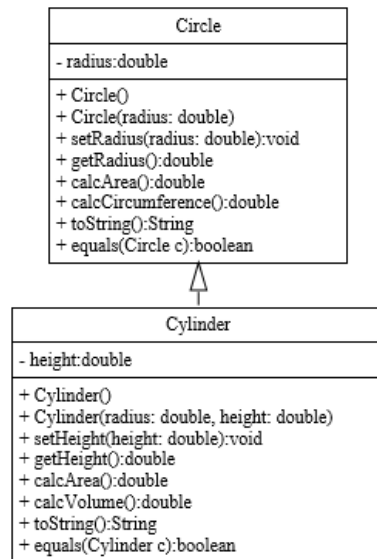


Week 8(Object Oriented Programming)

Inheritance and Method Overriding

Exercise 1

Write the classes below containing the given instance variables and methods, following the inherited hierarchy:



Formulas:

The following formulas may be helpful:

- Area of a circle: πr^2
- Circumference of a circle: $2\pi r$
- Surface area of a cylinder: $2\pi rh + 2\pi r^2$
- Volume of a cylinder: $\pi r^2 h$

Use the following application class to test your code

```
public class Application {
    public static void main(String []args){
        Circle circle1 = new Circle(3);
        Circle circle2 = new Circle(5);
    }
}
```

Question #2.

Apply the Concept of Composition by Creating part classes(doors, windows, Engine, Wheels) and then Create a whole class Car that is composed of all these defined parts.

Question #3.

Create Box class containing data members (width ,height,Length) and Member functions showdata and Volume.. Apple the concept of Operator Overloading and overload operators (+,-,* ,/) for addition subtraction multiplication and division of Objects of Box class.