

Just a little about Java

In today's recitation, we look at a "class" called First that contains two "methods":

1. A procedure main, which does not return a value.
2. A function radius, which does return a value.

We will see how to write this class in the IDE (Integrated Development Environment) Eclipse and how to execute the program –by executing a call on method main.

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```

/** Class houses a static procedure main and a static procedure
 * for the area of a circle */
public class First {
    /** Print out "hello World and */
    public static void main(String[] args) {
        System.out.println("Hello World");
        System.out.println("Area of circle with radius 5 is " +
            radius(5));
    }

    /** Return the area of a circle with radius r */
    public static double radius(double r) {
        return Math.PI * r * r;
    }
}

```

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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.

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Download and install Eclipse

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

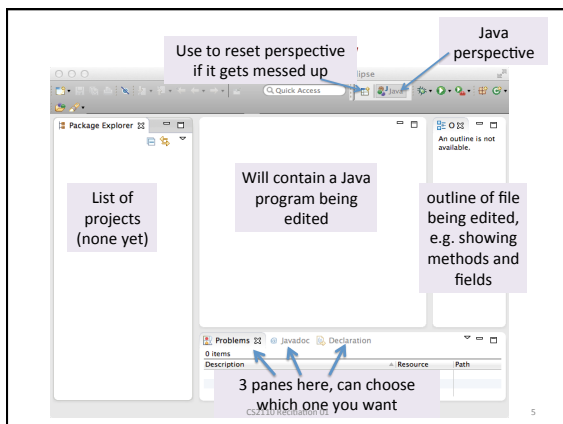
Course website tells you how to install:

<http://www.cs.cornell.edu/courses/CS2110/2014fa/resources.html>

and scroll down.

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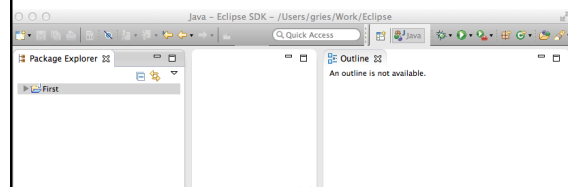
Add a project

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!



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Add class First

Use menu item **File -> New -> First**.
 Give it a name, **First**.
 Click button **Finish**

The screenshot shows the Eclipse IDE interface. The 'Package Explorer' on the left shows a project named '2014DemoEclipse' with a package 'src'. A 'New Class' wizard is open, showing 'First.java' as the class name. The 'Main' checkbox is checked. The 'Code' tab is selected, showing the following code:

```

1 //
2 /** This class houses a static procedure main and a static
3  * static function for the area of a circle */
4 public class First {
5
6
7 }
    
```

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Put declarations into class Circle

Copy the declarations of components from slide 2 into class **Circle** in the middle pane.

The screenshot shows the Eclipse IDE with the 'Circle.java' file open in the editor. The code in the editor is:

```

1 //
2 /** This class houses static procedure main and
3  * static function for the area of a circle */
4 public class Circle {
5
6     /** Print out "Hello World and */
7     public static void main(String[] args) {
8         System.out.println("Hello World");
9         System.out.println("Area of circle with " +
10            "radius 5 is " + radius(5));
11     }
12
13     /** Return area of a circle with radius r */
14     public static double radius(double r) {
15         return Math.PI * r * r;
16     }
17 }
    
```

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Running the program

Use menu item **Run -> Run**. It executes method **main**.

The screenshot shows the Eclipse IDE with the 'Circle.java' file open. The 'Run' button (a green play icon) is highlighted. The 'Console' window at the bottom shows the output:

```

Hello World
Area of circle with radius 5 is 78.53981633974483
    
```

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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

The screenshot shows the Eclipse IDE with the 'Package Explorer' on the left. A new file 'Circle.java' is being added to the 'src' package. The code in the editor is:

```

private double radius;
public static double PI;

/** Set radius of the circle
public void setRadius(double r) {
    radius = r;
}
    
```

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