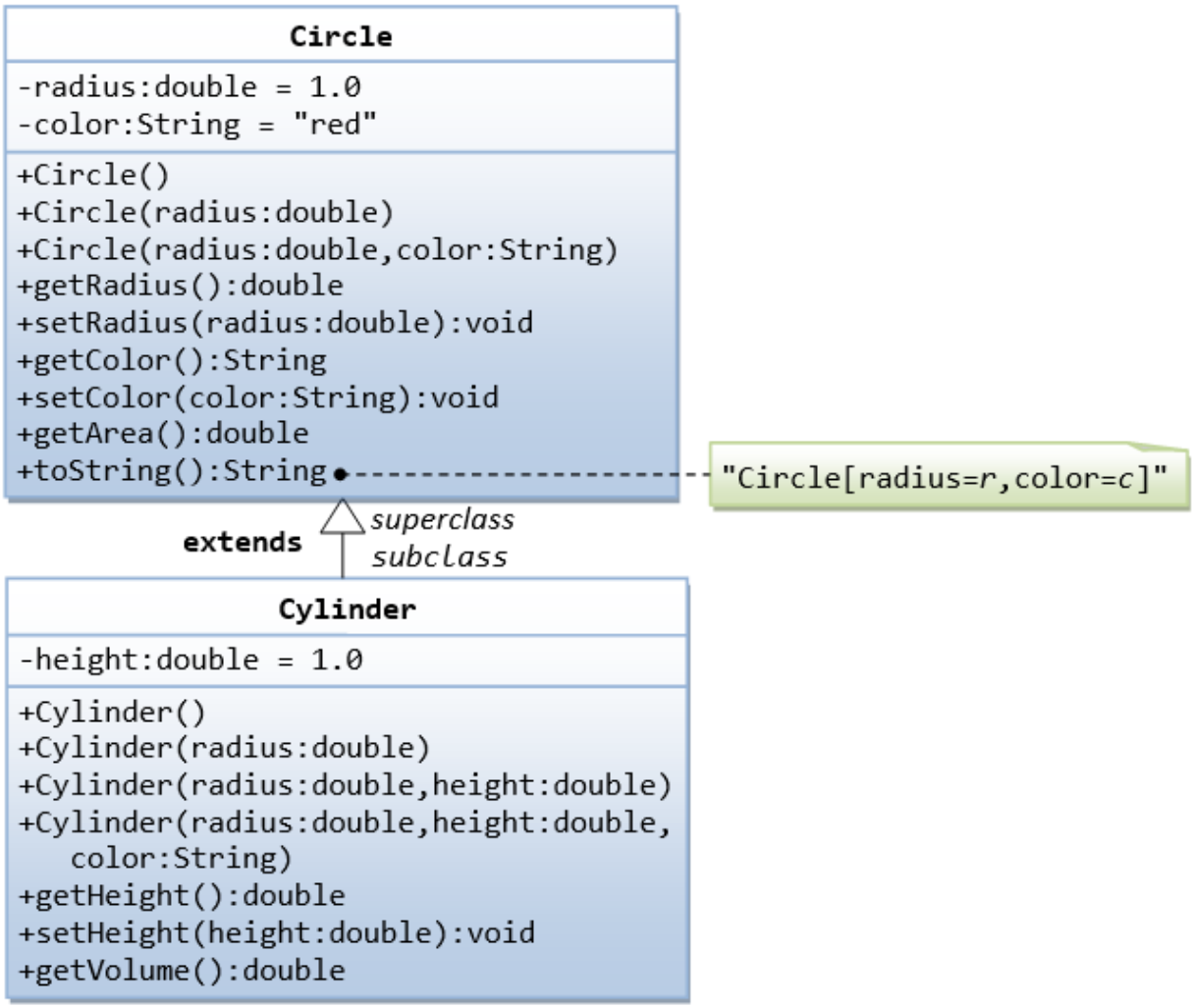
Day 6 - Core Java / GENERICS

Topics:

- Generics basics and implementation

Assignments:

Assignment #1
Create classes `Circle` and `Cylinder` as shown in the *UML* diagram below:



