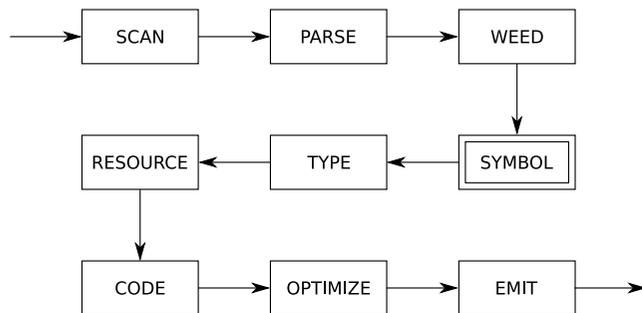


Course Summary

COMP 520: Compiler Design (4 credits)

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Why did we learn about Compilers?

How does learning about compilers change your view of Programming Language Design?

If you were to select a compiler/language toolkit for another compiler project, what would you choose?

Structure of Final Exam

- 7 questions - each with multiple parts
- total of 85 points
- many questions/compiler phases based on a smallish language that is defined in Q1
- about 25% of the points are about your projects, with emphasis on 2nd half of project
- topics covered in last half of course are included

Tips

- Review Vincent's midterm review.
- Review the midterm, if you got something wrong, go back to the notes and figure out the right answer.
- Organize your answers - make it easy for the grader to find your answers.
- Write neatly.
- Start each question on a new page.
- Don't squish in your answers to make a lot fit on one page.
- Be precise.

All the midterm Material

- All the topics from the midterm will also be possible on the final.
- Review, scanners, parsers, weeders, type checking and symbol tables.

Garbage Collection/Memory Allocation

- Problems with `malloc/free`.
- Kinds of Allocators?
 - mark and sweep
 - stop and copy
 - reference counting
- Basics of how each one works.
- Advantages/Disadvantages of each.

Code Generation

- Generating bytecode if you couldn't do the question on the midterm perfectly, practice.
- Understand the structure of Java bytecode and the way in which verification of bytecode works.
- Understand peephole optimization.
- Understand VirtualRISC code.
- Same handouts as for midterm will be attached at the back of your exam paper.

Register Allocation

- Fixed register allocation scheme (for generating VirtualRISC from bytecode).
- Advantages/Disadvantages?
- Basic Block Register Allocation (invariant?)
- Advantages/Disadvantages?

Static Analysis

- simple example, definite assignment problem, understand in some detail.
- live variable analysis, understand the overall problem and approach, don't need to know the details (until COMP 621).

Thanks ...

- To Vincent and Faiz, they worked hard as TAs.
- To the class - you worked hard all term.
- Also, I hope to see some of you in COMP 621 next fall. Or, if you are interested in either compiler or radiation oncology app COMP 396/401/400 projects, let me know.