

CMSC 131 Quiz 4 Worksheet

The next quiz for the course will be on Wed, Oct 21. The following list provides additional information about the quiz.

- **Do not post any solutions to this worksheet in Piazza. That represents an academic integrity violation.**
- The quiz will be a written quiz (no computer).
- The quiz will be in lab session.
- Closed book, closed notes quiz.
- Answers must be neat and legible.
- Quiz instructions can be found at <http://www.cs.umd.edu/~nelson/classes/utilities/examRules.html>.
- Make sure you know your section number and your TA's name.
- You must take your quiz in your assigned lab/discussion session and not show up to a random discussion session. We will not grade quizzes taken in the incorrect session.
- **Do not discuss anything about the quiz in Piazza after you take the quiz (in particular the day of the quiz).**

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TAs or instructor during office hours. It is recommended that you try these exercises on paper first (without using the computer).

Exercises

1. Be familiar with drawing memory diagrams. Examples of diagrams can be found in Piazza.
2. What is the difference between a static method and a non-static method?
3. What is the difference between a non-static field and a static field?
4. What is a stack frame? Which values do we usually find in a stack frame?
5. Define a class Telephone according to the following information:

Instance Variables (all private)

- a. area code → integer value
- b. three digit value → integer value
- c. four digit value → four digit value
- d. user name → String reference

Instance Methods

- a. **Constructor** - Allows you to initialize all the instance variables of the class. Name the parameters after the instance variables (i.e., you must use the **this** reference)
- b. **Default constructor** - Initializes the object to the number 555-555-5555 and the name to null. This constructor relies on the previous constructor for the object initialization (i.e., you must use the **this** reference)
- c. **Copy constructor**
- d. **Get/Set methods** - Define get/set methods for all instance variables of the class.
- e. **equals** - Two numbers are considered the same if they have the same area code, three and four digit values.
- f. **toString** - Returns a string with the user name, followed by the phone number of the person.

Static Variable (private)

- a. **count** - keeps track of the number of Telephone objects that have been created.

Static Method

- a. **getCount** - Returns the count value
- b. **getDigits** - Takes a String reference as a parameter and returns the number associated with the string. For example, if the String has the value "CAR" the method will return the integer 227