

# CSCI2600 Quiz 3

Aaron Taylor

TOTAL POINTS

**6 / 10**

QUESTION 1

**1 Question 1 3 / 5**

- **0** Correct
- **1** The code required to remove an occurrence of the character to show that the character is not gone.
- **2** **Insufficient code and explanation**
- **5** wrong
- **4** No code

QUESTION 2

**2 Question 2 3 / 5**

- **0** Correct
- **2** **The code should show that the elts can be modified outside class.**
- **3** Insufficient code and explanation
- **5** Wrong
- **1** Add/insert/list/delete missing
- **2** Insufficient code
- **1** Insufficient explanation

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## Principles of Software Quiz 3

Mar. 2, 2017 10 points total

**Question 1.** Consider the code below. Character is an immutable class.

// CharSet is a mutable class representing a finite set of Characters.

// Rep invariant: elts has no nulls and no duplicates

```
class CharSet {  
    private List<Character> elts = new ArrayList<Character>();  
    public void insert(Character c) { elts.add(c); }  
    public void delete (Character c) { elts.remove(c); }  
    public boolean member (Character c) { return elts.contains(c); }  
    public int size() { return elts.size(); }  
}
```

There is a problem with the code that can cause the rep invariant to be violated, write a small code snippet that shows the problem. (5 pts.)

```
CharSet X = new CharSet();
```

```
X.insert('d');
```

```
X.insert('d');
```

→ allows for duplicates

= there should be a :contains(c)  
check in the insert function

Suppose the following method is added to the class:

```
public List<Character> getElts() { return elts; }
```

→ returns the data in the representation

Write a code snippet that shows that the representation is exposed. (5 pts.)

```
CharSet X = new CharSet();
```

```
X.insert('d');
```

```
ArrayList<Character> temp = X.getElts();
```

```
temp.add('c');
```

→ modifies the original representation,  
this should return a copy instead