# CSSE 220 Day 6

Intro to Java Graphics

Check out IntroToJavaGraphics and BiggestFar projects from SVN

# Outline

- Static
- Live coding: a Java graphics program

```java
public class Car {

    double mileage;

    //other stuff

    public double getMilesTravelled() {
        return this.mileage;
    }

    public static double convertMilesToKm(double numberOfMiles) {
        return numberOfMiles * 1.609344f;
    }

}

//Elsewhere…

//requires you to have a car object
Car myCar = new Car();
//requires you to have a car object
System.out.println(myCar.getMilesTravelled());
//can be called on the class Car itself
System.out.println(Car.convertMilesToKm(77));
```

# Simplest Java Graphics Program

```java
import javax.swing.JFrame;
/**
 * From Ch 2, Big Java.
 * @author Cay Horstmann
 */
public class EmptyFrameViewer {
    /**
     * Draws a frame.
     * @param args ignored
     */
    public static void main(String[] args) {
        JFrame frame = new JFrame();
        frame.setSize(300,400);
        frame.setTitle("An Empty Frame");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }
}
```

This code is already in your project for today

Creates a graphics frame object

Configures it

Tells Java to exit program when user closes the frame

Display the frame

MyViewer and MyComponent (Based on RectangleViewer and RectangleComponent from Big Java)

# LIVE CODING

# Other Shapes

- `new Ellipse2D.Double(double x, double y, double w, double h)`
- `new Line2D.Double(double x1, double y1, double x2, double y2)`
- `new Point2D.Double(double x, double y)`
- `new Line2D.Double(Point2D p1, Point2D p2)`
- `new Arc2D.Double(double x, double y, double w, double h, double start, double extent, int type)`

- Try these!
  - Add an ellipse and both kinds of lines to MyComponent

# Using translate and rotate successfully

- Translate and rotate adjust the "state" of the pen
- It is usually easier to move the pen, then draw in a fixed configuration around 0,0, the move the pen back
- Make 0,0 your center of rotation

# Work on the biggest fan code

- We'll walk through it together to explain how the classes work

- Then you should modify the fan to print one blade vertically – use transform to move 0,0 to the center of the fan and then draw from there

# Making Faces

- Due session 8
- Implement a class that draws a face of a given size at a given location. You should also be able to mutate (translate & rotate) it.
- Similar to Biggest Fan (but more complex)
1. Specification (in HW)
2. Code (incrementally)
3. This project can be difficult