Introduction to Programming

with Java

Class: Rainbow.java

Score: ★★★★

Prerequisites: Java ACM Task Force

Description: Write a GraphicsProgram subclass that draws a rainbow that looks like below in sample run section. Starting at the top, the six arcs are red, orange, yellow, green, blue, and magenta, respectively; cyan makes a lovely color for the sky.

At first glance, it might seem as if you need to draw arcs on the screen, even though you haven't actually learn about the GArc class. As it turns out, that class doesn't really help much. The program that produced the diagram shown uses only circles, although seeing how this is possible forces you to think outside the box—in a literal rather than a figurative sense. The common center for each circle is some distance below the bottom of the window, and the diameters of the circles are wider than the screen. The GraphicsProgram shows only the part of the figure that actually appears in the window. This process of reducing a picture to the visible area is called clipping.

Rather than specify the exact dimensions of each circle, play around with the sizes and positioning of the circles until you get something that matches your aesthetic sensibilities. The only things we'll be concerned about are:

• The top of the arc should not be off the screen.

• Each of the arcs in the rainbow should get clipped along the sides of the window, and not along the bottom.

Sample Run: