

Static and non-static Members

Due Date:

This assignment is due Wednesday, 2008-01-23 *at the beginning of lecture.*

Questions:

In order to answer the following questions you need to understand static members, constructors and the `ArrayList<?>` class.

Persons

- ⇒ Implement a `Person` class that has all of the methods shown in Figure 1.
- ⇒ Implement a `PersonTester` class whose public static `void main()` method uses the tests the `Person` class and simultaneously tells a story.

The `allSayHello` static member function should cause every currently existing person to say hello. The tricky part of this is finding all of the currently living persons. To accomplish this use a static member variable that keeps an `ArrayList<Person>`, and ensure that this variable is updated by appropriate non-static functions.

All fields must be `private`.

The public methods of the `Person` class must be exactly those described in Figure 1. You may add as many private methods and fields as you see fit.

Here are some things to check.

- Make sure that `die()` applied to a dead person doesn't cause the population to decrease.
- Make sure that a person's murderer's name prints correctly if the murderer herself is dead.
- Make sure that murdering a person causes them to die.
- Try to design your code so that the smallest number of methods directly access the fields of your class. Where possible, try to access or modify fields through other methods.

<i>Method</i>	<i>Meaning</i>
<i>attributes</i>	
<code>public Person(String n)</code>	Creates a living person with name n.
<code>public Person murderer()</code>	Returns the Person that murdered this person. Returns null if this person has not been murdered.
<code>public String name()</code>	Returns this person's name. Should end with ", deceased" if the person is dead.
<code>public boolean isAlive()</code>	<i>obvious.</i>
<i>actions</i>	
<code>public void die()</code>	Causes a person to die. Has no effect on someone already dead.
<code>public void murder(Person victim)</code>	Causes victim to die, and the murderer to be known to the victim.
<code>public void sayHello()</code>	causes this Person to print "Hello, I'm <i>name</i> ." on System.out.
<i>class attributes</i>	
<code>public static int numberLiving()</code>	
<i>class actions</i>	
<code>public static void allSayHello()</code>	causes every living person to say hello as described above.

Figure 1: Properties and Actions of Persons