

# Study Guide for Exam 1

## Lectures 1-7, Labs 1-3 and Worksheets 1-8 review

- Everything covered in published lecture slides, labs and all the assignments (Homework assignments, in-class worksheets, labs and quizzes) will be included in exam 3.
- While you are explaining any term or process, always try to include the example and diagram (if any).
- What is Java?
  - Key features
  - OOP
    - Features
    - Advantages vs disadvantages
  - Java Programs and components
  - Interpreter
    - Advantages vs Disadvantages
  - Java Virtual Machine
- Variables & Primitive Data types
  - Variables:
    - Value vs Reference
    - declaring, and initializing
    - legal variable names
  - Primitive Data Types:
    - Primitive vs Wrapper classes
    - Conversions and casting
    - Widening vs Narrowing
- Package and i/o
  - Package naming conventions
  - println vs printf vs format
  - Scanner
- Operators: math:
  - + - / % \* ( ) +=
  - increment/decrement: i++, ++i, i--, --i
  - bool expression: ==, >=, >, <, <=, !=
  - bool logic: && ||
  - conditional operator ? :
- Making decisions && vs & || vs | if, if else (flow chart) else if chain switch statement case, break, default (KW)

- Looping
  - while, do while (flow chart)
  - for loop (flow chart)
  - embedded loops using loops
- Creating Class and functions
  - Define Class, object, and instance
  - Private vs public
  - Encapsulation: Data bundling, hiding, and coupling
  - Methods
    - creating and using
    - Accessor and Mutators
    - Parts of a method
    - Overloading
  - Constructors:
    - Default vs No-Arg vs Parameterized
  - Variable Scope
  - Random class, Math.Random(), Math.PI