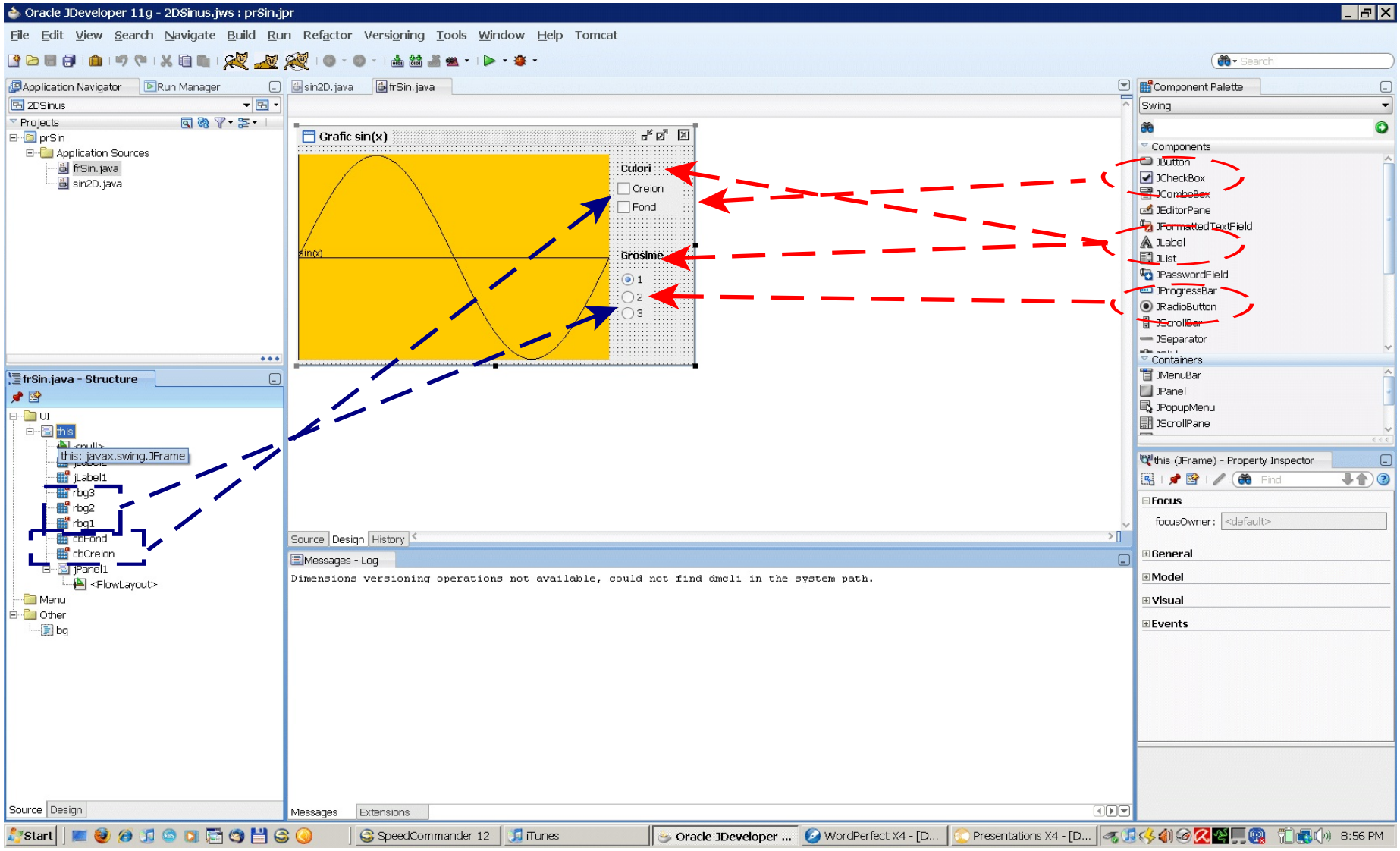
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Clasa frSin.java:

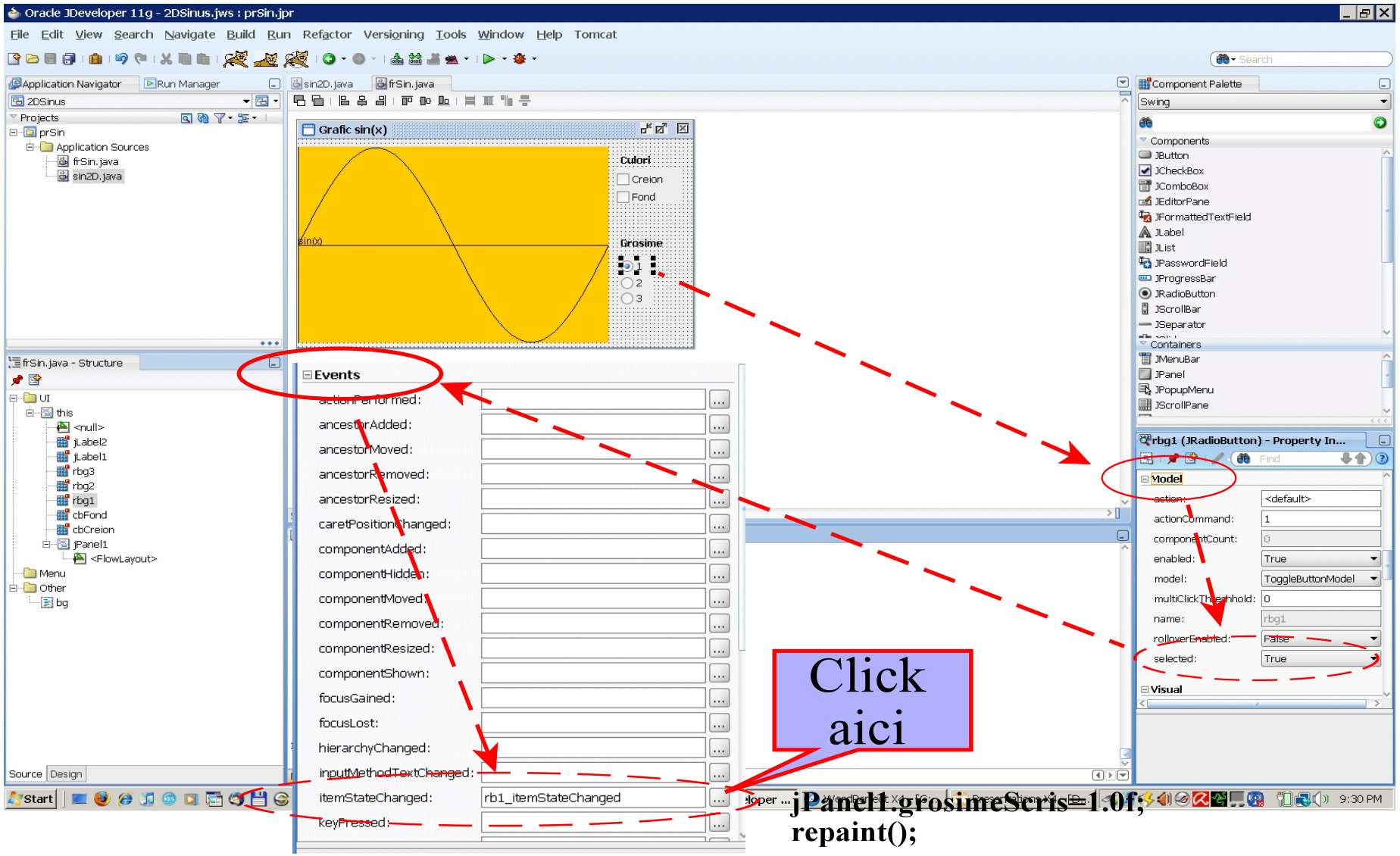
```
import java.awt.*;
import javax.swing.*;

public class frSin extends JFrame {
   private sin2D jPanel1 = new sin2D();
   private JCheckBox cbCreion = new JCheckBox();
   private JCheckBox cbFond = new JCheckBox();
   private JRadioButton rbg1 = new JRadioButton();
   private JRadioButton rbg2 = new JRadioButton();
   private JRadioButton rbg3 = new JRadioButton();
   private JLabel jLabel1 = new JLabel();
   private JLabel jLabel2 = new JLabel();

   //acest cod se scrie cu mana
   //asigura gruparea logica a
   //butoanelor JRadioButton
   private ButtonGroup bg;
   //gata

   public frSin() {
      try {
         jbInit();
      } catch (Exception e) {
         e.printStackTrace();
      }
   }

   private void jbInit() throws Exception {
      this.getContentPane().setLayout( null );
      this.setSize(new Dimension(482, 300));
      this.setTitle( "Grafic sin(x)" );
      jPanel1.setBounds(new Rectangle(0, 10, 375, 255));
      cbCreion.setText("Creion");
      cbCreion.setBounds(new Rectangle(385, 40, 80, 25));
