

CSCI 145 -- Review for Exam 2

Textbook

- Chapter 5
 - Self-review questions
 - Go over more Exercises
 - Try some programming projects
- Chapter 6
 - Self-review questions
 - Go over more Exercises
 - Try some programming projects
- Chapter 7
 - Self-review questions
 - Go over more Exercises
 - Try some programming projects
- Chapter 8
 - Self-review questions
 - Go over more Exercises
 - Try some programming projects

Review

- PAs 5 to 9 including questions from lab manual
- HW 2, in-class Exercise 2 and Pop Quiz 2
- References -- references vs. primitives, alias, "this"
- Control Structures -- selection (if, switch, conditional operator ? :) and repetition (while, do/while, and for), nested selection, and nested loops,
- Conditions -- true/false, relational operators, logical operators, using Boolean variables as conditions
- Interfaces -- what is it? how is it different from a class? abstract methods, *Comparable* interface
- Class Relationships -- dependency and aggregation; UML class diagram
- Methods -- design, parameters including pass-by-value and pass-by-reference concepts, private methods (helper/utility methods)
- Arrays -- declaring arrays, initializer lists, bounds checking, two-dimensional arrays, array vs. ArrayList
- GUI -- mouse and keyboard events, check boxes vs. radio buttons, concepts only and no coding
- Software Engineering -- development activities and models, testing (white box vs black box, unit testing, integration testing, regression testing, acceptance testing, beta testing), debugging activities
- Program Development -- analysis, design, code, and test; problem solving

Some Review Questions/Exercises

1. Best loop to implement a sentinel loop, a counting loop, and a y/n loop?
2. Set up a method to receive some data and perform a certain task:
 - a. A method that accepts 3 values and returns smallest
 - b. A method that accepts an array and returns the average
3. An object such as Die object is sent to a method as a parameter and it was modified inside the method, what happened to the original object? Draw a diagram showing those variables.
4. Differences between black box and white box testing.
5. Differentiate testing from debugging.
6. What are some levels of testing from earliest to latest?
7. Steps to debug a program.
8. Perform a simple if-else with the conditional operator.
9. Determine max of three strings or three int values.
10. Given a, b, and c, arrange them from smallest to largest.
11. Use a nested loop to generate a pattern like a rectangle or a triangle.

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##### or  *
#####    **
#####    ***
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12. Draw a simple UML class diagram showing relationships between some classes.
13. Use the **Coin** or **Die** class to perform a simulation:
 - a. Toss 2 coins 100 times and count the number of times they are the same.
 - b. Toss 2 dice 100 times and count the number of times they are the same.
14. Use an array to keep track of the counts when rolling two dice 1000 times.
15. How is a static variable different from an instance variable?
16. How is a static method different from a non-static method?