```java
package ex9;

import java.awt.Graphics;
import java.awt.Image;
import javax.swing.*;

public class DisplayImage extends JFrame {

    public DisplayImage() {
        add(new ImagePanel());
    }

    public static void main(String[] args) {
        JFrame frame = new DisplayImage();
        frame.setTitle("DisplayImage");
        frame.setSize(300, 300);
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }

    class ImagePanel extends JPanel {

        ImageIcon imageIcon = new ImageIcon("image/us.gif");
        Image image = imageIcon.getImage();

        /**
         * Draw image on the panel
         */
        @Override
        public void paintComponent(Graphics g) {
            super.paintComponent(g);

            if (image != null) {
                g.drawImage(image, 0, 0, this.getWidth(), getHeight(), this);
                //g.drawImage(image, 0, 0, this);
            }

        }
    }
}

```



```java
package ex9;

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

public class DrawArcs extends JFrame {

    public DrawArcs() {
        setTitle("DrawArcs");
        add(new ArcsPanel());
    }

    /**
     * Main method
     */
    public static void main(String[] args) {
        DrawArcs frame = new DrawArcs();
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(250, 300);
        frame.setVisible(true);
    }

    class ArcsPanel extends JPanel {

        // Draw four blazes of a fan
        protected void paintComponent(Graphics g) {
            super.paintComponent(g);

            int xCenter = getWidth() / 2;
            int yCenter = getHeight() / 2;
            // 80% of the outer frame
            int radius = (int) (Math.min(getWidth(), getHeight()) * 0.4);

            int x = xCenter - radius;
            int y = yCenter - radius;

            g.setColor(Color.red);
            g.fillArc(x, y, 2 * radius, 2 * radius, 0, 30);
            g.setColor(Color.green);
            g.fillArc(x, y, 2 * radius, 2 * radius, 90, 30);
            g.setColor(Color.blue);
            g.fillArc(x, y, 2 * radius, 2 * radius, 180, 30);
            g.setColor(Color.yellow);
            g.fillArc(x, y, 2 * radius, 2 * radius, 270, 30);
        }
    }
}

```

```java
package ex9;

import java.awt.Graphics;
import java.awt.Polygon;
import javax.swing.JFrame;
import javax.swing.JPanel;

public class DrawPolygon extends JFrame {

    public DrawPolygon() {
        setTitle("DrawPolygon");
        add(new PolygonsPanel());
    }

    /**
     * Main method
     */
    public static void main(String[] args) {
        DrawPolygon frame = new DrawPolygon();
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 250);
        frame.setVisible(true);
    }

    class PolygonsPanel extends JPanel {

        protected void paintComponent(Graphics g) {
            super.paintComponent(g);

            int xCenter = getWidth() / 2;
            int yCenter = getHeight() / 2;
            int radius = (int) (Math.min(getWidth(), getHeight()) * 0.4);

            // Create a Polygon object
            Polygon polygon = new Polygon();

            // Add points to the polygon
            polygon.addPoint(xCenter + radius, yCenter);
            polygon.addPoint((int) (xCenter + radius * Math.cos(1 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(1 * 2 * Math.PI / 7)));
            polygon.addPoint((int) (xCenter + radius * Math.cos(2 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(2 * 2 * Math.PI / 7)));
            polygon.addPoint((int) (xCenter + radius * Math.cos(3 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(3 * 2 * Math.PI / 7)));
            polygon.addPoint((int) (xCenter + radius * Math.cos(4 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(4 * 2 * Math.PI / 7)));
            polygon.addPoint((int) (xCenter + radius * Math.cos(5 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(5 * 2 * Math.PI / 7)));
            polygon.addPoint((int) (xCenter + radius * Math.cos(6 * 2 * Math.PI /
7)),
                    (int) (yCenter - radius * Math.sin(6 * 2 * Math.PI / 7)));

            // Draw the polygon
            g.drawPolygon(polygon);
        }
    }
}
```

```java
package ex9;

import javax.swing.*;

public class MyFrame {

    public static void main(String[] args) {
        JFrame frame = new JFrame("MyFrame"); // Create a frame
        frame.setSize(400, 300); // Set the frame size
        frame.setLocationRelativeTo(null); // New since JDK 1.4
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true); // Display the frame
    }
}

```



```java
package ex9;

import javax.swing.*;

public class MyFrameWithComponents {

    public static void main(String[] args) {
        JFrame frame = new JFrame("MyFrameWithComponents");

        // Add a button into the frame
        JButton jbtOK = new JButton("--I AM VERY FAT--");
        frame.add(jbtOK);

        frame.setSize(400, 300);
        frame.setVisible(true);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setLocationRelativeTo(null); // New since JDK 1.4
    }
}

