**Lab 3: Object and Class**

**Objectives:** To practice the knowledge of Object, Class

**Programming using Object-Oriented**

1. According to the given code, Car.java, it is a class coded as the template for car object. Each car can have different characteristics of color, speed and mileage. However, each car has behaviors that speed and mileage can be editable.



As initial of object’s attributes, they are defined in constructor. Color of the car can be defined by via parameter of the new instance. The speed and mileage are default as zero ‘0’.

For object’s behaviors, they can be represented by methods of the class. As a car object, it can tell color, speed and mileage via methods of getColor, getSpeed and getMileage, accordingly. A car can also change speed and mileage via methods of setSpeed and setMileage.

1. Create a Java Project to build **Car Class** from the given code (Car class does not have main method).
2. Add another file to your Java Project, MyCar.java, to build **MyCar Class**. In main method,
   * Create 2 instances of Car object, name as – toyota and honda
     + toyota has red color, speed of 200 and mileage of 1345
     + honda has blue color, speed of 300 and mileage of 8987
   * Use **methods** in **Car Class** to set and return the value of color, speed and mileage preparing for print out.

**Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_[6 mark]**

1. From the MyDog Class given below,



* Create Dog class which
  + contain a constructor that initial the color and weight attributes of the dog
  + contain methods of getColor() and getWeight()
* When running MyDog.java, the program should be able to print out result as below.

Output should be as:

|  |
| --- |
| The color of my dog is white  The weight of my dog is 15.5 |

1. Create a java project that has
   * Rectangle Class
     + has constructor public Rectangle( float height, float width) to initial a rectangle attributes
     + has behaviors to calculate area and to calculate perimeter

|  |
| --- |
| area = width x height  perimeter = 2 x (width + height) |

* + MyRectangle Class has main method to
    - Create instances of Rectangle class, square(5,5) and non\_square(8,5)
    - Print out area and perimeter of each rectangle instance

Output should be as:

|  |
| --- |
| square 5 x 5  Area: 15  Perimeter: 20  non\_square 8 x 5  Area: 40  Perimeter: 26 |