



```
import java.awt.Dimension;
import java.awt.Graphics;
import java.awt.Color;
import javax.swing.JPanel;
import javax.swing.JFrame;

import java.util.Arrays;
import java.util.Random;

public class Stars extends JPanel {

    // Unique version ID for this class to ensure saved objects can
    be loaded safely

    private static final long serialVersionUID = 1L;
```

```

// Initial width of height of the window

private static int width = 1000;

private static int height = 650;


// main method to launch the program as a standalone
application - no need to modify

public static void main(String[] args) {

    Stars panel = new Stars();

    panel.setPreferredSize(new Dimension(width, height)); //
content size window dimensions


    JFrame frame = new JFrame("Stars"); // Title of frame

    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

    frame.add(panel);

    frame.pack();

    frame.setVisible(true);

}


/**

    * Draws 10 stars (or more) of random sizes in random
locations. The stars do not have to be fully contained within the
panel.

    * @param g the Graphics object used for drawing shapes, text,
and images

    */

public void drawStars(Graphics g) {

    int [] xPoints = new int[10];

    int [] yPoints = new int[10];

```

```

Random randy = new Random();

for (int x = 0; x < 10; x++) {

    int value = randy.nextInt(360)+1;

    int iValue = value;

    int centerX = randy.nextInt(width) + 1;

    int centerY = randy.nextInt(height) + 1;

    int innerRadius = randy.nextInt(100)+50;

    int outerRadius = innerRadius / 2;

    for (int i = 0; i < 10; i += 2) {

        xPoints[i] = (int) (
centerX+innerRadius*Math.cos(Math.toRadians(value)));

        yPoints[i] = (int)
(centerY+innerRadius*Math.sin(Math.toRadians(value))) ;

        value = value + 72;
    }

    value = iValue + 36;

    for(int a = 1; a < 10; a += 2) {

        xPoints[a] = (int)
(centerX+outerRadius*Math.cos(Math.toRadians(value))) ;

        yPoints[a] = (int)
(centerY+outerRadius*Math.sin(Math.toRadians(value)));

        value = value + 72;

    }
}

```

```

        int red = randy.nextInt(256);

        int green = randy.nextInt(256);

        int blue = randy.nextInt(256);

        Color c = new Color(red, green, blue);

        g.fillPolygon(xPoints, yPoints, 10);

        g.setColor(c);

        System.out.println(Arrays.toString(xPoints));

        System.out.println(Arrays.toString(yPoints));

    }
}

```

```

/**
 * Overrides JPanel's paintComponent method to perform custom
drawing.
 * @param g the Graphics object used for drawing shapes, text,
and images
 */
@Override
protected void paintComponent(Graphics g) {
    super.paintComponent(g); // Clears the panel before
drawing
    drawStars(g);
}
}

```

