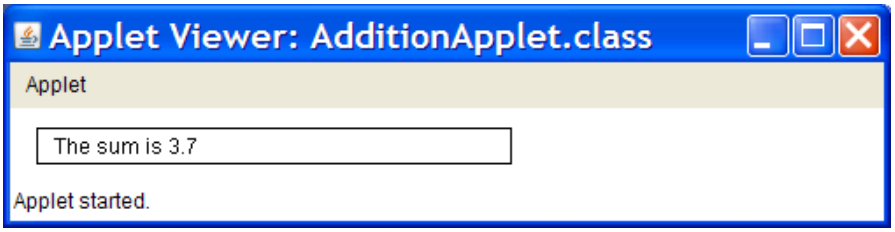
The Hong Kong Polytechnic University
Department of Electronic and Information Engineering

EIE3320 Tutorial 8: GUI and Java Applets

(Deadline for Submission: Check the course information)

1. Complete the missing code of the following program so that it can request the user to enter two floating-point numbers and compute the sum of the numbers.

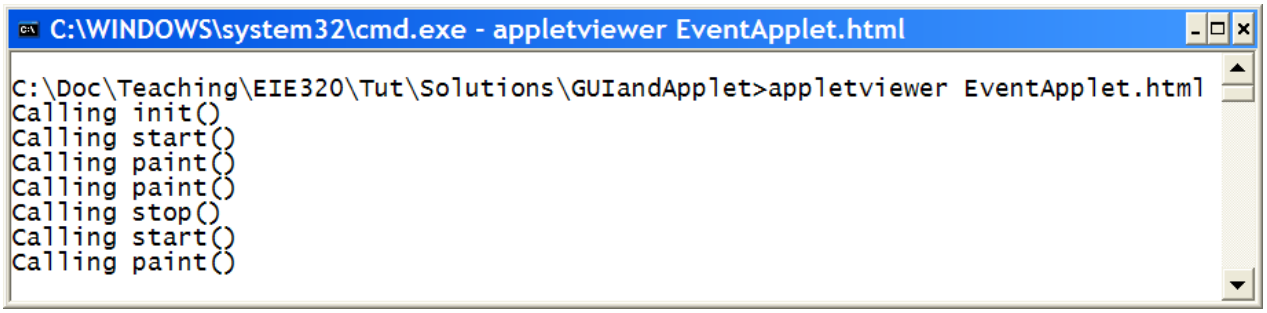
```
import java.awt.Graphics;   // import class Graphics
import java.applet.Applet;  // import applet package

public class AdditionApplet extends Applet {
   double sum;  // sum of values entered by user

   public void init()
   {
      String firstNumber;   // first string entered by user
      String secondNumber;  // second string entered by user
      double number1;       // first number to add
      double number2;       // second number to add

       // Use the JOptionPane class to obtain the first and second number
       from user
      firstNumber = ...;
      secondNumber = ...;

      // Use the Double class to convert the numbers from String to
double
      number1 = ...;
      number2 = ...;
      sum = number1 + number2;
   } // end method init

   // draw results in a rectangle on applet's background
   public void paint( ... )
   {
      super.paint( g );

      // draw rectangle starting from (15, 10) that is 270
      // pixels wide and 20 pixels tall
      g.drawRect( 15, 10, 270, 20 );

      // Use the drawstring() method of class Graphics to display
       // the results as a String at (25, 25)
      ....drawString( "The sum is " + ...);
   } // end method paint
} // end class AdditionApplet
```



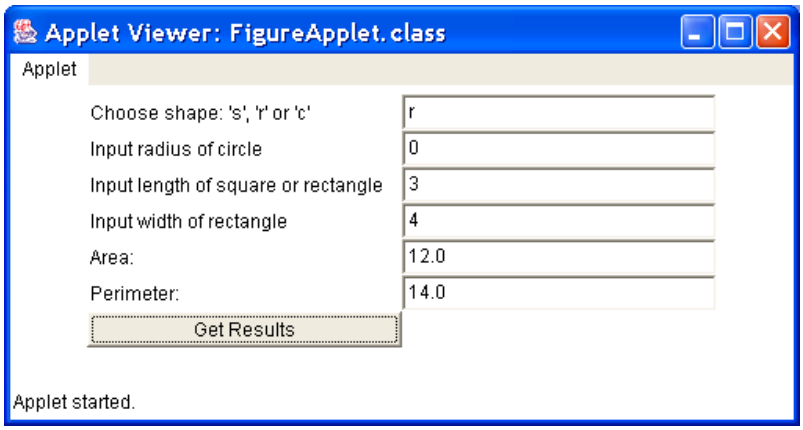
2. Write a Java Applet called `EventApplet` to display messages on a console when the `init()`, `start()`, `paint()`, `stop()`, and `destroy()` are executed. You may use `System.out.println()` to display text on the console. For example, when `init()` is called, you should display "Calling init()" on the console. Note that BlueJ will create "EventApplet.html" automatically when you run the applet the first time. However, to see the messages in the console, you must run your applet in a Command Window, as follows:

```
appletviewer EventApplet.html
```

   Try minimizing the applet and then restoring it. You should see something similar to the following:



3. **(Assignment)** Extend the **`Shape`** project in Lab1 to display the area and perimeter of rectangles, circles, and squares on an applet shown below. When the button "Get Result" is pressed, the area and perimeter of the selected shape will be shown.



Hints:

1. You may need to use the following classes in your applet:
   `JButton, JTextField, JLabel, JPanel, and GridLayout`

2. If you use `JApplet`, you may need to obtain the `Container` by calling the `getContentPane()` method, as follows:
   ```
   getContentPane().add(panel,BorderLayout.NORTH);
   ```

3. To debug your program, you may create an applet object in BlueJ's object window, then set a breakpoint in the method `init()`, and then execute `init()` by right clicking the created object. Note that you cannot debug the `paint` method in this way. To debug `paint()`, you may add `System.out.println()` statements in `init()` and `paint()`. Then, run the applet via Windows cmd.exe, as follows:

   ```
   set path=<Java JDK bin folder>;%path%
   javac *.java
   appletviewer <Your applet>.html
   ```

   `<Java JDK bin folder>` can be found in the BlueJ's VM Selector (Start → All Programs → BlueJ → Select VM). You may also notice that `paint()` will be called whenever you use a window to cover the applet and then remove the window to let the applet to reappear again.

4. If you can see text on the Appletviewer but not on the browser, you may either remove the statement `super.paint(g)` in `paint()` or to override the `start()` method of Applet, as follows:

   ```
   public void start() {
        repaint();
   }
   ```

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