      cbCreion.addItemListener(new ItemListener() {
         public void itemStateChanged(ItemEvent e) {
            cbCreion_itemStateChanged(e);
         }
      });
      cbFond.setText("Fond");
      cbFond.setBounds(new Rectangle(385, 65, 80, 20));
      cbFond.addItemListener(new ItemListener() {
         public void itemStateChanged(ItemEvent e) {
            cbFond_itemStateChanged(e);
         }
      });
      rbg1.setText("1");
      rbg1.setBounds(new Rectangle(390, 155, 40, 20));
      //acest JRadioButton este
      //implicit selectat
      rbg1.setSelected(true);
      rbg1.addItemListener(new ItemListener() {
         public void itemStateChanged(ItemEvent e) {
            rb1_itemStateChanged(e);
         }
      });
      rbg2.setText("2");
      rbg2.setBounds(new Rectangle(390, 175, 40, 25));
      rbg2.addItemListener(new ItemListener() {
         public void itemStateChanged(ItemEvent e) {
            rbg2_itemStateChanged(e);
         }
      });
      rbg3.setText("3");
```

```
    rbg3.setBounds(new Rectangle(390, 195, 40, 25));
    rbg3.addItemListener(new ItemListener() {
          public void itemStateChanged(ItemEvent e) {
             rbg3_itemStateChanged(e);
