ESc101 Laboratory Assignment
Tuesday of Week of 6/9/04

September 1, 2004

1 Strange Chess Board

1.1 Description

We will design a 4x4 chess board with red and green colours. It will have four pieces - two rectangular pieces and two elliptical. The dimensions of these shapes are in the ratio of 1:2. In other words one side of the rectangle is twice long than the other and one axis of the ellipse is twice long than the other. Multiple pieces can coexist in a cell. One rectangle is twice as large in each dimension than the other. Similarly one ellipse is twice as large in each axis than the other. In other words one rectangle is aX2a and the other is 2aX4a, similarly for the ellipse.

1.2 Problem

(i) Design Ellipse and Rectangle classes. These have the small dimension and the coordinates of the center as the data. It has method *draw* to draw in a given MainWindow. It takes the colour and a graphics object as an input and draws in that colour. Use Color.xxx object.

(ii) Design a ChessBoard object which has two Ellipse and two Rectangle objects as data. It has a draw method which takes the positions, $x_1, y_1, x_2, y_2, x_3, y_3, x_4, y_4$ for the pieces as input and draws the board with big rectangle in cell (x_1, y_1) small rectangle in cell (x_2, y_2), so on. Pieces are drawn in blue. Write a constructor which takes the four objects (two rectangles and two ellipses) as input.

(iii) Write a Test class with only the main method. Initially create a ChessBoard object with big rectangle in (1,1), small rectangle in (3,1), big ellipse in (2,1) and small ellipse in (4,3) and draw. Then show the board after each of the following moves: (i) big rectangle moves (-1,1); (ii) big ellipse moves (2,0); (iii) small rectangle (1,0); (iv) small rectangle moves (-1,0).