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CSC 341

Homework10

Reflection 10:

This assignment was a bit tricky but ultimately, I was able to pull it together for a result and output.

Class Panel:

```
package homework10;

import java.awt.Color;
import java.awt.Dimension;
import java.awt.Graphics;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.util.ArrayList;
import java.util.Random;
import javax.swing.JButton;
import javax.swing.JPanel;
import java.awt.*;
import java.awt.event.*;

public class Panel extends JPanel
{
	private static final long serialVersionUID = 1L;

	public ArrayList<IShape> shapes = new ArrayList<IShape>();

	JPanel displayPanel = new JPanel();

	public JPanel buildNorthPanel()
	{
		displayPanel.setPreferredSize(new Dimension(720,480));
		displayPanel.setBackground(Color.WHITE);

		return displayPanel;
	}

	public void paint(Graphics gr)
	{
		super.paintComponent(gr);

		Graphics2D g2 = (Graphics2D) gr.create();

		Random random = new Random();
		int r = random.nextInt(255);
```

```
			int b = random.nextInt(255);
			int g = random.nextInt(255);
			Color randomColor = new Color(r,g,b);

			g2.setColor(randomColor);

			for (IShape s : shapes)
			{
				s.draw(g2);
			}
		}

		public JPanel buildSouthPanel()
		{
			JPanel southPanel = new JPanel();

			JButton erase = new JButton("Erase");

			IBtn create = new ShallowBtn(new DeepBtn());

			southPanel.setBackground(Color.BLUE);

			erase.addActionListener(new ActionListener()
			{
				@Override
				public void actionPerformed(ActionEvent e)
				{
					repaint();
				}

			});

			southPanel.add(create.create("DREW IS MY NAME"));
			southPanel.add(erase);

			return southPanel;
		}


}

interface IBtn
{
    JButton create(String str);
}

class DeepBtn implements IBtn
{

		public ArrayList<IShape> shapes = new ArrayList<IShape>();

		Panel panel = new Panel();
		@Override
		public JButton create(String str)
		{
```

```
		JButton btn = new JButton(str);
		btn.addMouseListener(new MouseAdapter()
		{
			String text;
			@Override
			public void mousePressed(MouseEvent e)
			{
				JButton btn = (JButton) e.getSource();
				text = btn.getText();
				btn.setText("Create Shapes");
				shapes.add(new Circle(panel.displayPanel.getGraphics()));
				shapes.add(new
Rectangle(panel.displayPanel.getGraphics()));
				shapes.add(new
Triangle(panel.displayPanel.getGraphics()));
				panel.displayPanel.repaint();
				//System.out.println(shapes);
}

			@Override
			public void mouseReleased(MouseEvent e)
			{
				JButton btn = (JButton) e.getSource();
				btn.setText(text);
			}
		});

		return btn;
	}
}

class ShallowBtn implements IBtn
{
	IBtn proxyBtn;
	public ShallowBtn(IBtn real)
	{
		proxyBtn = real;
	}

	@Override
	public JButton create(String str)
	{
		return proxyBtn.create("Create");
	}
}
```

Class Frame:

```
package homework10;

import javax.swing.JFrame;

public class Frame extends Panel
```

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

	JFrame frame = new JFrame();

	public Frame()
	{
		frameBuilder();
	}

	public JFrame frameBuilder()
	{
		frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
		frame.add(buildNorthPanel());
		frame.add(buildSouthPanel(), "South");
		frame.pack();
		frame.setVisible(true);

