CS250 Assignment 4
Circle Animation

Date assigned: Monday, March 9, 2015
Date due: Friday, March 20, 2015
Points: 30

In class we saw that one easy way to animate a circle is:

```cpp
void DarkGDK ()
{
  int x = 20, y = 20;
  dbSyncOn ();
  dbSyncRate (60);
  while (LoopGDK ())
  {
    dbClear (0, 0, 255);
    dbCircle (x, y, 10);
    ++x;
    ++y;
    dbSync ();
  }
}
```

Here are some interesting things to think about:

1. How might we have multiple circles animating on the screen?
2. How do we maintain each circle's attributes?
3. What attributes and behaviors do we want each circle to have?
4. What if we want to expand our animation to rectangles, triangles, and other objects?

You are to implement each interface found in the CS250Assignment4 folder, which can be found in the Public folder on Grace.

The interfaces **Direction2D.h**, **Move2D.h**, and **Speed.h** are to be implemented in a project named **Game2DUtilities**. This interface will not have a main.

The interface **Circle.h** is to be implemented in a project called **CircleAnimation**. In the CircleAnimation project, you are to write a driver called circledriver.cpp that will contain your main function and places a circle of random size between 15 and 50 for a radius in the center of the screen and animates the circle off the screen in a random direction at a random speed between 1-5.

To complete this assignment you must

1. Create two new C++ projects **Game2DUtilities** and **CircleAnimation** in Visual Studio 2010 in your existing assignment solution and implement the interfaces and main function as described above.

2. Type the solution (fully documented/commented) to the problem into your projects.

3. Remember to enter in your name as the author of the program. Also, each file is the have file header documentation.

4. Make sure that your program compiles and runs correctly. If you get any errors, double check that you typed everything correctly. Be aware that C++ is case-sensitive. Also, there must not be any warnings when compiling your program (other than those produced by Dark GDK) or you will lose points.

5. Once you are sure that the program works correctly, it is time to submit your solution. You do this by logging on to Grace and placing your complete solution folder with all projects working correctly in the proper CS250 Drop folder. Make sure that you copy your program folder and don't move the folder. If you move the folder, then you will not have your own copy!

Additional Notes

1. You must follow the coding standards found on the main CS250 Web page. Each method must be documented as shown below. The method is either a Constructor or a Method.

```
//****************************************************************************
// Constructor: Rational
//
// Description: Initializes data members to default values
//
// Parameters:  numerator    - the numerator of the rational number
//              denominator  - the denominator of the rational number
//
// Returned:    None
//****************************************************************************
```

2. Each file needs file heading documentation

3. You must use constants when possible.

4. Dark GDK projects are Win32 Projects NOT Win32 Console Applications

WARNING: This assignment is tricky because you will most likely have several compiler and linker errors to fix during the development process. Start Early!!!!!