          }
       });
    jLabel1.setText("Culori");
    jLabel1.setBounds(new Rectangle(390, 15, 70, 25));
    jLabel1.setFont(new Font("Tahoma", 1, 13));
    jLabel2.setText("Grosime");
    jLabel2.setBounds(new Rectangle(390, 125, 65, 20));
    jLabel2.setFont(new Font("Tahoma", 1, 13));
    this.getContentPane().add(jLabel2, null);
    this.getContentPane().add(jLabel1, null);
    this.getContentPane().add(rbg3, null);
    this.getContentPane().add(rbg2, null);
    this.getContentPane().add(rbg1, null);
    this.getContentPane().add(cbFond, null);
    this.getContentPane().add(cbCreion, null);
    this.getContentPane().add(jPanel1, null);

    //acest cod se scrie cu mana
    bg = new ButtonGroup();
    bg.add(rbg1);
    bg.add(rbg2);
    bg.add(rbg3);
}

public static void main(String[] args) {
    frSin fr = new frSin();
    fr.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    fr.setVisible(true);
}
```

```
    private void cbCreion_itemStateChanged(ItemEvent e) {
        jPanel1.culoareScris =
cbCreion.isSelected()?Color.BLUE:Color.BLACK;
        repaint();
    }

    private void cbFond_itemStateChanged(ItemEvent e) {
        jPanel1.culoareaFond = cbFond.isSelected()?