		return frame;
	}
}
```

Interface IShape:

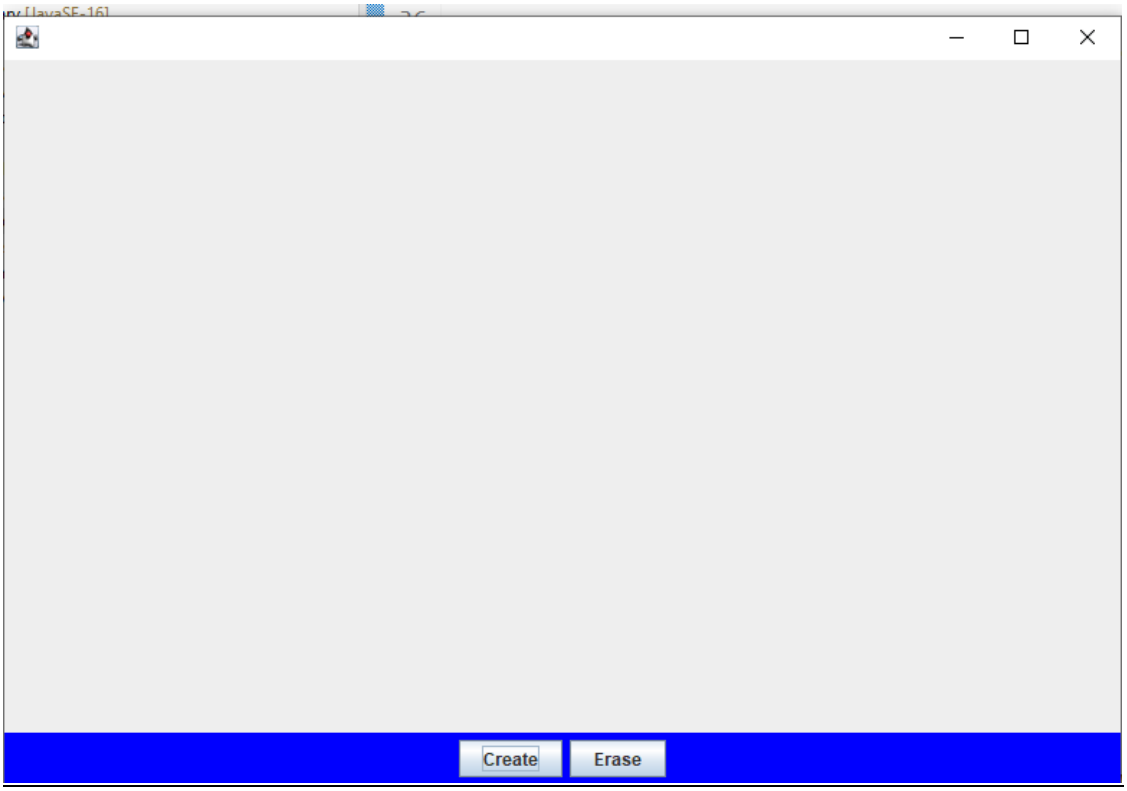
```
package homework10;

import java.awt.Graphics;
import java.util.Random;

public interface IShape
{
	void draw(Graphics g);
}

class Triangle implements IShape
{
	public Triangle(Graphics g)
	{
		draw(g);
	}
	@Override
	public void draw(Graphics g)
	{
		Random random = new Random();
		int x = random.nextInt(500);
		int y = random.nextInt(500);
		int w = random.nextInt(150);
		int h = random.nextInt(50);

