Liam Chapman - COSC326 Etude 12 Hilbert Curves

Compiles with javac HilbertCurve.java

Runs with java HilbertCurve n r

I get the initial 4 values of order 1 put in arraylist based on the screen size. If the order is greater than 1 I call a method which recursively calls itself from 1 up to order n. This method getCoord has 4 method calls in it, these method get the 4 corners of the current order of curve. The topLeft method get the previous complete Hilbert curve, scales it down to the appropriate size, and rotates it by 270degrees at its centre to get to it to the top left position. This does this for every point, adding to a new list until completion. The next 2 methods bottomLeft, and bottomRight do the same process as topLeft but don't rotate, instead they add the edge length times the pervious orders scale +1 to the y for bottomLeft and to the x and y for bottomRight, to position them correctly, adding the complete sequences to the list of completed point. The last method topRight does the same method as topLeft, except it rotates it 90 degrees and adds the same x axis as the last bottomRight coordinate, putting it at the right position. After this goes through each order we have a Hilbert Curve of order n in points, which we then go through like a list drawing.

Scaling the curve with r I times all the connector lines by r, calculate how much bigger the total curve is than the frame size, and scale each point accordingly so that it fits the screen and is the correct ratio.