

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.

```
/** 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[] pars) {
```

```
        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;
```

```
    }
```

```
}
```

Download and install Java

Course website tells you how:

<http://www.cs.cornell.edu/courses/CS2110/2016sp/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.

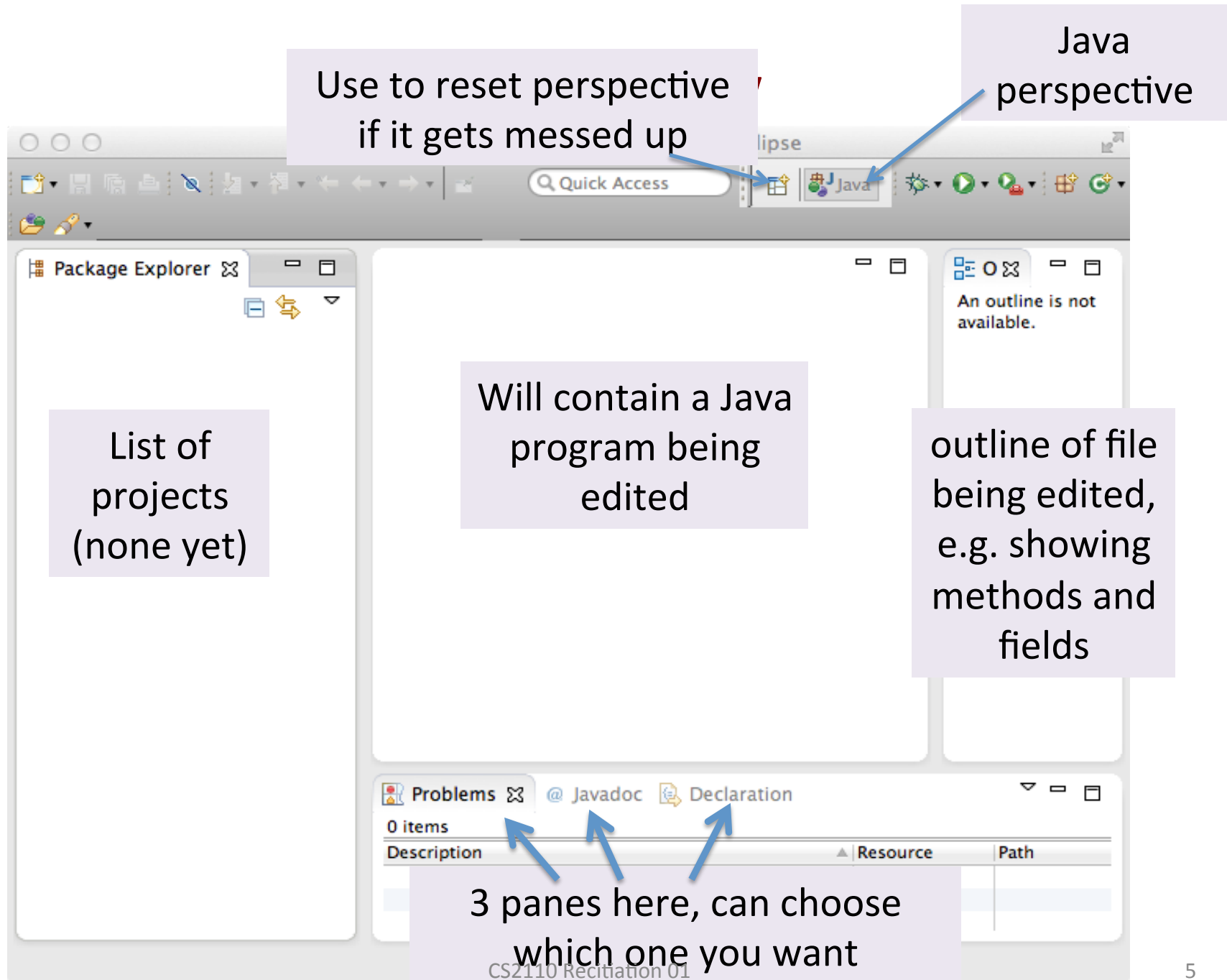
Download and install Eclipse

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/CS2110/2016sp/resources.html>

and scroll down.



