

CUBO CHE RIMBALZA (JAVA)

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

class MyPanel extends JPanel implements ActionListener {
private Timer timer;
private int dx=2,dy=1;
private int x, y;
private final int PAUSE = 2;
float xd[]={0, -30,30,30, -30, -30,30,30, -30}, yd[]={0, -30, -30,30,30, -30, -
30,30,30}, zd[]={0, -30, -30, -30, -30,30,30,30,30};
float tx=-0.08f, ty=0.09f, tz=0.01f, costx=-0.2f, costy=0.6f, costz, teta=0.001f;
int i, j, x0, x1, x2, x3, x4, x5, x6, x7, y0, y1, y2, y3, y4, y5, y6, y7;
```

```
MyPanel() {
try {
} catch(Exception e) {}

x = 0;
y = 50;

timer = new Timer(PAUSE, this);
timer.start();
}
```

```
public void actionPerformed(ActionEvent ae) {
y=y+dy;
x=x+dx;
costz=(float)Math.sqrt(1-costx*costx-costy*costy);
for(i=1; i<9; i++)
{
    xd[i]=xd[i]+tx+((yd[0]-yd[i])*costz-(zd[0]-zd[i])*costy)*teta;
    yd[i]=yd[i]+ty+((zd[0]-zd[i])*costx-(xd[0]-xd[i])*costz)*teta;
    zd[i]=zd[i]+tz+((xd[0]-xd[i])*costy-(yd[0]-yd[i])*costx)*teta;
}
```

```
xd[0]=xd[0]+tx;
yd[0]=yd[0]+ty;
zd[0]=zd[0]+tz;
/* Rimbalzo ai bordi */
if((x0>500)&&(tx>0))tx=-tx;
if((x0<0)&&(tx<0))tx=-tx;
if((y0>500)&&(ty>0))ty=-ty;
if((y0<0)&&(ty<0))ty=-ty;
if((zd[0]>500)&&(tz>0))tz=-tz;
if((zd[0]<0)&&(tz<0))tz=-tz;
repaint();
}
```

```
public void paintComponent(Graphics g) {
super.paintComponent(g);
x0=(int)xd[1];
y0=(int)yd[1];
x1=(int)xd[2];
y1=(int)yd[2];
x2=(int)xd[3];
y2=(int)yd[3];
x3=(int)xd[4];
```

```
y3=(int)yd[4];
x4=(int)xd[5];
y4=(int)yd[5];
x5=(int)xd[6];
y5=(int)yd[6];
x6=(int)xd[7];
y6=(int)yd[7];
x7=(int)xd[8];
y7=(int)yd[8];
/* Disegno il cubo */
g.setColor(Color.RED);
g.drawLine(x0,y0,x1,y1);
g.drawLine(x1,y1,x2,y2);
g.drawLine(x1,y1,x5,y5);
g.drawLine(x2,y2,x3,y3);
g.drawLine(x4,y4,x5,y5);
g.drawLine(x5,y5,x6,y6);
g.drawLine(x4,y4,x7,y7);
g.drawLine(x6,y6,x7,y7);
g.drawLine(x0,y0,x4,y4);
g.drawLine(x3,y3,x0,y0);
g.drawLine(x7,y7,x3,y3);
g.drawLine(x6,y6,x2,y2);
g.drawOval(x,y,100,100);
}
```

```
class AnimationExample extends JFrame {
private MyPanel panel;

AnimationExample() {
super("Esempio Animazione");

panel = new MyPanel();
add(panel);

setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
}
```

```
public static void makeGUI() {
AnimationExample ae = new AnimationExample();
ae.setSize(500,500);
ae.setVisible(true);
}
```

```
public static void main(String[] args) {
try {
SwingUtilities.invokeLater(new Runnable() {
public void run() {
makeGUI();
}
});
} catch(Exception e) {}
}
```

