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import java.awt.BorderLayout;
import java.awt.EventQueue;

import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.border.EmptyBorder;
import javax.swing.JLabel;
import java.awt.GridLayout;
import javax.swing.JButton;
import java.awt.Color;
import javax.swing.border.LineBorder;
import javax.swing.JOptionPane;
import javax.swing.JTextField;
import java.awt.event.ActionListener;
import java.awt.event.ActionEvent;
import javax.swing.SwingConstants;
import java.awt.Font;

public class Pilas extends JFrame {

    private JPanel contentPane;
    private JPanel panelc;
    private JPanel panels;
    private JLabel lbl0;
    private JLabel lbl1;
    private JLabel lbl2;
    private JLabel lbl3;
    private JLabel lbl5;
    private JLabel lbl6;
    private JLabel lbl100;
    private JLabel lbl101;
    private JLabel lbl102;
    private JLabel lbl103;
    private JLabel lbl104;
    private JLabel lbl105;
    private JLabel lbl106;
    private JLabel lbl14;
    private JButton btnAgrega;
    private JButton btnEliminar;
    private JTextField tAgrega;
    private JTextField tModifica;
    private JButton btnModificar;
    int tope = -1;
    private JLabel lblNewLabel_2;
    private JLabel lblTope;
    private JLabel labelTope;
    private JTextField tPop;
    private JLabel label_1;

    /**
     * Launch the application.
     */
    public static void main(String[] args) {
        EventQueue.invokeLater(new Runnable() {
            public void run() {
                try {
                    Pilas frame = new Pilas();
                    frame.setVisible(true);
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        });
    }

    /**
     * Create the frame.
     */
    public Pilas() {
        setTitle("Estructura de Datos (PILAS)");
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setBounds(100, 100, 519, 293);
        contentPane = new JPanel();
        contentPane.setBorder(new EmptyBorder(5, 5, 5, 5));
        setContentPane(contentPane);
        contentPane.setLayout(new BorderLayout(0, 0));

        panelc = new JPanel();
        contentPane.add(panelc, BorderLayout.CENTER);
        panelc.setLayout(null);

        btnAgrega = new JButton("push");
        btnAgrega.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent arg0) {
                if (tAgrega.getText().isEmpty()) {
                    JOptionPane.showMessageDialog(null, "El elemento esta vacio", "Error", JOptionPane.ERROR_MESSAGE);
                }
                else if (tope == 6) {
                    JOptionPane.showMessageDialog(null, "La Pila esta llena", "Error", JOptionPane.ERROR_MESSAGE);
                }
                else {
                    int q = ++tope;
                    getLabel(q).setText(tAgrega.getText());
                    tModifica.setText(tAgrega.getText());
                    tPop.setText(tAgrega.getText());
                    tAgrega.setText("");
                    labelTope.setText(""+tope);
                }
            }
        });
        btnAgrega.setBounds(247, 59, 117, 29);
        panelc.add(btnAgrega);

        btnEliminar = new JButton("pop");
        btnEliminar.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent arg0) {

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        if (tope == -1) {
            JOptionPane.showMessageDialog (null, "La Pila esta vacia", "Error", JOptionPane.ERROR_MESSAGE);
        }
        else {
            getLabel(tope).setText("");
            tope--;
            labelTope.setText(""+tope);
            if (tope >= 0 ) {
                tPop.setText( getLabel(tope).getText() );
                tModificar.setText( getLabel(tope).getText() );
            }
            else if (tope == -1) {
                btnModificar.setEnabled(false);
                tModificar.setText("");
                tPop.setText("");
            }
        }
    }
});
btnEliminar.setBounds(247, 167, 117, 29);
panelc.add(btnEliminar);

tAgrega = new JTextField();
tAgrega.setBounds(127, 58, 103, 28);
panelc.add(tAgrega);
tAgrega.setColumns(10);