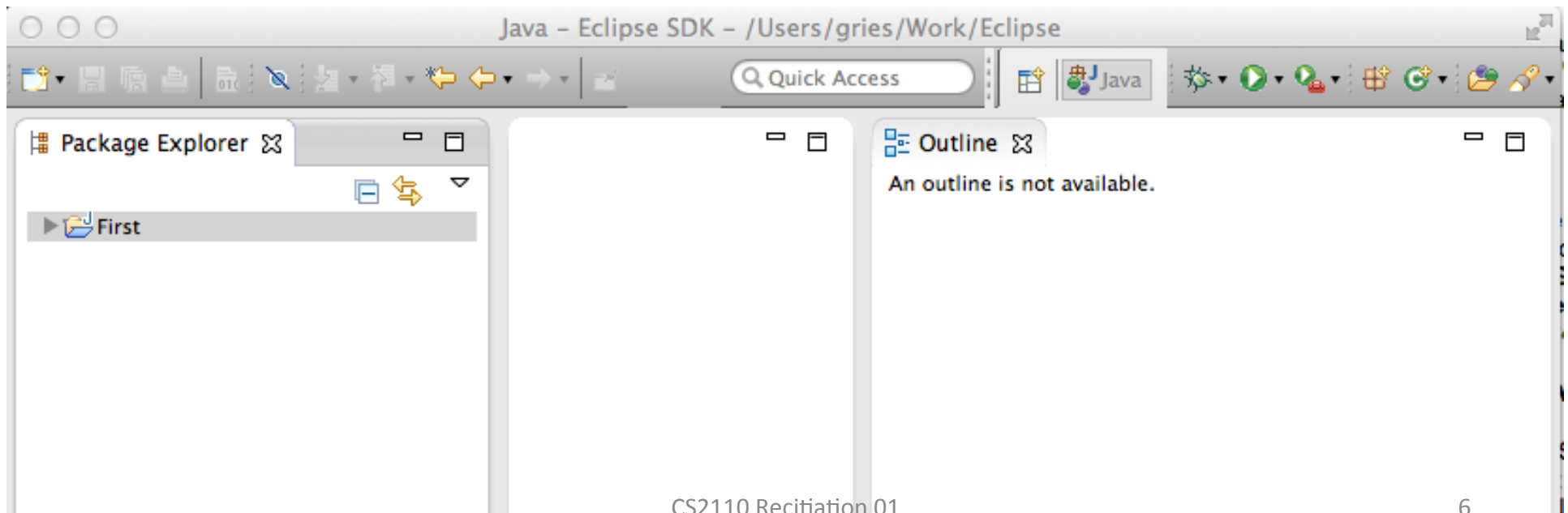
Add a project

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!

