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import java.io.*;
import javax.swing.*;

/** Matthew Morgenstern, November 2000
    PrintStream subclasses which support println & print to
    (1) a Textarea of a Swing scrollable JFrame & (2) to a file. */

/** Implements OutputStream methods to a GUI Swing TextArea. */
class GuiOutputStream extends OutputStream {
    JTextArea jText;
    public GuiOutputStream(JTextArea jText) {
        super();
        this.jText = jText;
    }
    public void close() throws IOException {}
    public void flush() throws IOException {}
    public void write(byte[] b, int off, int len) throws IOException {
        jText.append(new String(b, off, len)); }
    public void write(byte[] b) throws IOException {
        write(b, 0, b.length-1);}
    public void write(int b) throws IOException {
        jText.append(String.valueOf(b)); }
}
}
```

```
/** Implements PrintStream to a GUI JFrame scrolling textarea:
    Primary Usage: new GuiPrintStream(rows, columns, title) */
public class GuiPrintStream extends PrintStream {
    JTextArea jText;
    GuiOutputStream gout;
    JScrollPane scroll;
    JFrame topFrame;

    public GuiPrintStream(GuiOutputStream gout) {
        super(gout);
        this.gout = gout;
        this.jText = gout.jText;
    }
    public GuiPrintStream(int rows, int columns, String title) {
        this(new GuiOutputStream(new JTextArea(rows, columns)));
        scroll = new JScrollPane(jText);
        topFrame = new JFrame(title);
        topFrame.getContentPane().add(scroll);
        topFrame.pack();
        topFrame.setVisible(true); // this.topframe is JFrame
    }
    public GuiPrintStream () {this(25, 35, "Gui Text Output"); }
    public void printFrame(PrintStream ps) {
        ps.println(this.jText.getText());
    }
}
```

```
/** Implements PrintStream to a File:
    Usage: new FilePrintStream(filename) */
class FilePrintStream extends PrintStream {
    FileOutputStream fileout;
    String filename;
    private FilePrintStream(FileOutputStream fileout) {
        super(fileout); // builds PrintStream from OutputStream
        this.fileout = fileout;
    }
    /** Usage: fps = FilePrintStream.create(filename) */
    public static FilePrintStream create(String filename) {
        FileOutputStream fileout = null;
        try {fileout = new FileOutputStream(filename);
            }catch (FileNotFoundException e) {e.printStackTrace();}
        FilePrintStream fps = new FilePrintStream(fileout);
        fps.fileout = fileout;
        return fps;
    }
}
```

```
class myOut { // test driver program
    public static void main(String[]args) {
        GuiPrintStream gps = new GuiPrintStream();
        FilePrintStream fileps = null;
        gps.println(gps);
        gps.println(gps.topFrame);
        gps.println(gps.gout);
        gps.println(gps.jText);
        gps.print("\n*Second test of inner pane\n");
        gps.println("Third test println to .ps gui.");
        gps.printFrame(System.out);
        fileps = FilePrintStream.create("foo.txt");
        gps.printFrame(fileps);
    }
}
```