TDDD16 Compilers & Interpreters
TDDB44 Compiler Construction

2008

Organizational Issues

Peter Fritzson, IDA

Staff 2008

- Peter Fritzson, Examiner, Course leader

- Kristian Stavåker, Course assistant TDDD16 and TDDB44, and Lab assistant TDDB44
- Sergio Raffilio, Lab/tutorial assistant TDDB44
- Erik Hansson, Lab/tutorial assistant TDDD16

- Gunilla Mellheden, Course secretary
- Vivian Vimarlund/ Peter Dalenius, Studierektor

Lecture Plan

- F1: Introduction   Peter Fritzson (PF)
- F2+3: [opt. f. TDDB44] Short introduction to formal languages and automata   (PF)
- F4: Lexical analysis; Symbol tables   (CK)
- F5: Parsing; Top-Down Parsing   (PF)
- F6: Top-Down Parsing cont., Bottom-Up Parsing (intro)   (PF)
- F7: Bottom-Up Parsing   (PF)

Lecture plan (cont.)
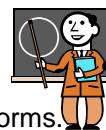
- F8: Semantic analysis and internal forms. Syntax-driven translation.   (PF)
- F9: Memory Management; Run-time organization   (PF)
- F10: Code optimisation   (PF)
- F11: Code generation, general   (PF)
- F12: [opt. f. TDDD16] Code generation for RISC and superscalar processors   (PF)
- F13: Error management. Interpreters   (PF)
- F14: Bootstrapping. Compiler Generators (PF)

Lessons

5 for TDDD16, by Erik Hansson
4 for TDDB44, by Sergio Raffilio

- Exercises on background theory (TDDD16)
- Preparation for the lab assignments
- Exam preparation session

Labs

- Separate for TDDD16 (1.5p) and TDDB44 (2p)
  - TDDD16: 2 lab groups
    - Erik Hansson (2)
  - TDDB44: 4 lab groups
    - Kristian Stavåker (2), Sergio Raffilio (2)
- Teams of size 2

- Register via webreg https://www.ida.liu.se/webreg/ (Also linked from the course homepages)
  - Deadline for registration: Next friday (31 / Oct / 2008)

- Lab deadline: 15/Dec/2008

Literature

Mandatory:
- Aho, Lam, Sethi, Ullman: *Compilers Principles, Techniques, and Tools, Second Edition.* Addison-Wesley, 2006. (Also as paperback, 2007)
- Or the old, first edition (still ok) Aho, Sethi, Ullman: ..., 1986.
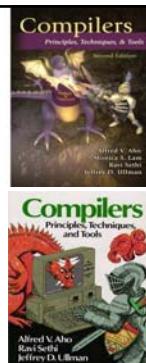
Mandatory for TDDB44:
- *Compiler Construction Lab Assignments*, Kompendium, 2005, Bokakademin

Optional:
- P. Fritzson: *TDDB44 Compiler Construction Lecture Notes*, 2005, and other lecture notes, are on the course home page.
- *Compiler Construction Exercises*, Kompendium

For more information ...

See the course homepages,
- www.ida.liu.se/~TDDD16
- www.ida.liu.se/~TDDB44

- Schedule
- Reading directions
- References to additional literature
- Lab instructions for TDDD16
  - (but the lab skeletons are in /home/TDDD16)

What comes after this course?

- New follow-up course, HT 2009: **TDDC86 Compiler optimizations and code generation, 4p** (C. Kessler)

- Join our compiler research team at PELAB and do a **master thesis project** in compiler technology!
  - Compiling for OO modeling languages (P. Fritzson)
  - Natural semantics based compiler generation (P. Fritzson)
  - Compiler bootstrapping, Java code gen, international open source www.openmodelica.org (P. Fritzson)
  - OO modeling language compilation on parallel machines (P. Fritzson)
  - Compilation & parallel programming on industry clusters (P. Fritzson)
  - Compiling for parallel / embedded systems (C. Kessler)
  - Code generation for embedded systems (C. Kessler)
  - Debugger technology (P. Fritzson)
  - … and more!

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compiler technology