Lecture 1

Introduction

In the beginning...

CS 241: Foundations of Sequential Programs
Winter 2018

Troy Vasiga et al
University of Waterloo

About the course

- `www.student.cs.uwaterloo.ca/~cs241`
  - read the Syllabus (policies, due dates, outline, etc.)
  - read the Announcements
  - read everything else on the main webpage
- Assignments
  - START EARLY!
  - Don't fall behind!!!
  - 11 assignments in total, each with about 9 subparts: about 100 things to submit
  - due Mondays at 9pm before the midterm; Wednesdays at 9pm after the midterm
  - you can get partial credit for late assignments: read the syllabus
- Notes: these "skeleton" slides are available on the course website
- Question: Will annotated versions of these slides be posted by the instructor?
- Answer:

Marmoset

- Public tests (aka "sanity tests")
- Release tests
  - Release tokens
    - 3 for each "part" of each assignment
    - once one is used, it regenerates after 12 hours

Linux

Your program must run correctly on the `linux.student.cs` environment.

Marking

- Assignments: 25%
- Midterm: 25% written on Wednesday, February 28th, 4:30-6:20pm
- Final Exam: 50% written sometime in April
- Note: you must pass the weighted exam average to pass the course

Personnel

- Instructors:
  - Troy Vasiga (troy.vasiga@uwaterloo.ca)
  - Gregor Richards (gregor.richards@uwaterloo.ca)
  - Gord Cormack (gvcormack@uwaterloo.ca)
- ISAs:
  - Wendy Bai (cs241@uwaterloo.ca)
  - Sean Harrap (sharrap@uwaterloo.ca)
  - Edward Tan (yh2tan@uwaterloo.ca)
- Instructional Support Coordinator: Gang Lu (glu@uwaterloo.ca)
- IAs/TAs: run tutorials

Non-human Resources

- Textbooks: optional texts available in DC library

- Discussion Forum: Piazza
  - be nice
  - no spam
  - no “me too”
  - no “thanks”
  - read first, search second, post last

Purpose of the course

- To learn (to learn).
- Meta-thinking.
- Write a program that reads a program and outputs a program.
- Most fundamentally, this course is about *abstraction*.

What's in a name?

Foundations of Sequential Programs

- What really happens when I compile and run a program?
- By the end of the course, there should be very little mystery left about computers or computer programs.

What is a computer? How do they exist?

CPU+RAM

Binary data

Machine language

Assembly language

Assembler

Back to Basics: Bits

Sequence of bits

Integers

2s complement operation and 2s complement representation

What is 1010?

Characters

Hexadecimal