

Study guide for CS163/CS164 first midterm exam

By now, you should be able to interpret or write a Java program that uses any of the items shown below.

- 1) Java programs
 - a. Writing a **class** with **main** method
 - b. Importing packages
 - c. Declaring and initializing variables
 - d. Assignment statements
 - e. Numeric, character, and string literals
- 2) Data types (and size in bits)
 - a. **byte (8), short (16), int (32), long (64)**
 - b. **float (32), double (64)**
 - c. **boolean, char (16), String**
- 3) Expressions
 - a. Primitive operators: *****, **/**, **+**, **-**, **%**, **++**, **--**
 - b. Integer versus floating point math
 - c. Relational operators: **==**, **!=**, **<**, **<=**, **>**, **>=**
 - d. Boolean operators: **&&**, **||**, **^**, **!**
 - e. Order of operations, parentheses
 - f. Mixed types and type casting
- 4) String functions
 - a. **length**, **charAt**, **indexOf**, **substring**
 - b. String concatenation: **concat**, **+**
 - c. String comparison: **equals** (**==** doesn't work!)
- 5) Writing to the console
 - a. Using **System.out.print/println/printf**
 - ✓ Differences between them
 - ✓ Formatters: **%f**, **%d**, **%c**, **%s**
 - ✓ Special Characters: **'\n'**, **'\t'**
 - b. Combining literals and variables
- 6) Reading from the console
 - a. Declaring and use a **Scanner**
 - b. Reading strings that are single tokens: **next**
 - c. Reading strings that are lines of text: **nextLine**
 - d. Reading integers and doubles: **nextInt**, **nextDouble**
- 7) Conditionals
 - a. **if**, **if-else**, and **else** statements
 - b. **switch** statements
- 8) Wrapper Classes
 - a. Integer: **parseInt()**
 - b. Double: **parseDouble()**
 - c. Character: **isUpperCase()**, **isDigit()**, **isLetter()**
- 9) Math
 - a. Math constants: **PI**
 - b. Math methods:
 - **sqrt()**
 - **sin()**, **cos()**
 - **pow()**, **exp()**, **log()**
 - **min()**, **max()**
 - **round()**, **floor()**, **ceil()**