import java.awt.event.\*;

import javax.swing.\*;

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class calculator extends JFrame implements ActionListener {

    // create a frame

    static JFrame f;

    // create a textfield

    static JTextField l;

    // store oprerator and operands

    String s0, s1, s2;

    // default constrcutor

    calculator()

    {

        s0 = s1 = s2 = "";

    }

    // main function

    public static void main(String args[])

    {

        // create a frame

        f = new JFrame("calculator");

        try {

            // set look and feel

            UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());

        }

        catch (Exception e) {

            System.err.println(e.getMessage());

        }

        // create a object of class

        calculator c = new calculator();

        // create a textfield

        l = new JTextField(16);

        // set the textfield to non editable

        l.setEditable(false);

        // create number buttons and some operators

        JButton b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, ba, bs, bd, bm, be, beq, beq1;

        // create number buttons

        b0 = new JButton("0");

        b1 = new JButton("1");

        b2 = new JButton("2");

        b3 = new JButton("3");

        b4 = new JButton("4");

        b5 = new JButton("5");

        b6 = new JButton("6");

        b7 = new JButton("7");

        b8 = new JButton("8");

        b9 = new JButton("9");

        // equals button

        beq1 = new JButton("=");

        // create operator buttons

        ba = new JButton("+");

        bs = new JButton("-");

        bd = new JButton("/");

        bm = new JButton("\*");

        beq = new JButton("C");

        // create . button

        be = new JButton(".");

        // create a panel

        JPanel p = new JPanel();

        // add action listeners

        bm.addActionListener(c);

        bd.addActionListener(c);

        bs.addActionListener(c);

        ba.addActionListener(c);

        b9.addActionListener(c);

        b8.addActionListener(c);

        b7.addActionListener(c);

        b6.addActionListener(c);

        b5.addActionListener(c);

        b4.addActionListener(c);

        b3.addActionListener(c);

        b2.addActionListener(c);

        b1.addActionListener(c);

        b0.addActionListener(c);

        be.addActionListener(c);

        beq.addActionListener(c);

        beq1.addActionListener(c);

        // add elements to panel

        p.add(l);

        p.add(ba);

        p.add(b1);

        p.add(b2);

        p.add(b3);

        p.add(bs);

        p.add(b4);

        p.add(b5);

        p.add(b6);

        p.add(bm);

        p.add(b7);

        p.add(b8);

        p.add(b9);

        p.add(bd);

        p.add(be);

        p.add(b0);

        p.add(beq);

        p.add(beq1);

        // set Background of panel

        p.setBackground(Color.blue);

        // add panel to frame

        f.add(p);

        f.setSize(200, 220);

        f.show();

    }

    public void actionPerformed(ActionEvent e)

    {

        String s = e.getActionCommand();

        // if the value is a number

        if ((s.charAt(0) >= '0' && s.charAt(0) <= '9') || s.charAt(0) == '.') {

            // if operand is present then add to second no

            if (!s1.equals(""))

                s2 = s2 + s;

            else

                s0 = s0 + s;

            // set the value of text

            l.setText(s0 + s1 + s2);

        }

        else if (s.charAt(0) == 'C') {

            // clear the one letter

            s0 = s1 = s2 = "";

            // set the value of text

            l.setText(s0 + s1 + s2);

        }

        else if (s.charAt(0) == '=') {

            double te;

            // store the value in 1st

            if (s1.equals("+"))

                te = (Double.parseDouble(s0) + Double.parseDouble(s2));

            else if (s1.equals("-"))

                te = (Double.parseDouble(s0) - Double.parseDouble(s2));

            else if (s1.equals("/"))

                te = (Double.parseDouble(s0) / Double.parseDouble(s2));

            else

                te = (Double.parseDouble(s0) \* Double.parseDouble(s2));

            // set the value of text

            l.setText(s0 + s1 + s2 + "=" + te);

            // convert it to string

            s0 = Double.toString(te);

            s1 = s2 = "";

        }

        else {

            // if there was no operand

            if (s1.equals("") || s2.equals(""))

                s1 = s;

            // else evaluate

            else {

                double te;

                // store the value in 1st

                if (s1.equals("+"))

                    te = (Double.parseDouble(s0) + Double.parseDouble(s2));

                else if (s1.equals("-"))

                    te = (Double.parseDouble(s0) - Double.parseDouble(s2));

                else if (s1.equals("/"))

                    te = (Double.parseDouble(s0) / Double.parseDouble(s2));

                else

                    te = (Double.parseDouble(s0) \* Double.parseDouble(s2));

                // convert it to string

                s0 = Double.toString(te);

                // place the operator

                s1 = s;

                // make the operand blank

                s2 = "";

            }

            // set the value of text

            l.setText(s0 + s1 + s2);

        }

    }

}