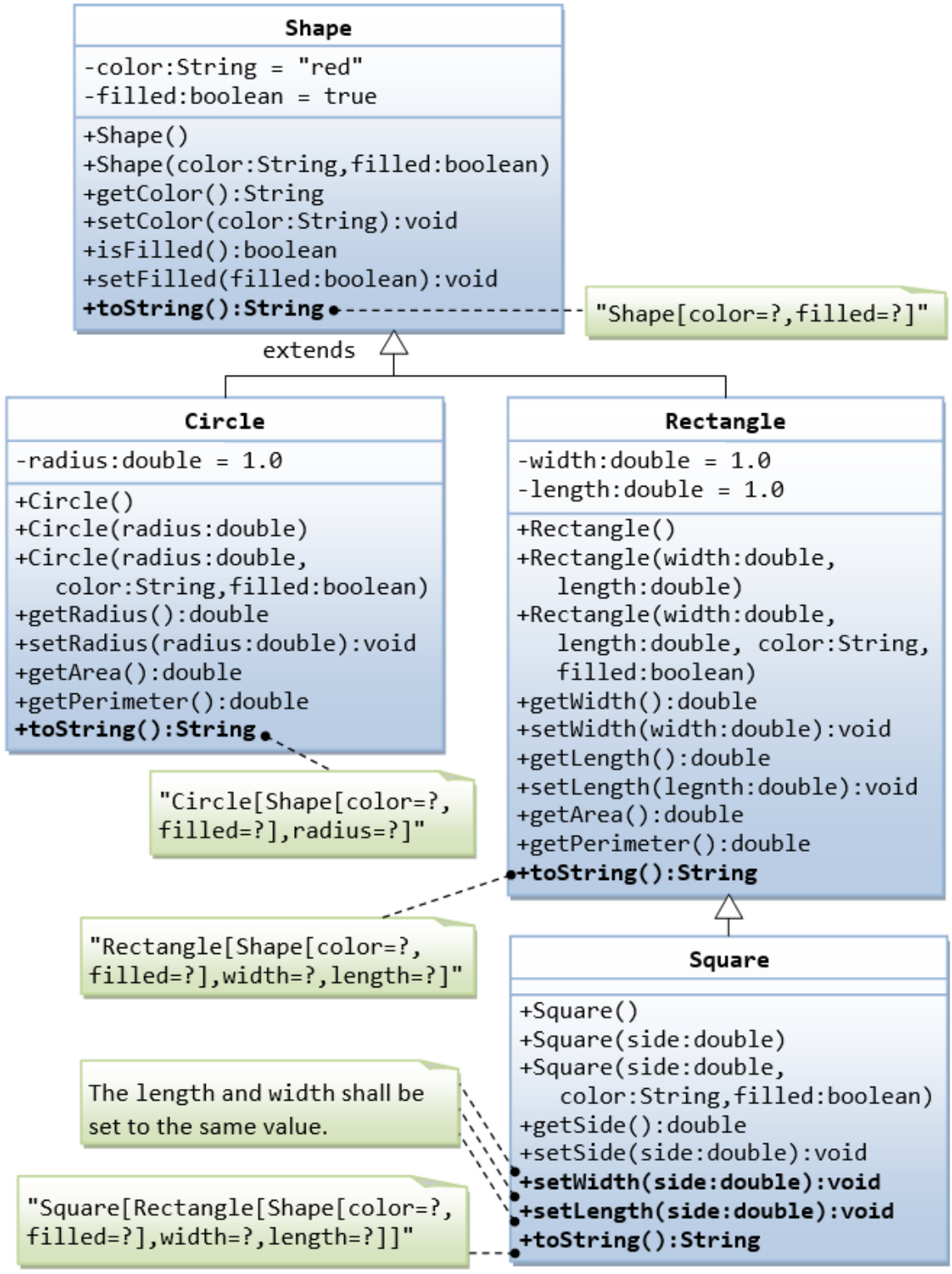
In the `main()` function of a Program class, create an array of `Circle` references with the initialization shown below:

```
Circle[] circles = {
      new Cylinder(12.34),
      new Cylinder(12.34, 10.0),
      new Cylinder(12.34, 10.0, "blue")
};
```

Print the area of the circular region of each cylinder along with the volume of the same.

Assignment #2

Create the classes `Shape`, `Circle`, `Rectangle`, and `Square` as shown in the *UML* diagram below:



The `toString` function of the above classes should return text as given below:

Classname	Sample return value from toString()
Shape	A Shape with color of xxx and filled/Not filled
Circle	A Circle with radius=xxx, which is a subclass of yyy (where yyy is the output of the toString() method from the superclass)
Rectangle	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)
Square	A Square with side=xxx, which is a subclass of yyy (where yyy is the output of the toString() method from the superclass)

In the `main()` method of a Program class, create an array of 10 `Shape` references containing a mixture of `Circle`, `Rectangle` and `Square` objects of different dimensions. Using a loop, print the `perimeter` and `area` for all of them.