Color.GREEN:Color.YELLOW ;
        repaint();
    }

    private void rb1_itemStateChanged(ItemEvent e) {
        jPanel1.grosimeScris=1.0f;
        repaint();
    }

    private void rbg2_itemStateChanged(ItemEvent e) {
        jPanel1.grosimeScris=2.0f;
        repaint();
    }

    private void rbg3_itemStateChanged(ItemEvent e) {
        jPanel1.grosimeScris=3.0f;
        repaint();
    }
}
```

Clasa sin2D.java:

```
import java.awt.BasicStroke;
import java.awt.Color;
import java.awt.Graphics;
import java.awt.Graphics2D;
import java.awt.geom.Line2D;
import javax.swing.JPanel;

public class sin2D extends JPanel {
   //atribute publice
   //variabile de instanta
   public Color culoareScris, culoareaFond;
   public float grosimeScris;

   //constructor
   public sin2D() {
      culoareaFond = Color.ORANGE;
      culoareScris = Color.BLACK;
      grosimeScris = 1.0f;
   }

   public void paintComponent(Graphics g)
   {
      super.paintComponent(g);
      Graphics2D g2 = (Graphics2D)g;

      //variabile locale
      //latimea JPanel-ului
      double LX = this.getWidth();
      //inaltimea JPanel-ului
      double LY = this.getHeight();
      //Originea in sistemul de axe al graficului
      double x0 = 0;
      double y0 = LY/2.;
      double x1,y1,x2,y2;

      x1=x0;
      y1=y0;
      //axa Ox
      g2.draw(new Line2D.Double(x0, y0, x0+LX, y0));
      //axa Oy
      g2.draw(new Line2D.Double(x0, y0-LY/2, x0, y0+LY));
      LX=LX/2./Math.PI;
      LY=LY/2.-1.;
      //setare culoare fond
      this.setBackground(culoareaFond);
      //setare culoare scris
      g2.setPaint(culoareScris);
      //setare grosime scris
      g2.setStroke(new BasicStroke(grosimeScris));
     //trasare grafic sin(x)
      for(double x=0.;x<2.*Math.PI;x+=0.01) {
         x2=x0+LX*x;