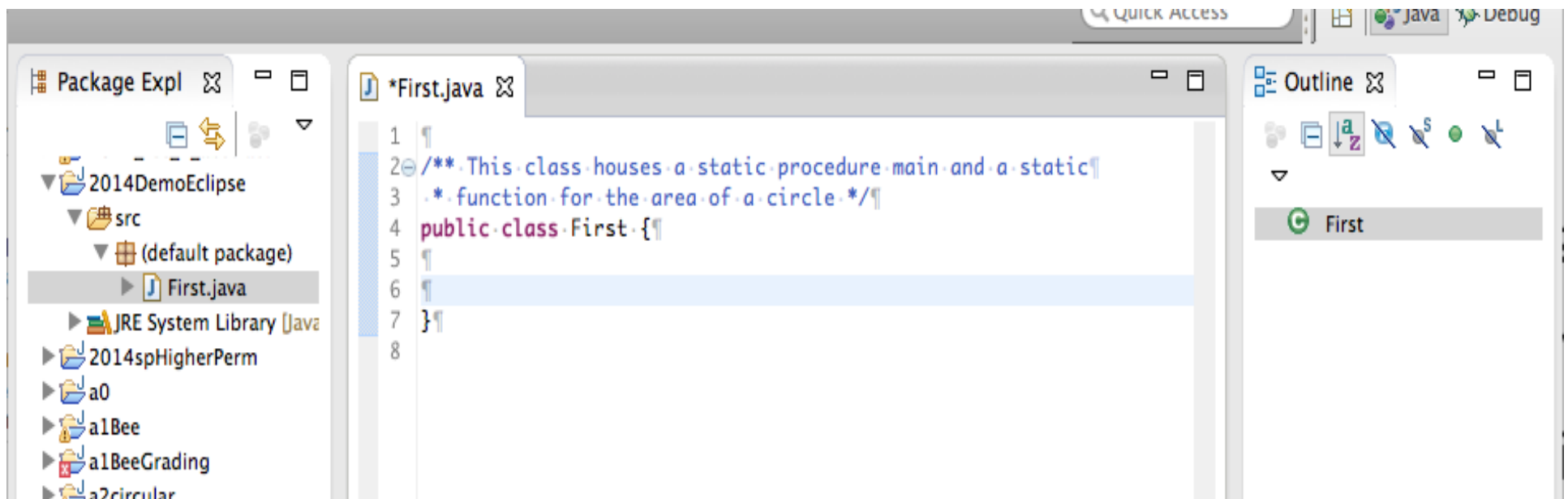


Add class First

Use menu item **File -> New -> First**.

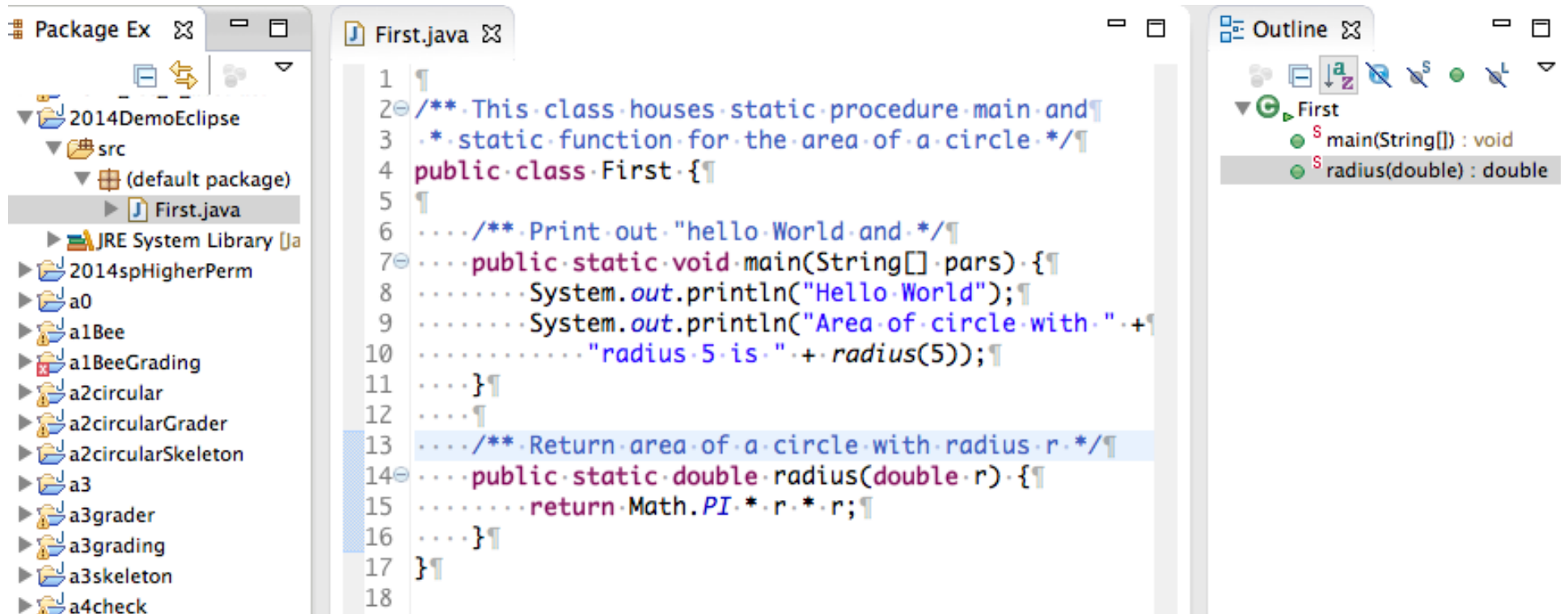
Give it a name, **First**.