```

```java
package ex9;

import javax.swing.JButton;
import javax.swing.JFrame;
import java.awt.BorderLayout;

public class ShowBorderLayout extends JFrame {

    public ShowBorderLayout() {
        // Set BorderLayout with horizontal gap 5 and vertical gap 10
        setLayout(new BorderLayout(5, 10));

        // Add buttons to the frame
        add(new JButton("East"), BorderLayout.EAST);
        add(new JButton("South"), BorderLayout.SOUTH);
        add(new JButton("West"), BorderLayout.WEST);
        add(new JButton("North"), BorderLayout.NORTH);
        add(new JButton("Center"), BorderLayout.CENTER);
    }

    /** Main method */
    public static void main(String[] args) {
        ShowBorderLayout frame = new ShowBorderLayout();
        frame.setTitle("ShowBorderLayout");
        frame.setLocationRelativeTo(null); // New since JDK 1.4
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(300, 200);
        frame.setVisible(true);
    }
}

```



```java
package ex9;

import javax.swing.JLabel;
import javax.swing.JTextField;
import javax.swing.JFrame;
import java.awt.FlowLayout;

public class ShowFlowLayout extends JFrame {

    public ShowFlowLayout() {
        // Set FlowLayout, aligned left with horizontal gap 10
        // and vertical gap 20 between components
        setLayout(new FlowLayout(FlowLayout.RIGHT, 10, 20));

        // Add labels and text fields to the frame
        this.add(new JLabel("First Name"));
        add(new JTextField(8));
        add(new JLabel("MI"));
        add(new JTextField(1));
        add(new JLabel("Last Name"));
        add(new JTextField(8));
    }

    /** Main method */
    public static void main(String[] args) {
        ShowFlowLayout frame = new ShowFlowLayout();
        frame.setTitle("ShowFlowLayout");
        frame.setLocationRelativeTo(null); // New since JDK 1.4
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 200);
        frame.setVisible(true);
    }
}

```

```java
package ex9;

import javax.swing.JLabel;
import javax.swing.JTextField;
import javax.swing.JFrame;
import java.awt.GridLayout;

public class ShowGridLayout {

    /** Main method */
    public static void main(String[] args) {
        JFrame frame = new JFrame();

        frame.setLayout(new GridLayout(3, 2, 5, 5));

        // Add labels and text fields to the frame
        frame.add(new JLabel("First Name"));
        frame.add(new JTextField(8));
        frame.add(new JLabel("MI"));
        frame.add(new JTextField(1));
        frame.add(new JLabel("Last Name"));
        frame.add(new JTextField(8));

        frame.setTitle("ShowGridLayout");
        frame.setLocationRelativeTo(null); // New since JDK 1.4
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 125);
        frame.setVisible(true);
    }
}

```



```java
package ex9;

import javax.swing.*;
import java.awt.Graphics;

public class TestGetGraphics extends JFrame {

    private JLabel jlblBanner = new JLabel("Banner");

    public TestGetGraphics() {
        add(jlblBanner);
        //System.out.println(jlblBanner.getGraphics());
    }

    public static void main(String[] args) {
        TestGetGraphics frame = new TestGetGraphics();
        frame.setTitle("TestGetGraphics");
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 100);
        frame.setVisible(true);

        // suspending here until pressing enter to return
        JOptionPane.showMessageDialog(null, "Delay on purpose\nClick OK to dismiss the dialog");

        Graphics graphics = frame.jlblBanner.getGraphics();
        graphics.drawLine(0, 0, 150, 150);



    }
}

```

```java
package ex9;

import javax.swing.*;
import java.awt.*;

public class TestImageIcon extends JFrame {

    private ImageIcon usIcon = new ImageIcon("image/us.gif");
    private ImageIcon myIcon = new ImageIcon("image/my.jpg");
    private ImageIcon frIcon = new ImageIcon("image/fr.gif");
    private ImageIcon ukIcon = new ImageIcon("image/uk.gif");

    public TestImageIcon() {
        setLayout(new GridLayout(1, 4, 5, 5));
        add(new JLabel(usIcon));
        add(new JLabel(myIcon));
        add(new JButton(frIcon));
        add(new JButton(ukIcon));
    }

    /** Main method */
    public static void main(String[] args) {
        TestImageIcon frame = new TestImageIcon();
        frame.setTitle("TestImageIcon");
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(600, 200);
        frame.setVisible(true);
    }
}

