Java for Non Majors

Midterm Study Guide

February 13, 2020

The test consists of

- 1. Multiple choice questions $15 \ge 2 = 30$ points
- 2. Given code, find the output $6 \ge 5 = 30$ points
- 3. Code writing questions 10 + 5 + 5 = 20 points
- 4. Code debugging question $10 \ge 20$ points
- 5. Short answer questions $5 \ge 3 = 15$ points
- You will have an opportunity to earn 15 extra credit points.
- Please try and attempt all questions. You get points for trying.
- Code debugging is mostly syntax based (missing brackets, etc.)

Topics to study

- Basics of Java programming
 - Compile and run Java program using command line
 - -3 types of errors in Java
 - Components of a Java Program
 - Comments, Reserved words, and escape sequences
 - Style guidelines for identifiers
- I/O print statements and the Scanner class.
 - print, println and printf statements.
 - Declaring a new Scanner.
 - Using the Scanner class to read data of different kinds.
- Data types, variables, and sequential execution.
 - Naming, declaring and initializing variables.
 - Primitive data types.
 - Type Conversions implicit and explicit.
 - Arithmetic Operators and operator precedence.
- Basic String class methods

- Declaring and initializing a String.
- Testing for string equality, and comparing strings.
- Extracting individual characters from strings.
- Selection statements and loops
 - Relational and logical operators.
 - Writing simple, multiple and nested if statements.
 - switch case statements.
 - while, do-while and for loops
 - break and continue statements.
- Writing static methods in Java.
 - Writing simple methods.
 - Passing arguments and returning values.
 - Scope of local variables.
- The multiple choice and the debugging questions will test your familiarity with the Java language and syntax. The code writing questions will test you knowledge of programming.
 - Writing static methods in Java.
 - Strings and the StringBuilder class.
 - Selection, Loop, I/O
- Studying the topics listed above will be enough to pass the test. To get a 100, you would be required to study everything on the notes, example programs and assignments.

Some Sample Questions

- 1. Which of the following is NOT a Java reserved word?
 - (a) public
 - (b) static
 - (c) void
 - (d) number
- 2. Evaluate the following expression. x = 5, y = 15, z = 3 (All integers)
 - x * 4 + y / 2 % z
 - (a) 21
 - (b) 2
 - (c) 2.5
 - (d) None of the above
- 3. A Java variable can begin with
 - (a) A letter
 - (b) underscore

- (c) '\$' sign
- (d) All of the above
- 4. Write a program to calculate the sum of all the multiples of 3 between 1 and 200.

Sample Run: The sum is : 6633

5. Write a program to print a rectangle comprised of the \$ symbol. Read in the length and width as user input and then print the rectangle.

6. Figure out the output generated by the following code snippet:

```
int score = 83;
char grade;
if (score >= 90)
grade = 'A';
else if (score >= 80)
grade = 'B';
else if (score >= 70)
grade = 'C';
else if (score >= 60)
grade = 'D';
else grade = 'F';
System.out.println("\nStudent grade = " + grade);
```

- 7. Which of the following is NOT a Java access specifier?
 - (a) public
 - (b) private
 - (c) abstract
 - (d) protected
- 8. A variable declared inside a block is available
 - (a) throughout the program
 - (b) only in that block
 - (c) only in that class
 - (d) only in that method
- 9. What is JVM? What is the advantage of it?
- 10. Write a program to read integers from the user and evaluate a given expression.