

CSC 222: Object-Oriented Programming

Test 1 Sample Questions

1. True or False?

_____ In Java, an attempt to compare two String values using `==` will result in an error.

_____ *Abstraction* is the ability to ignore details of parts to focus attention on a higher level of a problem.

_____ If the *Boolean expression* `(x == y && y == z)` evaluates to true, then the three `int` variables (`x`, `y`, and `z`) must all have the same value.

Short Answer

A. In the real world, objects can and often do belong to multiple classes. Identify one real-world object and two classes that it belongs to.

B. *Describe one way* in which fields and local variables are similar in Java. *Describe one way* in which they are different.

Tracing Code

Consider the following while loop:

```
String str = "x";
while (str.length() < len) {
    str = "a" + str + "b";
}
```

- Assuming `len=1`, what would be the value of `str` after executing this code segment?
- Assuming `len=4`, what would be the value of `str` after executing this code segment?

Class Implementation

Consider a `SurveyTaker` class, which can be used to collect data from a yes/no survey.

A. In the class definition to the right, clearly identify one of each of the following components:

1. field
2. constructor
3. method.
4. parameter

```
public class SurveyTaker {
    private int numOfYes;
    private int numOfNo;

    /**
     * Constructs a SurveyTaker object.
     */
    public SurveyTaker() {
        this.numOfYes = 0;
        this.numOfNo = 0;
    }

    /**
     * Enters a response to the survey question.
     * @param response either "yes" or "no"
     */
    public void enterResponse(String response) {
        if (response.equals("yes")) {
            this.numOfYes++;
        }
        else if (response.equals("no")) {
            this.numOfNo++;
        }
    }

    /**
     * Determines the number of "yes" responses
     * @return number of "yes" responses so far
     */
    public int getYesses() {
        return this.numOfYes;
    }
}
```

B. What would happen if the user called the `enterResponse` method with an input value other than "yes" or "no"? For example, suppose the user entered "maybe" in the input box when prompted by BlueJ. Would an error occur? If not, what would the method do? Explain your answer.

C. Suppose we wished to add a new method to this class that calculates and returns the percentage of "yes" responses. For example, if there have been 5 "yes" responses and 3 "no" responses entered, the method should return 62.5 (since $5/8 = 0.625 = 62.5\%$). Complete the `percentOfYes` method below:

```
/** Calculates the percentage of "yes" responses that have been entered
 * @return the percentage of "yes" responses (0-100%); returns 0.0 if no responses so far
 */
public double percentOfYes() {
```

```
}
```