CSE 374: Programming Concepts and Tools

Eric Mullen
Spring 2017
Lecture 27: Review, Goodbye, and Thank You!
Administrivia

• HW7 should be turned in (unless using late days)
• There is no HW8 :)
• Review Session at 4:30pm on 6/6 in CSE 403
• Final Exam at 2:30pm on 6/7 in THIS ROOM
• Course Evals close June 4, please fill out!
Today

• Today we’re going to go back over the general topics for the course, and wrapping up

• Today is a great chance to ask questions!
Review

- Coarse overview of the course
- Stop me with questions at any point
  - Or if you don’t we’ll get out early
Week 1

• Hello and Welcome!
  • What is Unix, How to set up, etc…

• Programs vs. Processes
  • Globbing, Text Editors, etc…

• I/O Redirection
  • stdin, stdout, stderr, pipes, >, <, >>, ||, &&
Week 2

• More Shell Scripts
  • Variables, Export, If, Arithmetic, For loops, quotes

• Even More Shell Scripts
  • Review Quoting, Tabs are Evil

• Grep
  • What is it good for? Finding patterns in files!
Week 3

- More Regular Expressions (and Sed)
  - How to write regular expressions, using sed
- Intro to C!
  - Basics, Pointers, Be Wary of C Monsters!
- Control, Expressions, Decl v Defn, NULL, Arrays
  - Macros, constants, printf also
Week 4

- Locals, scope, lvalues vs rvalues
  - How long do variables live?
- C Strings, aliasing
  - strings in C are just char arrays with \0 at the end
- GDB
  - What is a debugger, how do I use?
Week 5

- Dynamic Memory Allocation
  - malloc/free

- Data Structures in C
  - structs, parameters, typedef, casts

- Midterm
Week 6

• More Structs, Preprocessor, Multifile programs
  • compiling before linking, macros with arguments
• make, build dependencies
  • also “what is a trie?”
• Version Control with git
  • all you need to know about git
Week 7

• No Lecture on Monday

• Pointers, casts, etc…
  • Review of declaring/defining structs, malloc

• Testing and Specifications
  • Why programming is hard, reason #4857
Week 8

- Intro to C++
  - Classes, namespaces, streams, destructors, call by reference
- C++ continued/HW6
  - getmem and freemem
- Subclasses/Inheritance
  - What code gets executed?
Week 9

• Inheritance and Vtables
  • How do we build virtual method calls?

• Concurrency
  • What if more than one thing happens at once?

• Undefined Behavior
  • The compiler might delete your program
Week 10

• Memorial Day
• Vtable Hijacking
  • Taking control of a program through objects
• Review
  • Today
What the final covers

• Mostly Start of Week 5 through Today

• It is technically cumulative, but the bulk is the last half of the course

• Philosophically: I care whether you can write programs that work
Course Evaluations

- Please fill them out **BY JUNE 4**!
- Your **honest feedback** helps me learn to teach better
- Things you say about me can and will be used (by me) in job applications next fall
- This is the first class I’ve taught, I’m sure I have much to learn
- Link is on course website, and here: [https://uw.iasystem.org/survey/178403](https://uw.iasystem.org/survey/178403)
Thank you

• Thank you TAs, we couldn’t do it without you
  • Soumya, Sujie, Daniel, and Bruce
• Most of all Thank You (the students)