# CSE 374: Programming Concepts and Tools

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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

# Thank you

- Thank you TAs, we couldn't do it without you

  - Soumya, Sujie, Daniel, and Bruce

- Most of all Thank You (the students)