         y2=y0-LY*Math.sin(x);
         //y2=y0-LY*Math.sin(x)*x/5.;
         g2.draw(new Line2D.Double(x1, y1, x2, y2));
         x1=x2;
         y1=y2;
         System.out.printf("%15.5f %15.12f\n",x,Math.sin(x));
      }
      g2.drawString("sin(x) ", (int)x0, (int)y0);
   }
}
```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jLabel1
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rbg2
rbg1
cbFond
cbCreion
jPanel1
<FlowLayout>
Menu
Other
bg
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Design
Events
actionPerformed:
ancestorAdded:
ancestorMoved:
ancestorRemoved:
ancestorResized:
caretPositionChanged:
componentAdded:
componentHidden:
componentMoved:
componentRemoved:
componentResized:
componentShown:
focusGained:
focusLost:
hierarchyChanged:
inputMethodTextChanged:
itemStateChanged:
rb1_itemStateChanged
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JComboBox
JEditorPane
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JLabel
JList
JPasswordField
JProgressBar
JRadioButton
JScrollBar
JSeparator
Containers
JMenuBar
JPanel
JPopupMenu
JScrollPane
rbg1 (JRadioButton) - Property In...
Model
action:
<default>
actionCommand:
1
componentCount:
0
enabled:
True
model:
ToggleButtonModel
multiClickThreshhold:
0
name:
rbg1
rolloverEnabled:
False
selected:
True
Visual
Click aici
jPanel1.grosimeScris=1.0f;
repaint();
Start
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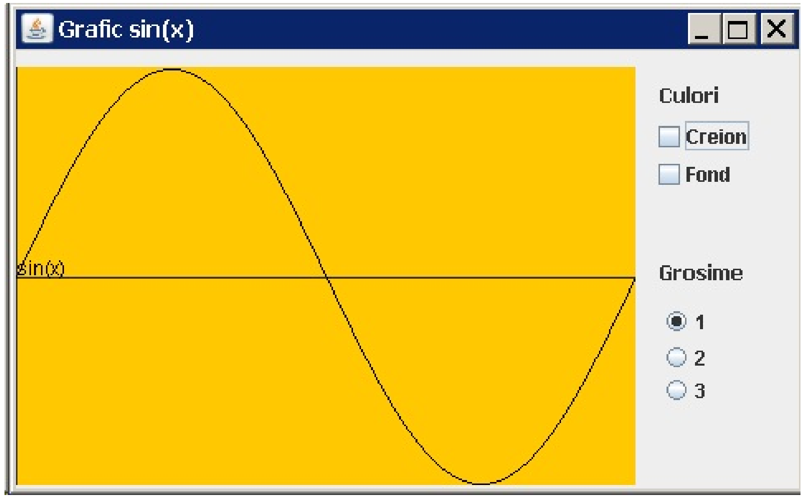
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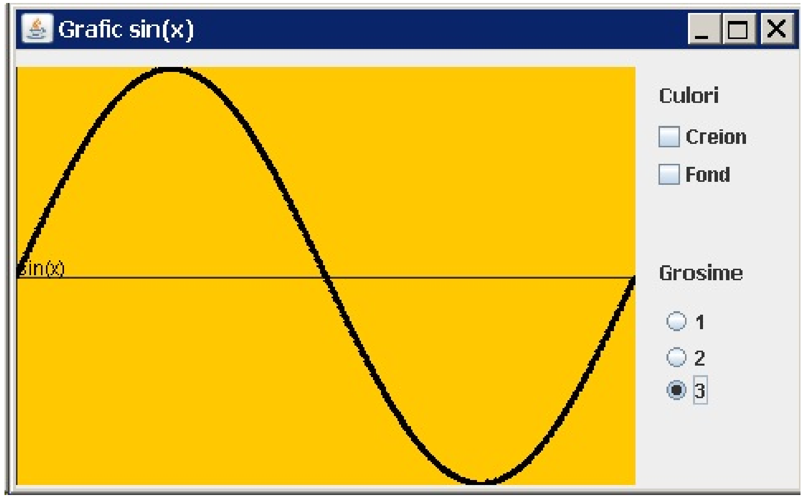
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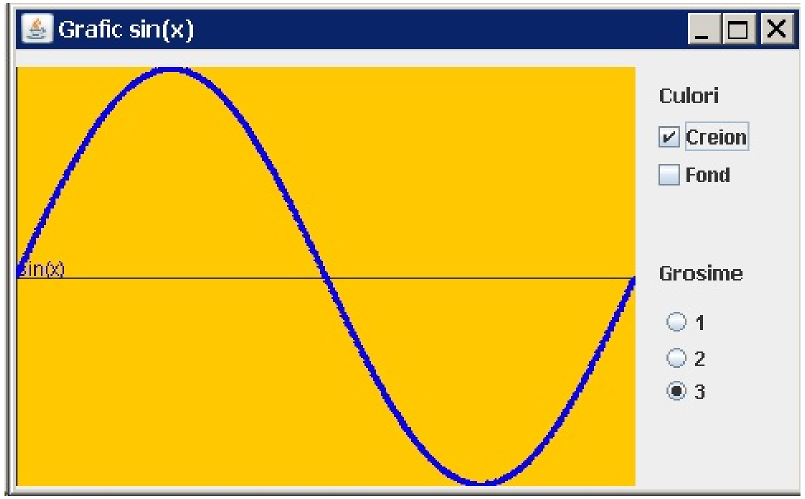
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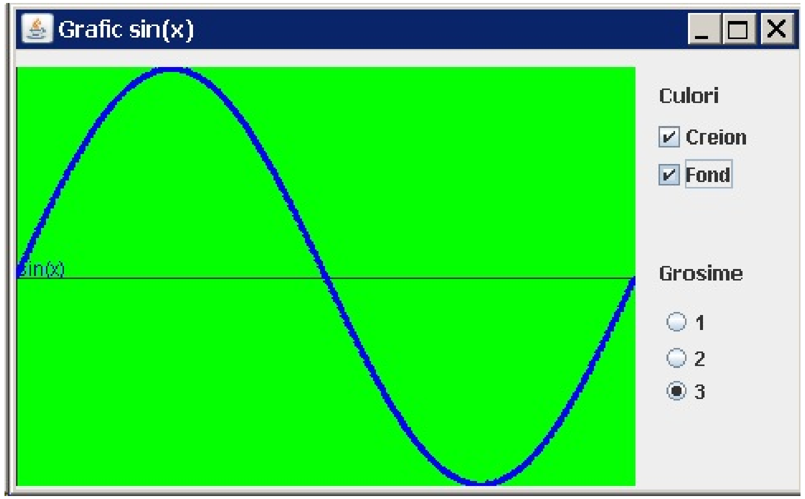
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