

CSC 221: Computer Programming I

Fall 2005

course overview

- what did we set out to learn?
- what did you actually learn?
- where do you go from here?
- how do you prepare for the exam?

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what did we set out to learn?

recall the course goals from the syllabus:

- To develop problem solving and programming skills to enable the student to design solutions to non-trivial problems and implement those solutions in Java.
- To master the fundamental programming constructs of Java, including variables, expressions, classes, methods, control structures, and arrays.
- To build a foundation for more advanced programming techniques, including object-oriented design and the use of standard data structures (as taught in CSC 222).

student expectations included:

- learning more about computers
- programming skills

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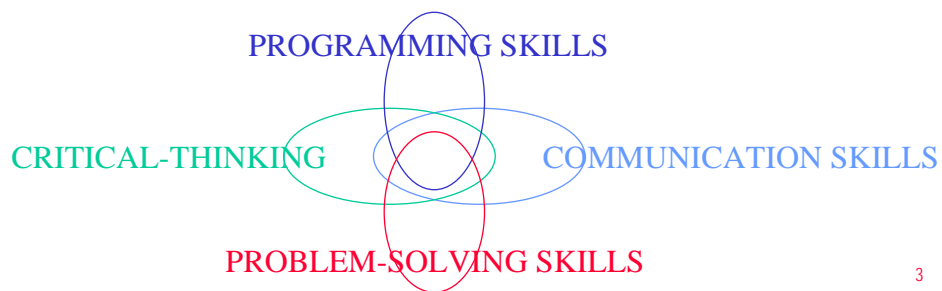
what did you actually learn?

problem-solving: the ability to take a problem, break it into manageable pieces, design and organize a step-by-step solution

programming: the ability to design and implement problem solutions in the form of programs that can be understood and executed by computers

critical-thinking: the ability to analyze and identify the important features of a problem, systematically test and evaluate solutions

communications: the ability to express ideas in a clear and precise manner, so that they could be understood by the computer (code) or another person (code & comments)



specific Java concepts & skills

language features

- classes & objects
- class definitions: fields, constructors, methods
- variables: fields vs. parameters, vs. local variables, primitive vs. object
- assignment statement: expressions, operators
- return statement
- if, if-else, cascading if-else
- while loop, for loop
- I/O: System.out.println, Scanner, File
- String, ArrayList

programming techniques

- classes model entities; methods implement behaviors; fields maintain state
- classes/methods should be cohesive; classes should be loosely coupled
- conditionals for alternatives (1-way if, 2-way if-else, multi-way cascading if)
- loops for repetition (conditional while loops, counter-driven for loops)
- counters & sums for collecting data
- String traversal/concatenation for manipulating text
- ArrayLists for storing and accessing large amounts of related data

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where do you go from here?

if you would like to learn more & extend your programming and problem-solving skills

- sign up for CSC 222: Computer Programming II
 - problem-solving & Java programming for more complex tasks
 - emphasis on data structures & algorithms (as required by complex tasks)
 - more object-oriented (more classes, inheritance), better interfaces
- become a CS major! (it's where the big \$\$\$ are)

if you would like to learn more but can't take more courses

- the availability of do-it-yourself texts and freely accessible Web-resources make self-study a possibility
- requires lots of practice, self-discipline, frustration

if you don't continue with programming

- your programming skills will atrophy (use it or lose it!)
- however, problem-solving and critical-thinking skills should apply to many disciplines

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how do you prepare for the exam?

exam: Thursday, December 15 8:00 - 9:40

- similar format to previous tests, slightly longer
 - ✓ true/false or multiple choice
 - ✓ short answer
 - ✓ trace/explain/modify/write code
- emphasis placed on integrating concepts from throughout the course
 - think big picture
 - be prepared to apply a variety of tools & techniques to a problem
- study advice
 - ✓ review lecture notes
 - ✓ use quizzes & [review sheet](#) as study guides, but must fill in details
 - ✓ read the text to complete the picture, get a different perspective

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