Click button **Finish**



Put declarations into class Circle

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



The screenshot shows an IDE with three panes. The left pane shows a project structure with a package named '2014DemoEclipse' containing a source folder 'src' and a file 'First.java'. The middle pane shows the code for 'First.java' with the following content:

```
1
2 /** This class houses static procedure main and
3  * static function for the area of a circle */
4 public class First {
5
6     ... /** Print out "hello World and */
7     ... public static void main(String[] pars) {
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 }
18
```

The right pane shows the Outline view with the following structure:

- First
 - main(String[]) : void
 - radius(double) : double

Running the program

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

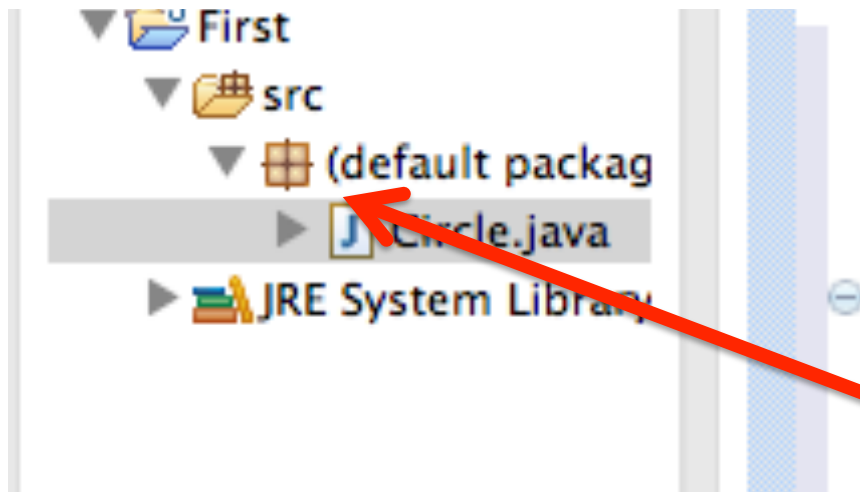
The screenshot shows an IDE with the following components:

- Package Explorer:** Shows a project named '2014DemoEclipse' with a source folder 'src' containing a file 'First.java'.
- Editor:** Displays the code for 'First.java':

```
1
2 /** This class houses static procedure main and
3  * static function for the area of a circle */
4 public class First {
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 }
18
```
- Outline:** Shows the class 'First' with two methods: 'main(String[]) : void' and 'radius(double) : double'.
- Console:** Shows the output of the program:

```
<terminated> First (1) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.7.0_40.jdk/Contents/Home/bin/java (Aug 22,
Hello World
Area of circle with radius 5 is 78.53981633974483
```

Add a .java file by dragging to left column



```
private double radius;  
public static double PI= 3.141592653589793238462643383279502884197169399375105820974944597  
/** Set radius of the circle  
public void setRadius(double r)  
    radius= r;  
}
```

You may be asked: copy
or to link to original?
ALWAYS COPY.
So changes don't mess
up original