```



```java
package ex9;

import java.awt.Graphics;
import javax.swing.*;

public class TestPaintComponent extends JFrame {

    public TestPaintComponent() {
        add(new NewLabel("Banner"));
    }

    public static void main(String[] args) {
        TestPaintComponent frame = new TestPaintComponent();
        frame.setTitle("TestPaintComponent");
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 100);
        frame.setVisible(true);
    }

    class NewLabel extends JLabel {

        public NewLabel(String text) {
            super(text);
        }

        @Override
        protected void paintComponent(Graphics g) {
            super.paintComponent(g);
            g.drawLine(0, 0, 50, 50);
        }
    }
}

```

```java
package ex9;

import java.awt.Color;
import java.awt.Graphics;
import javax.swing.*;

public class TestPanelDrawing extends JFrame {

    public TestPanelDrawing() {
        add(new NewPanel());
    }

    public static void main(String[] args) {
        TestPanelDrawing frame = new TestPanelDrawing();
        frame.setTitle("TestPanelDrawing");
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(200, 100);
        frame.setVisible(true);
    }

    class NewPanel extends JPanel {

        int x = 0;

        protected void paintComponent(Graphics g) {
            super.paintComponent(g);
            g.drawLine(0, 0, 50, 50);
            g.setColor(Color.red);
            g.drawString("Banner " + x++, 0, 50);

        }
    }

}

```



```java
package ex9;

import java.awt.*;
import javax.swing.*;

public class TestPanels extends JFrame {

    public TestPanels() {
        // Create panel p1 for the buttons and set GridLayout
        JPanel p1 = new JPanel();
        p1.setLayout(new GridLayout(4, 3));

        // Add buttons to the panel
        for (int i = 1; i <= 9; i++) {
            p1.add(new JButton("" + i));
        }

        p1.add(new JButton("" + 0));
        p1.add(new JButton("Start"));
        p1.add(new JButton("Stop"));

        // Create panel p2 to hold a text field and p1
        JPanel p2 = new JPanel(new BorderLayout());
        p2.add(new JTextField("Time to be displayed here"), BorderLayout.NORTH);
        p2.add(p1, BorderLayout.CENTER);

        // Add contents to the frame
        add(p2, BorderLayout.EAST);
        add(new JButton("Food to be placed here"), BorderLayout.CENTER);
    }

    /** Main method */
    public static void main(String[] args) {
        TestPanels frame = new TestPanels();
        frame.setTitle("The Front View of a Microwave Oven");
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setSize(400, 250);
        frame.setVisible(true);
    }
}

```

```java
package ex9;

import java.awt.*;
import javax.swing.*;
import javax.swing.border.*;

public class TestSwingCommonFeatures extends JFrame {

    public TestSwingCommonFeatures() {
        // Create a panel to group three buttons
        JPanel p1 = new JPanel(new FlowLayout(FlowLayout.LEFT, 2, 2));
        JButton jbtLeft = new JButton("Left");
        JButton jbtCenter = new JButton("Center");
        JButton jbtRight = new JButton("Right");
        jbtLeft.setBackground(Color.WHITE);
        jbtCenter.setForeground(Color.GREEN);
        jbtRight.setToolTipText("This is the Right button");
        p1.add(jbtLeft);
        p1.add(jbtCenter);
        p1.add(jbtRight);
        p1.setBorder(new TitledBorder("Three Buttons"));

        // Create a font and a line border
        Font largeFont = new Font("Arial", Font.BOLD, 20);
        Border lineBorder = new LineBorder(Color.BLACK, 2);

        // Create a panel to group two labels
        JPanel p2 = new JPanel(new GridLayout(1, 2, 5, 5));
        JLabel jlblRed = new JLabel("Red");
        JLabel jlblOrange = new JLabel("Orange");
        jlblRed.setForeground(Color.RED);
        jlblOrange.setForeground(Color.ORANGE);
        jlblRed.setFont(largeFont);
        jlblOrange.setFont(largeFont);
        jlblRed.setBorder(lineBorder);
        jlblOrange.setBorder(lineBorder);
        p2.add(jlblRed);
        p2.add(jlblOrange);
        p2.setBorder(new TitledBorder("Two Labels"));

        // Add two panels to the frame
        setLayout(new GridLayout(2, 1, 5, 5));
        add(p1);
        add(p2);
    }

    public static void main(String[] args) {
        // Create a frame and set its properties
        JFrame frame = new TestSwingCommonFeatures();
        frame.setTitle("TestSwingCommonFeatures");
        frame.setSize(300, 150);
        frame.setLocationRelativeTo(null); // Center the frame
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);

    }
}
```