Compilers

Jyothi Vedurada

Why Compilers?

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- Compilers are important core infrastructures for building other software.
- Compilers are everywhere!
- Machine code generation for high level languages
- Parsers for HTML in web browser
- Software testing
- Program optimization
- Malicious code detection
- Design of new computer architectures
  - Compiler-in-the-loop hardware development

Why Compilers Now?

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- In recent years, with the rise of AI and other emerging applications, more domain specific architectures such as GPUs, TPUs or FPGAs are more prevalent.

- As the complexity and diversity of applications and underlying architectures are increasing, it becomes more and more difficult to generate efficient code.

- Compilers play an increasingly important role in making programs run efficiently on the given customized platform.

Course Structure

- Surprize Quizzes: 20% (~~four~~ best 4/(5 to 6) exams: 5% each)
- End-Sem Exam: 25%
- Assignments: 10% (2 assign.: 5% each)
- Project: 30%
- Lab exam: 10%
- Class Participation: 5%

Project

- Each team has four members
- Each team will come up with a domain-specific languages
- Each team is required to write an optimizing compiler for a certain language from scratch. *Isn't it exciting?*

Other Info

- Doubt clearing/any discussion:
  - Every day: 2:30 pm. Office: C-213/B.

- Text book:
  - We will be following **Compilers Principles, Techniques, and Tools** textbook for the course.

- Google classroom code:
  - rlrgd43