CSC333/633 Spring 2007

Compilers

Professor: Torgersen

Office Phone: 758-5536

Office Hours: Monday and Wednesday 3:00 to 4:00 and by appointment.

Text: Aho, Sethi, and Ullman, Compilers: Principles, Techniques, and Tools

Goals:

1. A basic understanding of compiler construction
   (a) Theory
      i. Finite Automata
      ii. Grammars
      iii. Attribute Grammars
   (b) Techniques and topics
      i. Lexical Analysis.
      ii. Symbol tables.
      iii. Parsing, and parse trees
         A. parsing algorithms, top-down vs. bottom-up parsing
         B. operator precedence parsing, recursive descent
         C. LR parsing, automatic construction of LR parsing tables
      iv. Syntax trees
      v. Intermediate code
      vi. Introduction to code optimization (if time)
   (c) Compilers in the "real world"
      i. Compiler development for a new architecture
         A. "bootstrapping"
         B. cross compilers
      ii. Compiler development tools
         A. Scanner generators (e.g., lex)
         B. Parser generators. (e.g., yacc, bison)
2. Develop your programming abilities and organizational skills

Expectations:

1. Class participation.
2. Communicate when things get confusing.
3. Graduate students are required to implement additional language features in their compiler project.

Grading: 3 exams (60%), 1 programming project, collected/reviewed in stages (40%). The compiler project **must** be submitted ready to compile and run on the SUN/Sparc platform.