JLabel lblNewLabel = new JLabel("Elemento");
lblNewLabel.setBounds(151, 38, 61, 16);
panelc.add(lblNewLabel);

tModificar = new JTextField();
tModificar.setEnabled(false);
tModificar.setColumns(10);
tModificar.setBounds(127, 116, 103, 28);
panelc.add(tModificar);

btnModificar = new JButton("top");
btnModificar.setEnabled(false);
btnModificar.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent arg0) {
        if (tope <= 6 ){
            tModificar.setText(getLabel(0).getText());
            JOptionPane.showMessageDialog (null, "Se MODIFICO la posicion", "Informacion", JOptionPane.INFORMATION_MESSAGE);
        }
    }
});
btnModificar.setBounds(247, 117, 117, 29);
panelc.add(btnModificar);

lblNewLabel_2 = new JLabel("Valor Actual");
lblNewLabel_2.setBounds(140, 98, 85, 16);
panelc.add(lblNewLabel_2);

lblTope = new JLabel("tope =");
lblTope.setForeground(Color.RED);
lblTope.setFont(new Font("Lucida Grande", Font.BOLD, 13));
lblTope.setBounds(32, 116, 48, 16);
panelc.add(lblTope);

labelTope = new JLabel("-1");
labelTope.setFont(new Font("Lucida Grande", Font.BOLD, 13));
labelTope.setForeground(Color.RED);
labelTope.setBounds(83, 116, 61, 16);
panelc.add(labelTope);

tPop = new JTextField();
tPop.setEnabled(false);
tPop.setColumns(10);
tPop.setBounds(127, 168, 103, 28);
panelc.add(tPop);

label_1 = new JLabel("Valor Actual");
label_1.setBounds(140, 150, 85, 16);
panelc.add(label_1);

panels = new JPanel();
contentPane.add(panels, BorderLayout.WEST);
panels.setLayout(new GridLayout(7,2));

lbl6 = new JLabel(" ");
lbl6.setHorizontalAlignment(SwingConstants.CENTER);
lbl6.setBackground(Color.ORANGE);
lbl6.setBorder(new LineBorder(new Color(0, 0, 0)));
lbl6.setOpaque(true);
panels.add(lbl6);

lbl06 = new JLabel("6");
lbl06.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl06);

lbl5 = new JLabel(" ");
lbl5.setHorizontalAlignment(SwingConstants.CENTER);
lbl5.setOpaque(true);
lbl5.setBackground(Color.ORANGE);
lbl5.setBorder(new LineBorder(new Color(0, 0, 0)));
panels.add(lbl5);

lbl05 = new JLabel("5");
lbl05.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl05);

lbl4 = new JLabel(" ");
lbl4.setHorizontalAlignment(SwingConstants.CENTER);
lbl4.setBackground(Color.ORANGE);
lbl4.setOpaque(true);
lbl4.setBorder(new LineBorder(new Color(0, 0, 0)));

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panels.add(lbl4);

lbl04 = new JLabel("4");
lbl04.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl04);

lbl3 = new JLabel(" ");
lbl3.setHorizontalAlignment(SwingConstants.CENTER);
lbl3.setBackground(Color.ORANGE);
lbl3.setOpaque(true);
lbl3.setBorder(new LineBorder(new Color(0, 0, 0)));
panels.add(lbl3);

lbl03 = new JLabel("3");
lbl03.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl03);

lbl2 = new JLabel(" ");
lbl2.setHorizontalAlignment(SwingConstants.CENTER);
lbl2.setBackground(Color.ORANGE);
lbl2.setOpaque(true);
lbl2.setBorder(new LineBorder(new Color(0, 0, 0)));
panels.add(lbl2);

lbl02 = new JLabel("2");
lbl02.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl02);

lbl1 = new JLabel(" ");
lbl1.setHorizontalAlignment(SwingConstants.CENTER);
lbl1.setBackground(Color.ORANGE);
lbl1.setOpaque(true);
lbl1.setBorder(new LineBorder(new Color(0, 0, 0)));
panels.add(lbl1);

lbl01 = new JLabel("1");
lbl01.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl01);

lbl0 = new JLabel(" ");
lbl0.setHorizontalAlignment(SwingConstants.CENTER);
lbl0.setOpaque(true);
lbl0.setBackground(Color.ORANGE);
lbl0.setBorder(new LineBorder(new Color(0, 0, 0)));
panels.add(lbl0);
lbl0.setOpaque(true);
lbl0.setOpaque(true);

lbl00 = new JLabel("0");
lbl00.setHorizontalAlignment(SwingConstants.CENTER);
panels.add(lbl00);
}

JLabel getLabel (int lb) {
    switch (lb) {
        case 0 : return lbl0;
        case 1 : return lbl1;
        case 2 : return lbl2;
        case 3 : return lbl3;
        case 4 : return lbl4;
        case 5 : return lbl5;
        case 6 : return lbl6;
    }return null;
}
}

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