Week 2:

Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result. Handle any possible exceptions like divided by zero.

Source Code:

```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;

/*
 * <applet code="Calculator" width=500 height=500></applet>
 * */

public class Calculator extends Applet implements ActionListener
{
	String msg=" ";
	int v1,v2,result;
	TextField t1;
	Button b[]=new Button[10];
	Button add,sub,mul,div,clear,mod,EQ;
	char OP;
	public void init()
	{
		Color k=new Color(10,89,90);
		setBackground(k);
		t1=new TextField(50);
		GridLayout gl=new GridLayout(6,3);
		setLayout(gl);
		for(int i=0;i<10;i++)
		{
			b[i]=new Button(""+i);
		}
		add=new Button("+");
		sub=new Button("-");
		mul=new Button("*");
		div=new Button("/");
		mod=new Button("%");
		clear=new Button("Clear");
		EQ=new Button("=");
		t1.addActionListener(this);
		add(t1);
		for(int i=0;i<10;i++)
		{
			add(b[i]);
		}
		add(add);
		add(sub);
		add(mul);
		add(div);
		add(mod);
		add(clear);
		add(EQ);
		for(int i=0;i<10;i++)
		{
			b[i].addActionListener(this);
		}
		add.addActionListener(this);
		sub.addActionListener(this);
		mul.addActionListener(this);
		div.addActionListener(this);
```

```
		mod.addActionListener(this);
		clear.addActionListener(this);
		EQ.addActionListener(this);
	}
	public void actionPerformed(ActionEvent ae)
	{
		String str=ae.getActionCommand();
		char ch=str.charAt(0);

		if ( Character.isDigit(ch))
			t1.setText(t1.getText()+str);
		else
			if(str.equals("+"))
			{
				v1=Integer.parseInt(t1.getText());
				OP='+';
				t1.setText("");
			}
			else if(str.equals("-"))
			{
				v1=Integer.parseInt(t1.getText()); OP='-';
				t1.setText("");
			}
			else if(str.equals("*"))
			{
				v1=Integer.parseInt(t1.getText());
				OP='*';
				t1.setText("");
			}
			else if(str.equals("/"))
			{
				v1=Integer.parseInt(t1.getText());
				OP='/';
				t1.setText("");
			}
			else if(str.equals("%")){
				v1=Integer.parseInt(t1.getText());
				OP='%';
				t1.setText("");
			}

		if(str.equals("=")){
			v2=Integer.parseInt(t1.getText());
			if(OP=='+')
				result=v1+v2;
			else if(OP=='-')
				result=v1-v2;
			else if(OP=='*')
				result=v1*v2;
			else if(OP=='/')
				result=v1/v2;
			else if(OP=='%')
				result=v1%v2;
			t1.setText(""+result);
		}
		if(str.equals("Clear"))
		{
			t1.setText("");
		}
	}
}
```

Output: