

CSE1720

Week 06, Lecture 11

Winter 2014 ♦ Thursday, Feb 13, 2014



Tasks

1. Compare `FrameAdvancerV1` interface `FrameAdvancerV2`. Identify the delegation.
2. Swap one `FrameAdvancerV1` with `FrameAdvancerV2`. Demonstrate there is no difference in behaviour.
3. Swap `BasicSprite` with `RandomSprite`.
4. Add both types of sprites: `BasicSprite` and `RandomSprite`.
5. Create a collection of `RandomSprite` sprites. Add all of them to the simulation.
6. Create an `ImageSprite` sprite. Investigate how the class works.



```

public class FrameAdvancerV1 implements ActionListener {

    private Picture theCanvas;
    private Graphics2D graphics;
    private Point p;
    private Shape dot;
    private final int DIA = 10;
    private final int MAX_DISP = 10;
    private Rectangle2D blank;

    public FrameAdvancerV1(Picture gameCanvas) {
        this.theCanvas = gameCanvas;
        p = new Point(0, 0);
        dot = new Ellipse2D.Double(p.x, p.y, DIA, DIA);

        graphics = theCanvas.createGraphics();
        blank = new Rectangle2D.Double(0, 0,
            theCanvas.getWidth(),
            theCanvas.getHeight());
    }

    @Override
    public void actionPerformed(ActionEvent ae) {
        graphics.setPaint(Color.WHITE);
        graphics.fill(blank);

        graphics.setPaint(Color.RED);
        graphics.draw(dot);
        theCanvas.repaint();

        // displace particle 1 unit down and to the right
        int newX = (p.x + 1) % theCanvas.getWidth();
        int newY = (p.y + 1) % theCanvas.getHeight();
        p = new Point(newX, newY);
        dot = new Ellipse2D.Double(p.x, p.y, DIA, DIA);
    }
}

```

3

```

public class FrameAdvancerV2 implements ActionListener {

    private Picture theCanvas;
    private Graphics2D graphics;
    private Sprite theParticle1;
    private Rectangle2D blank;

    public FrameAdvancerV2(Picture gameCanvas) {
        this.theCanvas = gameCanvas;
        theParticle1 = new BasicSprite(theCanvas.getWidth(),
            theCanvas.getHeight());

        graphics = theCanvas.createGraphics();
        blank = new Rectangle2D.Double(0, 0,
            theCanvas.getWidth(),
            theCanvas.getHeight());
    }

    @Override
    public void actionPerformed(ActionEvent ae) {
        graphics.setPaint(Color.WHITE);
        graphics.fill(blank);

        theParticle1.draw(graphics);

        theCanvas.repaint();
    }
}

```

