Homework 1

Due: Wednesday 1/9 at 11:59pm

In this assignment, you will write a class called BlinkingCircle that uses multiple objects to achieve a blinking appearance. You will need to submit it using the submission extension in BlueJ. (See instructions below.)

Begin with the figures project that we’ve been using. In order to make a circle blink, you want to make it visible, wait briefly, make it invisible, wait briefly, make it visible, wait briefly, and so on. We don’t know how to have a program wait except that calls to slowMoveHorizontal and slowMoveVertical take time. This is what we’ll be using. Follow the instructions below to use this idea to create the class.

1. (2 point) Create a class called BlinkingCircle and give it two attributes, both Circle objects. One of these should be labeled blinker and the other hidden.

2. (2 points) Give your class a constructor that creates both of the Circle objects. In addition, it should move hidden vertically by 1000 units and make it visible. (Despite the name, we want it visible so that drawing it takes longer. We move it so that it’s outside the viewable area.)

3. (3 points) Write a blink method for the class that takes no arguments and returns nothing. It should perform the following actions:
   (a) Make blinker visible.
   (b) Use slowMoveVertical to make hidden move down 100 units.
   (c) Make blinker not visible.
   (d) Again use slowMoveVertical to make hidden move down 100

We’ll learn how to make actions repeat later in the course, but for now use the copy and paste functions to repeat this group of operations 4–5 times. Be sure to compile your program and check that calling blink on a BlinkingCircle causes it to appear and disappear a couple of times.

4. (2 points) Rather than being satisfied with this generic blinking behavior, make one more improvement. Change blink so that it takes an int parameter called delay. Then, instead of having hidden move 100 units in steps 2 and 4 above, make it move delay units. This will let you make the circle blink slower or faster. Verify that this works by calling blink with different arguments, like 50 and 200.

Submission instructions: To submit from your own computer, you’ll need to install submission.defs as instructed on http://courses.knox.edu/cs141/bluej.html.

If you’re using a lab machine or have copied this file, you next need to set some preferences. Open the preferences dialog on BlueJ; it appears in the BlueJ menu on a Mac and in the Tools menu on the Windows version. Select the Preferences tab. Then fill in the following fields of the Submitter box:

- **User name**: Fill in your login name (mine is dbunde)
- **Email**: Your email address (mine is dbunde@knox.edu)
- **Server name**: Fill in smtp.knox.edu
- **Use secure connection**: Select SSL. This will set your port to 465.
If you are using BlueJ from off campus, you’ll have to use the server name provided by your Internet Service Provider (ISP). In the information they provide about how to use their service, they likely gave you the name of an SMTP server. If you have any questions or problems, let me know.

If you can’t get the submission to work, you can email me your code; you can just paste the code for BlinkingCircle into an email.

Optional “bonus” problem: (No additional credit, but could be fun.) Write another class that uses coordinating objects to achieve a measure of animation. For example, draw a row of circles that perform “the wave” by changing color in sequence. If you’re proud of your creation and you’d like bragging rights, share your project with me and I might show some of them before class one day.