

CMSC201

Computer Science I for Majors

Lecture 25 – Exam Review and Prep

Last Class We Covered

- Asymptotic Analysis
 - Big O
 - Big Ω (Omega)
 - Big Θ (Theta)
 - Simplification
- Run “time”
 - Think carefully about asymptotic analysis results

Any Questions from Last Time?

Today's Objectives

- To discuss important study tips
 - Both for 201, and for CMSC courses in general
- To discuss other CMSC courses
 - For CMSC and non-CMSC majors
- To give some hints about the exam

Study Tips and Techniques

Studying for CS is Different

- Memorizing everything is not possible
 - All the possible combinations of **range** (!?)
 - All the possible uses of **for/while** loops (!? !?)
- Instead, you must understand the concepts
 - So that any call to **range** () can be deciphered
 - So that any binary number can be converted
 - So that many different problems can be solved

Some Memorization

- Still need to memorize some things
 - Arguments for **range**
 - Syntax for **while** and **for** loops
 - What data types are mutable or immutable
 - How different search and sort algorithms work
 - “Basic” info (*should already know this!*)
 - Indexing starts at zero, not one
 - Strings use quotation marks

Practice, Practice, Practice

- Since memorization won't work, you need to do something else to understand concepts
 - You don't just want an "A" on the exam, since you will need to know this material later
- Practice coding different problems
 - Code on paper
 - "Mess around" with how things work in Python

Practice Exercises

- Redo old assignments and labs
 - Without looking at your old work first
- Redo livecoding exercises from the slides
- Create your own questions
 - Will help you predict what the test will be like
- Form study groups and trade questions, or work on the review sheet together

Classes

Not Everything is Programming

- CMSC 201, 202, and 341 are heavy on programming, to help you learn the concepts
 - Recursion should make more sense after Project 3
- Later courses aren't just more programming
 - You'll learn new ways of applying concepts
 - How things work “in the real world”

Cool and Useful Courses

- 433 – Scripting Languages
- 471 – Artificial Intelligence
- 443 – Cryptology
- 435 – Computer Graphics
- 461 – Databases
- 491 – Special Topics
 - Malware Analysis, Cyber Defense, Social Media Mining, Internet of Things, Data Visualization, etc.

Math/Physics Majors

- PLEASE get your friends to take this class early
- A minor in CMSC is only 23 credits, but it takes at least four semesters to complete
- So many students take the class as a senior, and don't have time to add the CMSC minor

Non-CS Majors

- **CMSC 201 Computer Science I for Non-CS Disciplines**
- Special section of CMSC 201 Computer Science I with an emphasis on programming projects applicable to the social and biological sciences
and other majors
 - Examples: statistical analysis, working with large data sets, data visualization
- No programming experience necessary, open to all non-CS, non-engineering majors
- Fulfills any major's requirement for CMSC 201

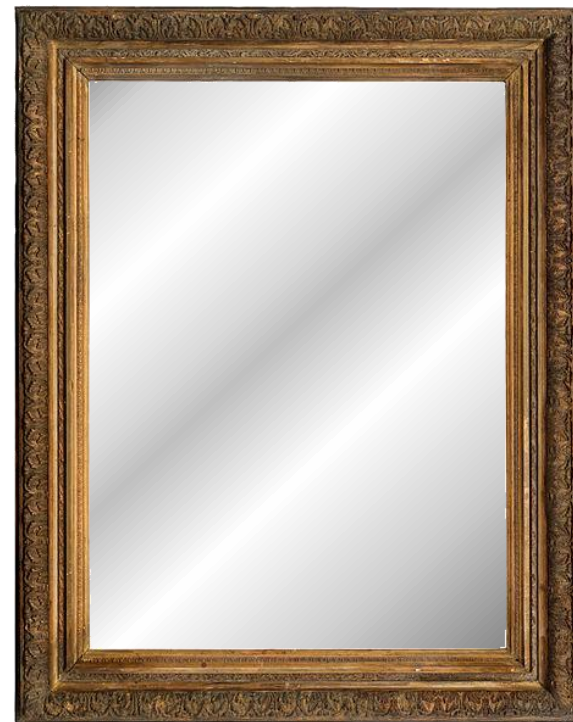
- Section 18 – requires permission from Dr. Mitchell
 - smitchel@umbc.edu

Review

What Do You Want to Go Over?

Daily CS History

- You in the near future!
 - Most of the people we've talked about aren't anything "special"
 - They just put in the hard work on something they cared about a lot
 - A lot of them weren't even in CS!
 - You can achieve great things in whatever your chosen field is
- 80% of accomplishing anything is showing up



Announcements

- Survey #3 due on Tuesday, December 12th
 - If completed, will receive an email with responses
- SEEQs are out now – link in your email/on BB
- Final exam is when?
 - Friday, December 15th from 6 to 8 PM

Final Exam Locations

- Find your room ahead of time!
- **ITE Building 102** - Sections 22, 28, 32
- **ITE Building 104** - Sections 2, 3, 4, 5, 6
- **Meyerhoff 030** - Sections 8, 9, 10, 11, 12, 14, 17, 18, 20
- **Performing Arts 132** - Sections 15, 16, 31
- **Sherman 003** - Sections 23, 26, 29, 30
- **Public Policy 105** - Sections 21, 24, 27

Image Sources

- Oil Painting Frame:
 - https://commons.wikimedia.org/wiki/File:Oil_paintimg_frame_Wellcome_L0067851.jpg