Java Vuls

There are three Java constructs often associated with security vulnerabilities. For this assignment you are asked to investigate them and respond as specified below:

**Another Integer Overflow Question**
1. Suppose that your program multiplies Integer.MAX_VALUE times 2. Is an exception thrown or what value results?

**Protected Scope Rules**
2. The protected scope is generally used to restrict access to descendent classes through inheritance. Suppose that you have two public classes in the same project folder, neither inherits that other and neither contains a package statement. Is a protected instance variable in either class accessible to the other class?

**Inner Class Scope**
3. Design an experiment using Java classes that will answer each of the following questions regarding scope when using an inner class. Submit the code for the Java code you used in your experiment as well as completing the following table by filling every empty cell with YES or NO. Please do not use any package declarations.

<table>
<thead>
<tr>
<th>Outer Class Scope</th>
<th>Inner Class Scope</th>
<th>Scope of Instance Variable within Inner Class</th>
<th>Is variable within scope of outer class?</th>
<th>Is variable within scope of external classes?</th>
</tr>
</thead>
<tbody>
<tr>
<td>public</td>
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<td>private</td>
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**Race Issues**
4. Below are three standard Java classes. Compare the race condition vulnerabilities of each.

java.util.LinkedList
java.awt.Component
javax.swing.JComponent

**Serialization**
5. Write a paragraph or two describing the vulnerabilities associate with serialization in Java. Specifically, how does a programmer create a serialized object and what can attacker do with it?

**Due Date: Feb. 26**