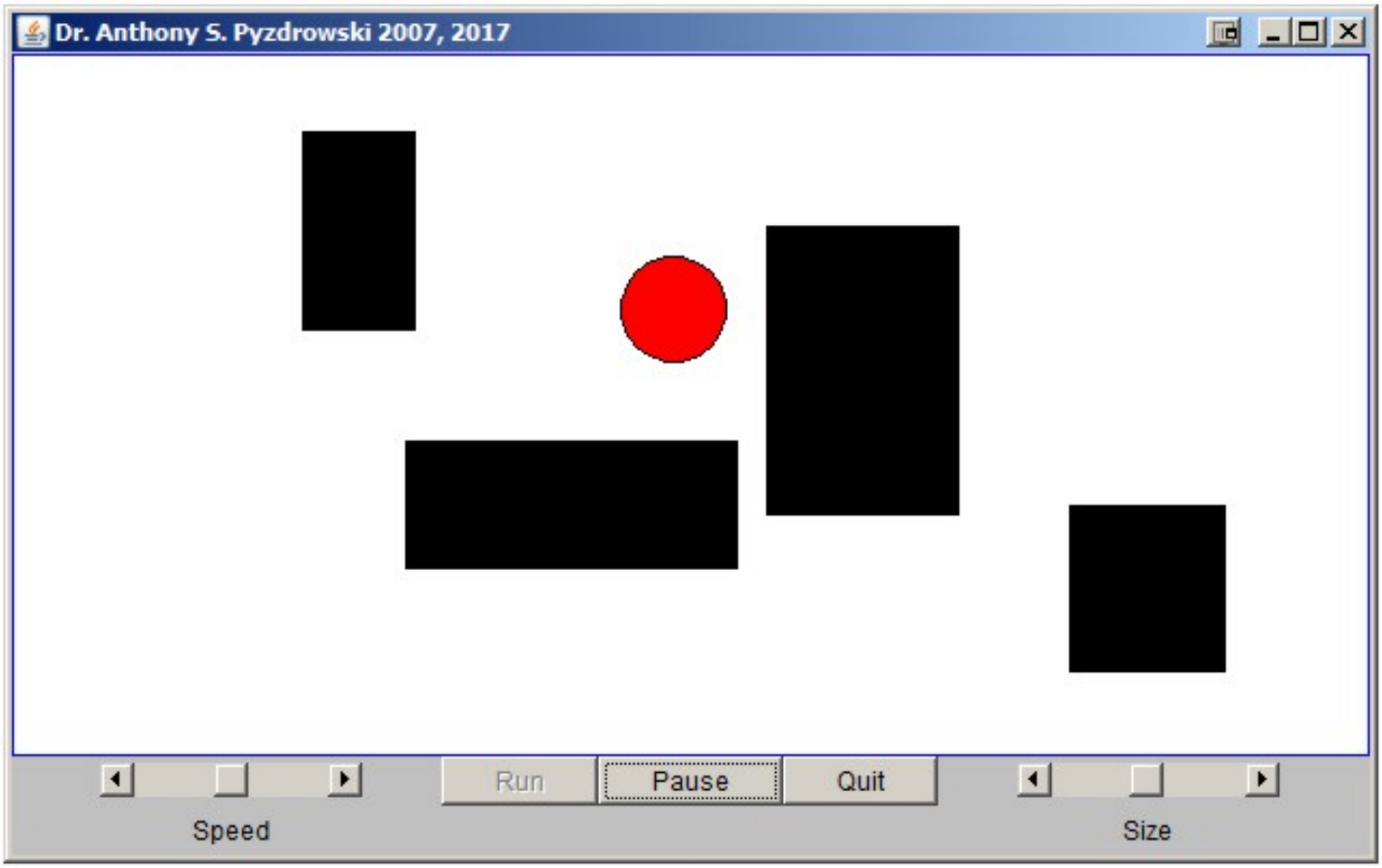
CET - 350
Technical Computing using Java
Group Program #5
Bouncing ball with obstructions Application

Using an IDE, write a java application that will draw a screen box for the bouncing ball to move within.
Include two scrollbars: speed and size.
Include two labels for the scrollbars: speed and size.
Include three buttons: run, pause, and quit.
These features are from the Bounce Application.
The Application will use a BorderLayout applied to the Frame which will contain two Panels.
The control area will use a GridBagLayout applied to a Panel.
The control area will contain the scrollbars, buttons, and labels.
The Ball object which extends a Canvas, will be applied to a Panel which is applied to the center of the BorderLayout of the main Frame.
The control Panel will be applied to the South of the main Panel.
The ball will move on a diagonal until it touches a side or object. The initial position of the ball will be random.
When the ball touches something, it will change direction based on the side that was touched.
The quit button will terminate the application as well as the window's close.
The scrollbars will change the values of the speed and size of the ball.
The mouse will be used to drag and place rectangles into the screen area, these will create Rectangles.
New rectangles that are completely covered by an existing Rectangle will not be included.
When the new rectangle completely covers existing Rectangles, remove all covered Rectangles.
The Rectangles will not exceed the screen box.
The Rectangle will not be placed if the ball is in it's space.
The size of the ball will be restricted to it’s current allowable space.
Use a ball object with a paint routine.
A canvas will be extended by the ball object.
Double buffering will be used with the paint and update routines.
The ball will not destroy the boundary of the box or the Rectangles.
When the mouse is clicked inside a Rectangle, all Rectangles will be removed that contain the mouse click position.
A Vector will be used to store all of the Rectangles.
The timer thread will be used for the time delay.
Use Points and Rectangles to describe positions and sizes instead of individual scalar values (i.e. X, Y, Width, Height,...)
Resize the Frame properly.

Turn in the source code of your program on a fully identified thumb drive. Both the device label and the program header will contain your names, the course title, course number, group number, and email addresses. The program header will also contain the program name. The program will be named BouncingBall.java. You must fully comment your program.

Only turn in a program that will compile without errors. A program that has compile errors will be returned un-checked. Late points will continue to accumulate until a program is turned in that compiles without errors. Properly comment the program.


Dr. Anthony S. Pyzdrowski 2007, 2017
Run
Pause
Quit
Speed
Size