Class Turtle

```
import java.awt.*;
import java.awt.image.*;
/**
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 * @teacher     Coglianese
 * @version     11-1-18
 * @period      2
 *
 * Class Turtle is a spiritual ancestor of the turtle from previous labs, an
d is learning how to move forward and turn left
 * Turtle can draw lines whereever it moves, and provides its own BufferedIm
age to draw on
 */
public class Turtle
{
    //private instance variables
    private static BufferedImage img;
    private static int black = 0;
    private static int blue = 255;
    private static int green = 65280;
    private static int red = 16711680;
    private static int white = 16777215;
    private double x,y,theta;
    static
    {
        img = new BufferedImage(800,600,BufferedImage.TYPE_INT_RGB);
    }

    /**
     * Class turtle makes an invisible turtle that starts at the middle of t
he canvas and facing north
     */
    public Turtle()
    {
        x=img.getWidth()/2;
        y=img.getHeight()/2;
        theta=90;
    }

    //accessor methods
    public static Image getImage(){return img;}

    /**
     * Changes turtle's heading by given double
     *
     * @param   a   Double to change heading by
     */
    public void turnLeft(double a)
```

```
    {
        theta+=a;
    }

    /**
     * Moves forward by a given double and draws line for where the turtle m
oved
     * @param   r   Double to move turtle by, length of line drawn
     */
    public void forward(double r)
    {
        Graphics g = img.createGraphics();
        g.setColor(Color.WHITE);
        double oldx=x;
        double oldy=y;
        x += r * Math.cos(Math.toRadians(theta));
        y += r * Math.sin(Math.toRadians(theta));
        g.drawLine((int)oldx,(int)oldy,(int)x,(int)y);
    }
}
```