



Verification Games

<http://cs.washington.edu/verigames>

```

import java.applet.*;
import java.awt.*;

@SuppressWarnings("deprecation")
public class Scribble extends Applet {
    private int last_x = 0;
    private int last_y = 0;
    private Color current_color = Color.black;
    private Button clear_button;
    private Choice color_choices;

    // Called to initialize the applet.
    public void init() {
        // Set the background color
        this.setBackground(Color.white);

        // Create a button and add it to the applet.
        // Also, set the button's color
        clear_button = new Button("Clear");
        clear_button.setBackground(Color.black);
        clear_button.setForeground(Color.lightgray);
        this.add(clear_button);

        // Create a menu of colors and add it to the applet.
        // Also set the menu's colors and add a label.
        color_choices = new Choice();
        color_choices.addItem("black");
        color_choices.addItem("red");
        color_choices.addItem("yellow");
        color_choices.addItem("green");
        color_choices.setForeground(Color.black);
        color_choices.setBackground(Color.lightgray);
        this.add(new Label("Color: "));
        this.add(color_choices);
    }

    // Called when the user clicks the mouse to start a scribble
    public boolean mouseDown(Event e, int x, int y) {
        Task w = w; Task u = u;
    }
}

```

CODE

**Automatically
translated into
game levels**

Traditional Verification Methods
(Highly skilled, expensive labor)

```

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```

**VERIFIED
SOFTWARE**

**Automatically
translated into
code annotations**



**Crowdsourced
game solutions**



Program ↔ **Game**
a variable ↔ **Road**
a property of the variable (type) ↔ **Road width**
a value ↔ **Car**
a property of the value ↔ **Car width**
requirement ↔ **Traffic Cones**
requirement ↔ **Unmodifiable (gray) road/car**

Jonathan Burke
 Matthew Burns
 Craig Conner
 Seth E Cooper
 Werner Dietl
 Stephanie Dietzel
 Michael Ernst
 Nathaniel Mote
 Tim Pavlik
 Zoran Popović
 Tyler Rigsby
 Eric Spishak
 Brian Walker