

Study guide for CS163/CS164 second midterm exam

You should also be familiar with the material from the first midterm study guide. You should be able to interpret or write Java code that uses any of the items shown below. These same topics will be covered on the programming quiz.

1) Methods

- a. Declaring (defining) methods
- b. Invoking (calling) methods
- c. Argument values and types
- d. Return values and types, including **void**
- e. Pass by reference vs. pass by value
- f. Method overloading
- g. Local variables (not initialized)
- h. Scope of locals

2) Single-Dimensional Arrays

- a. Declaring, allocating, initializing arrays
- b. Array indexing, array access
- c. Array **length**
- d. Iterating arrays
- e. Arrays as method parameters
- f. Arrays as return values
- g. Linear search, Binary search
- h. Selection sorting
- i. Arrays class: **toString(), sort(), equals()**
- j. Command line arguments: **main (String[] args)**

3) Multi-Dimensional Arrays

- a. Declaring, allocating, initializing
- b. Array indexing, array access
- c. Array **array.length, array[i].length**
- d. Iterating arrays
- e. Arrays as method parameters
- f. Arrays as return values

4) Classes

- a. Classes versus Objects
- b. Class variables (**static**)
- c. Instance variable (non-static)
- d. **.** operator for data and method access
- e. Class and Instance methods
- f. Scoping of variables
- g. Instantiating an **object** from a class
- h. Class constructors
- i. Object references
- j. **public** versus **private** data and methods
- k. Getter and Setter methods
- l. Arrays of objects
- m. **this** keyword

5) Exceptions

- a. **try/catch** blocks
- b. **throw** keyword
- c. **finally** clause
- d. Checked versus unchecked exceptions

6) File Input/Output

- a. **File** objects
- b. **Scanner** for file input
- c. **PrintWriter** for file output