Just a little about Java

Without object orientation: Flat space, no structure. Program: list of functions (procedures, subroutines, methods), like a book of recipes.

With OO: opportunity for more structure. Reuse of code easier, much shorter functions.

Java comes with thousands of functions/procedures for you to use, for I/O, string manipulation, data structures, sorting, searching, dealing with the internet. They are easy to get at and use. Building GUIs (Graphical User Interfaces) becomes easier because of OO structure.

```java
/**
 * An instance of Circle represents a circle */
 public class Circle {
 private double radius; // Radius of the circle. r ≥ 0.
 public static final double PI = 3.141592653589793;
 /** Set radius of the circle to r. Precondition: r >= 0 */
 public void setRadius(double r) {
 radius = r;
 }
 /** return diameter of the circle. */
 public double diameter() {
 return 2*radius;
 }
 /** return area of Circle c. */
 public static double area(Circle c) {
 return PI * c.radius * c.radius;
 }
}
```

Download and install Java

Course website tells you how:
http://www.cs.cornell.edu/courses/CS2110/2014fa/resources.html#Java

JRE: Java Runtime Environment. A Java program is compiled into the Java Virtual Machine Language, An "interpreter" interprets and actually runs your program.

JDK: Java Development Kit. Contains, among other things, the program that compiles a Java program.

Downloading and installing the JDK also installs the JRE.

Download and install Eclipse

Eclipse: The IDE (Integrated Development Environment we use in this course to write, debug, run Java programs.

Course website tells you how to install:
http://www.cs.cornell.edu/courses/CS2110/2014fa/resources.html
and scroll down.
Add a project
Use menu item File -> New -> Java project.
Give it a name, First.
Note: You get to say where the project files go. We suggest putting them in the default place that Eclipse suggests.
Note: Always start a new program in a new project!

Add class Circle
Use menu item File -> New -> Class.
Give it a name, Circle.
Click button Finish

Put declarations into class Circle
Copy the declarations of components from slide 3 into class circle in the middle pane.

Running the program
Use menu item Run -> Run. It executes method main.

Add a java file by dragging to left column
You may be asked: copy or to link to original? ALWAYS COPY. So changes don’t mess up original