

Circle the bullet in front of each statement that accurately describes your instructor's course policies:

- You are expected to read the lab assignment before lab begins.
- If you miss more than three lectures, your grade will be dropped by half a letter grade.
- Lab attendance is required.
- You must submit every lab assignment in order to pass this course.
- Homework is typically due before taking a weekly quiz.
- Having a copy of all or part of another student's source code, just to look at for a little help, is considered cheating.
- All students must submit a copy of their lecture notes before the end of the day.
- Your instructor is such a nice guy that if you turn in an assignment 45 minutes late, he wouldn't consider it late.
- Your instructor will give you a free lunch if you invite him to lunch.
- The final exam for this course will be comprehensive.

Do not circle the bullet in front of any statement that incorrectly describes your instructor's course policies.

1. Composition signifies as a stronger link between classes than aggregation does. Explain in what way the link is stronger.

2. Explain why we call call the `toString()` on an object from a class that does not implement the `toString()` method.

Consider the following interface:

```
public interface Refreshable {  
    /**  
     * Determine if the object is current.  
     * @return Returns true if and only if the object is current.  
     */  
    boolean isCurrent();  
  
    /**  
     * Update or extend the validity period for this object.  
     */  
    void refresh();  
}
```

Suppose that a `static` method, `getRefreshableObject()` from the `Quiz3` class exists and that it returns a reference to some kind of object that implements the `Refreshable` interface.

Write a code fragment that will get an object, check to see if the object is current, and refresh the object if it is not current.



Suppose you are interviewing for an internship position and are asked: “The Java language supports both abstract classes and interfaces. How are they similar and how are they different? Give an example of when using an abstract class is more appropriate and another example of when using an interface is more appropriate.”

Your grade will depend on how well you convince the interviewer that you should be hired. For example, 10 points for clear, accurate, complete, and insightful. 8 points for clear and accurate but incomplete.



Explain the steps needed in order to display “Sounds are fun” to the console when a button is clicked. E.g., what methods need to be called, what classes need to be created, what interfaces need to be implemented, etc... Writing code for this is an acceptable solution, but an English description is acceptable too.



Complete the class below that adds a `JButton` (you pick the label on it) to the `JFrame` and displays a pop-up window (think `JOptionPane`) that displays “Quiz 6 rocks”. Assume that all of the appropriate `import` statements have already been made.

```
public class Quiz6 extends JFrame {  
  
    public static void main(String[] args) {  
        JFrame quiz6 = new Quiz6();  
        quiz6.setVisible(true);  
    }  
  
}
```

```
}
```

Draw the GUI created by the following Java program:

```
public class Quiz7 extends JFrame{
    public static void main(String [] args) {
        Quiz7 gui = new Quiz7 ();
        gui.setVisible(true);
    }
    // create the user interface
    private Quiz7() {
        super("Quiz7");
        setLocation(100, 50);
        setSize(200, 150);
        setLayout(new GridLayout(2,2));
        for(int i=0; i<4; ++i) {
            add(new JButton(Integer.toString(i)));
        }
    }
}
```

The grid below represents a  $300 \times 250$  pixel screen. Each cell in the grid is  $50 \times 50$ .


Write the following method that accepts a filename and a score and appends the score to the file (if it exists, or a creates a new file). Note: `new FileOutputStream(new File(filename), true)`; will create a `FileOutputStream` that will append or create as needed.

```
public static void writeScore(String filename , Score score) {
```



Quizzes



Name:

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Write the names of all of the people in the group that you were in for the class activity on Friday. Also, indicate which member of the group was responsible for emailing your work to your instructor.