



Clasa ClockPanel .java:

```
import java.awt.Dimension;
import java.awt.Graphics;
import java.awt.Graphics2D;
import java.awt.geom.Ellipse2D;
import java.awt.geom.Line2D;
import java.awt.geom.Point2D;
import javax.swing.JPanel;

class ClockPanel extends JPanel {

    private double hours = 0;
    private double minutes = 0;
    private double seconds = 0;

    private int RADIUS = 200;
    private double MINUTE_HAND_LENGTH = 0.7 * RADIUS;
    private double HOUR_HAND_LENGTH = 0.5 * RADIUS;
    private double SECOND_HAND_LENGTH = 0.9 * RADIUS;

    public ClockPanel() {
        setPreferredSize(new Dimension(2 * RADIUS + 1, 2 * RADIUS + 1));
    }

    public void paintComponent(Graphics g) {
        // trasare cerc

        super.paintComponent(g);
        Graphics2D g2 = (Graphics2D)g;
        Ellipse2D circle = new Ellipse2D.Double(0, 0, 2 * RADIUS, 2 * RADIUS);
        g2.draw(circle);

        // trasare ora
        double hourAngle = Math.toRadians(90 - 360 * hours / (24));
        drawHand(g2, hourAngle, HOUR_HAND_LENGTH);
        // trasare minut
```

```
        double minuteAngle = Math.toRadians(90 - 360 * minutes / 60);
        drawHand(g2, minuteAngle, MINUTE_HAND_LENGTH);
        // trasare secunda
        double secondAngle = Math.toRadians(90 - 360 * seconds / 60);
        drawHand(g2, secondAngle, SECOND_HAND_LENGTH);
    }

    public void drawHand(Graphics2D g2, double angle, double handLength) {
        Point2D end = new Point2D.Double(RADIUS + handLength *
Math.cos(angle), RADIUS -
        handLength * Math.sin(angle));
        Point2D center = new Point2D.Double(RADIUS, RADIUS);
        g2.draw(new Line2D.Double(center, end));
    }

    /**
     * Setare timp pentru afisarea pe ceas
     * @param h ora
     * @param m minutul
     * @param s secunda
     */

    public void setTime(int h, int m, int s) {
        hours = h;
        minutes = m;
        seconds = s;
        repaint();
    }

    public void setTime_v1(int h, int m, int s) {
        hours = h + m / 60. + s / 3600.;
        minutes = m + s / 60.;
        seconds = s;
        repaint();
    }
}
```

Clasa frCeas.java:

```
import java.awt.Dimension;
import java.awt.Rectangle;
import java.util.Calendar;
import java.util.TimeZone;
import javax.swing.JFrame;
```

```
public class frCeas extends JFrame {
    private ClockPanel clock = new ClockPanel();

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

    private void jbInit() throws Exception {
        this.getContentPane().setLayout(null);
        this.setSize(new Dimension(428, 441));
        this.setTitle("Ceas analogic(digital).");
        clock.setBounds(new Rectangle(0, 0, 420, 410));
        this.getContentPane().add(clock, null);
    }

    public void goClock() {
        int h, m, s;
        TimeZone tz = TimeZone.getTimeZone("CST");

        Calendar cal;

        for (; ; ) {
            cal = Calendar.getInstance(tz);
            h = cal.get(Calendar.HOUR);
```

```
        m = cal.get(Calendar.MINUTE);
        s = cal.get(Calendar.SECOND);
```

```
        clock.setTime_v1(h, m, s);
        //clock.setTime(h, m, s);
```

```
    }
}
```

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



