CMSC 132:
Object-Oriented Programming II

Final Exam & Summary
Department of Computer Science
University of Maryland, College Park

Final Exam Topics

- 50% topics from midterm 1 & 2
  - Algorithms, data structures, complexity
  - Software engineering, OO design
  - Multithreading & synchronization in Java
- 50% new topics
  - Networking & networking support in Java
  - Sorting algorithms
  - Algorithm strategies
  - Design patterns
  - Effective Java
  - Advanced trees

Question Formats

- True/ false
- Fill-in-the-blank
  - Short answers expected
- Multiple choice
- Analyze complexity
- Apply algorithms
- Design OO solution in UML
- Write code

CMSC 132 Summary

- We covered
  - Object-oriented software development
  - Algorithms & data structures
- Provided brief glimpse of CS applications
  - Human computer interfaces (GUIs)
  - Machine learning (Markov models)
  - High performance computing (Multithreading)
  - Networking, compression, databases
- Hope you improved
  - Programming skills (coding, testing, debugging)

What Comes Next?

- CMSC 212 – Low level programming
  - Treating references as memory addresses (in C)
- CMSC 250 – Discrete structures
  - Simple discrete math & proofs
- CMSC 311 – Computer Organization
  - How computers work
- CMSC 330 – Programming Languages
  - Different programming languages & paradigms
- CMSC 351 – Algorithms
  - Analyze & prove complexity of algorithms

Final Exam Location

- Time
  - Friday
  - Dec 14th
  - 4-6pm
- Place
  - Chemistry 1407
  - CHM (Bldg 091)
What Comes Next?

- Building computer systems
  - 411 architecture, 412 operating system, 414 security, 417 networking, 430 compilers
- Building software
  - 433 programming technologies, 434 human-computer interfaces, 435 software engineering
- Theory of computing
  - 420 data structures, 451 advanced algorithms, 452 computation theory, 456 cryptology
- Applications
  - 421 artificial intelligence, 423 bioinformatics, 424 databases, 426 image processing, 427 graphics

Computer Science

- Very interesting
  - Once you get beyond basic programming
  - Improvements in software tools make it increasingly easy to provide a lot of functionality with little code
- Useful in many fields
  - Engineering, physical sciences, biological sciences
  - Information management for businesses ($$)
- In high demand
  - Always in top 10 in # of open job positions
  - $52K average starting salary for 2007 grads
  - Skilled software professionals always in demand

A Reminder

- Fill in class evaluations
  - [https://www.courseevalum.umd.edu/portal](https://www.courseevalum.umd.edu/portal)
  - Deadline Dec 12
- Help us improve the course…

Finally…

Good luck on Exam

Have a nice Xmas!