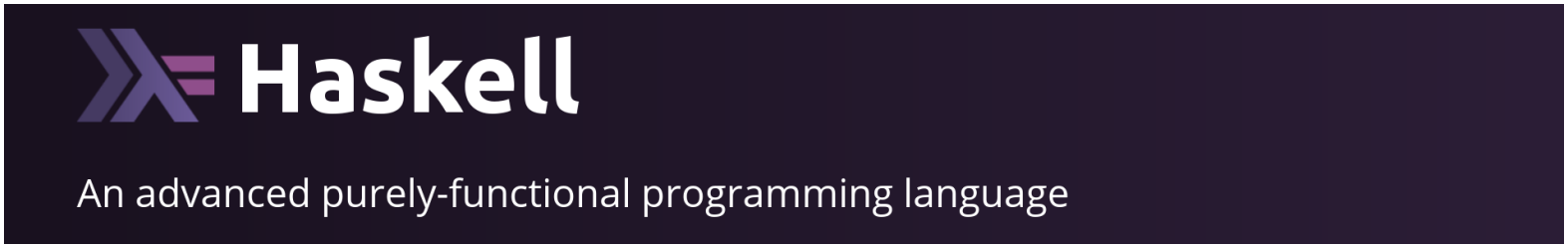




[IA] Corman, Leiserson, Rivest. *Introduction to Algorithms* MIT Press, 3rd ed, 2009

[PFDS] Okasaki. *Purely functional data structures* Cambridge University Press, 1999

Teaching Language



We will use a (small) subset of the Haskell language

- Lab 2 covers basics, no previous knowledge required
- Additional free learning material on Moodle
- If you have a laptop, please bring it to Lab 1 with installed
  - Haskell compiler (e.g. Haskell platform), and
  - Emacs text editor with haskell-mode
    (see Moodle for instructions)

Moodle

`http://moodle.nottingham.ac.uk`

- Lecture notes, handouts, source files, etc.
- Screencasts and videos
- Coursework and exercises
- Discussion forum
- News

Contact Hours

Lectures

- Fri 11-13, Amenities Building, B11

Computing

- Thu 11-13, Computer Science, C11

Office Hours

- Fri 13:30-14:30, Computer Science, C84 (my office)

Assessment

Assessment type	Weight	Requirements
Exam 1	75	2 hr written examination
Coursework 1	25	1 coursework

Student representatives

- 3-4 people selected by students
- 2-3 meetings with module convenor and assistant
- two-way interaction between staff and students

$\Longrightarrow$ Please choose representatives within next week!