		g.drawPolygon(new int[] {x, y, w}, new int[] {y, x, h}, 3);
	}
}

class Rectangle implements IShape
```

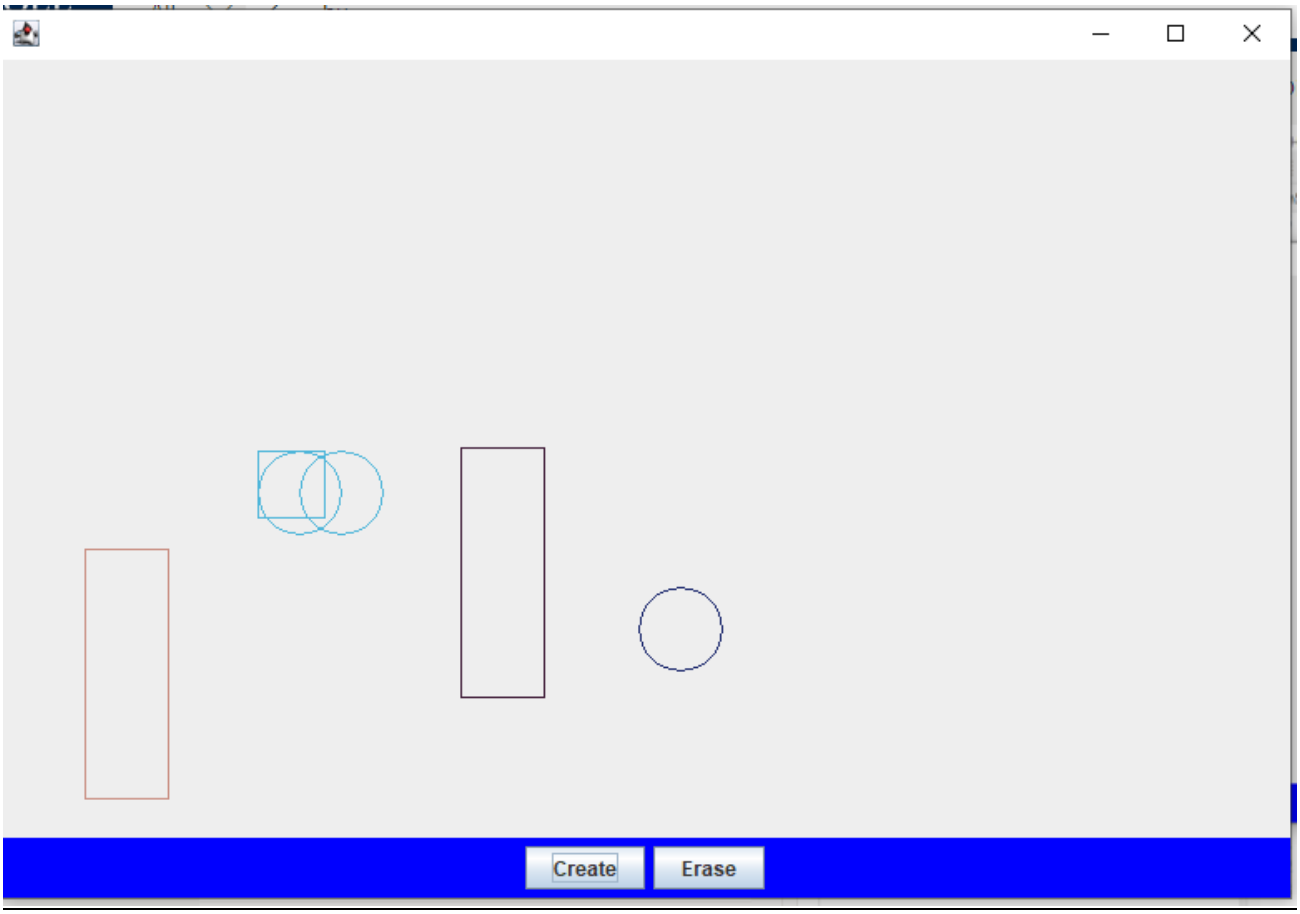
```
{

	public Rectangle(Graphics g)
	{
		draw(g);
	}

	@Override
	public void draw(Graphics g)
	{
		Random random = new Random();
		int x = random.nextInt(500);
		int y = random.nextInt(500);
		int w = random.nextInt(150);
		int h = random.nextInt(50);

		g.drawRect(x, y, w, h);
	}
}

class Circle implements IShape
{
	public Circle(Graphics g)
	{
		draw(g);
	}
	@Override
	public void draw(Graphics g)
	{
		Random random = new Random();
		int x = random.nextInt(500);
		int y = random.nextInt(500);
		int w = random.nextInt(150);
		int h = random.nextInt(50);

		g.drawOval(x, y, w, h);
	}
}
```

Class Main:

```
package homework10;

public class Main
{
	public static void main(String[] args)
	{
		new Frame();
	}
}
```

OUTPUT :




Create
Erase