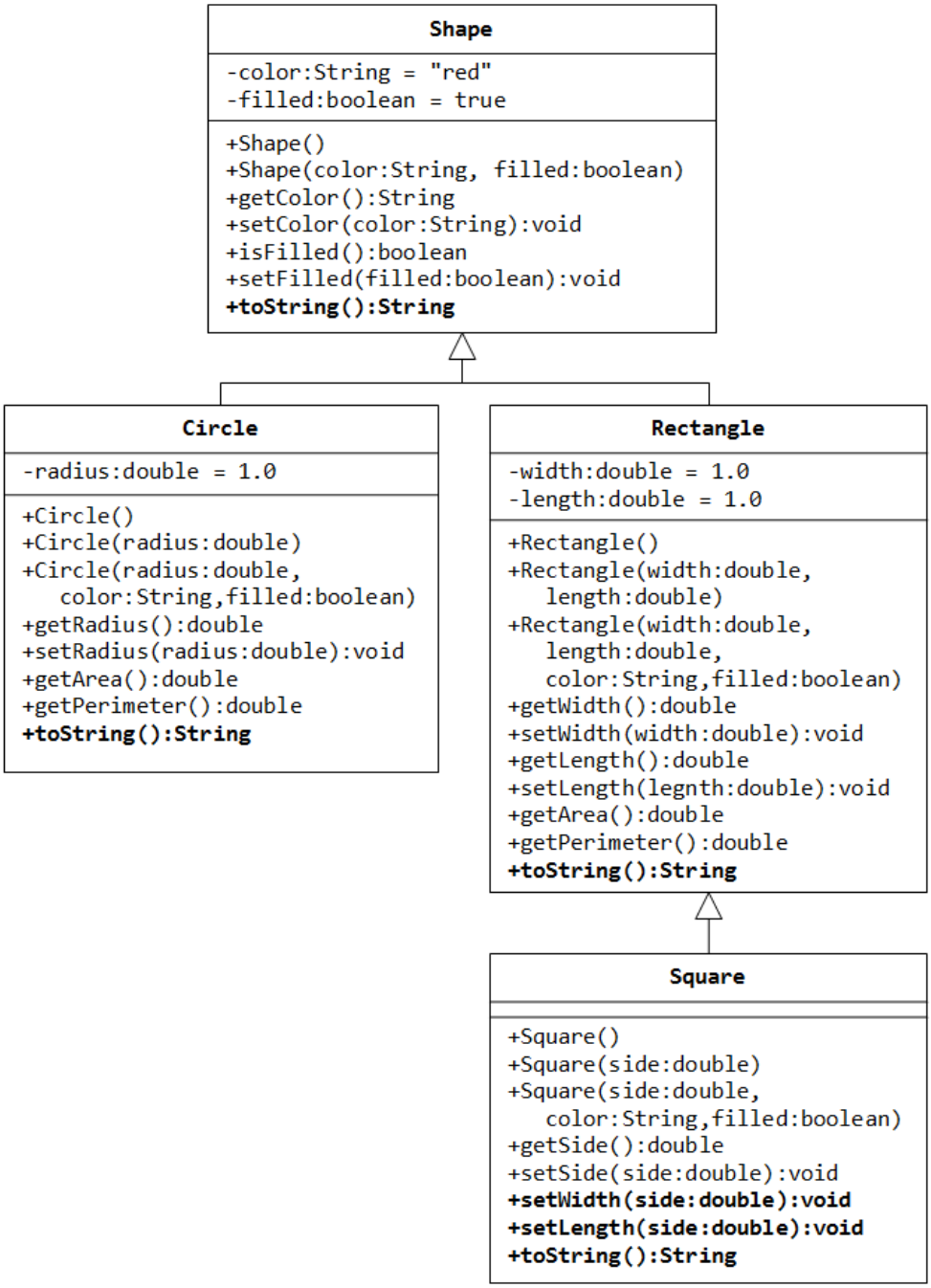
Superclass Shape and its subclasses Circle, Rectangle and Square



To do:

Write a superclass called Shape (as shown in the class diagram), which contains:

- Two instance variables `color` (`String`) and `filled` (`boolean`).
- Two constructors: a no-arg (no-argument) constructor that initializes the `color` to "green" and `filled` to `true`, and a constructor that initializes the `color`and `filled` to the given values.
- Getter and setter for all the instance variables. By convention, the getter for a `boolean` variable `xxx` is called `isXXX()` (instead of `getXxx()` for all the other types).
- A `toString()` method that returns "`A Shape with color of xxx and filled/Not filled`".

Write a test program to test all the methods defined in Shape.

Write two subclasses of Shape called `Circle` and `Rectangle`, as shown in the class diagram.
The `Circle` class contains:

- An instance variable `radius` (`double`).
- Three constructors as shown. The no-arg constructor initializes the radius to `1.0`.
- Getter and setter for the instance variable `radius`.
- Methods `getArea()` and `getPerimeter()`.
- Override the `toString()` method inherited, to return "`A Circle with radius=xxx, which is a subclass of yyy`", where `yyy` is the output of the `toString()` method from the superclass.

The `Rectangle` class contains:

- Two instance variables `width` (`double`) and `length` (`double`).
- Three constructors as shown. The no-arg constructor initializes the `width` and `length` to `1.0`.
- Getter and setter for all the instance variables.
- Methods `getArea()` and `getPerimeter()`.
- Override the `toString()` method inherited, to return "`A Rectangle with width=xxx and length=zzz, which is a subclass of yyy`", where `yyy` is the output of the `toString()` method from the superclass.

Write a class called `Square`, as a subclass of `Rectangle`. Convince yourself that `Square` can be modeled as a subclass of `Rectangle`. `Square` has no instance variable, but inherits the instance variables width and length from its superclass Rectangle.

- Provide the appropriate constructors (as shown in the class diagram).
- Override the `toString()` method to return "`A Square with side=xxx, which is a subclass of yyy`", where `yyy` is the output of the `toString()` method from the superclass.
- Do you need to override the `getArea()` and `getPerimeter()`? Try them out.
- Override the `setLength()` and `setWidth()` to change both the `width` and `length`, so as to maintain the square geometry.