Java for Non Majors

Sample Midterm Questions

February 21, 2017

The test consists of

1. Multiple choice questions

2. Given code, find the output

3. Code writing questions - 2 x 20 = 40 points

4. Code debugging question

5. Short answer questions

General details:

- You will have an opportunity to earn extra credit points.

- Please try and attempt all questions. You get points for trying.

- Anything from the homeworks / quizzes / in class examples / slides is fair game.

- Code debugging is mostly syntax based (missing brackets, semicolons, etc.)

- The code writing questions will be heavily based on the class examples and the homeworks, with some modifications.

- The multiple choice and the debugging questions will test your familiarity with the Java language and syntax. The code writing questions will test your knowledge of programming.

Topics to study

- Basic Java Syntax

  - Writing a basic java class stub: naming classes and writing the main method.
  - Simple statements - syntax.
  - Comments.
  - Reserved words, literals and escape sequences.
  - Style guidelines.

- Data types, variables, and sequential execution.

  - Naming, declaring and initializing variables.
  - Primitive data types.
  - Type Conversions - implicit and explicit.
  - Arithmetic Operators and operator precedence.

- 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.

- 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.

- 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.

- You don't need to study from outside sources. The test is made entirely from the notes, quizzes and assignments, but it may be helpfull to see more examples.

Sample Questions

1. Which of the following is NOT a Java reserved word?

   (a) public

   (b) static

   (c) void

   (d) main

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.

Sample Run:
```
Enter the length of the rectangle:  5
Enter the width of the rectangle:  3
$ $ $ $ $
$ $ $ $ $
$ $ $ $ $
```

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. What are some advantages of Java over C++?