

Java Practise Set 2

Problem 1

Consider the following Java code:

```
class Transport {
    public static void main(String args[]) {
        Vehicle vehicle = new Vehicle();
        vehicle.print();
    }
}

class Vehicle {
    public Vehicle (double _milesPerGallon) {
        milesPerGallon = _milesPerGallon;
    }
    public void print() {
        System.out.println("MPG: " + milesPerGallon);
    }

    private double milesPerGallon = 10;
}
```

Does this code compile? If yes, what is the output of the program? If no, correct the code so that it compiles correctly.

Problem 2

Consider the following modifications to our Java program:

```
class Transport {
    public static void main(String args[]) {
        Car car = new Car("Volkswagen");
        car.print();
    }
}

class Vehicle {
    public void print() {
        System.out.println("MPG: " + milesPerGallon);
    }
    private double milesPerGallon = 10;
}

class Car extends Vehicle {
    public Car (String _make) {
        make = _make;
    }
    public void print() {
        System.out.println("Make: " + make);
    }
    private String make;
}
```

Does this code compile? If yes, what is the output of the program? If no, correct the code so that it compiles correctly.

Problem 3

Consider the following modifications to our Java program:

```
class Transport {
    public static void main(String args[]) {
        Car car = new Car("Volkswagen");
        car.setMilesPerGallon(26.9);
        car.print();
    }
}

class Vehicle {
    public void print() {
        System.out.println("MPG: " + milesPerGallon);
    }
    protected void setMilesPerGallon (double mpg) {
        milesPerGallon = mpg;
    }
    private double milesPerGallon = 10;
}

class Car extends Vehicle {
    public Car (String _make) {
        make = _make;
    }
    public void print() {
        System.out.println("Make: " + make);
        System.out.println("MPG: " + milesPerGallon);
    }
    private String make;
}
```

Does this code compile? If yes, what is the output of the program? If no, correct the code so that it compiles correctly.

Problem 4

Consider the following modifications to our Java program:

```
class Transport {
    public static void main(String args[]) {
        Vehicle vehicle = new Vehicle();
        vehicle.setMilesPerGallon(26.9);
        Vehicle vehicle2 = (Vehicle)vehicle.clone();
        vehicle.setMilesPerGallon(22.1);
        vehicle.print();
        vehicle2.print();
    }
}

class Vehicle implements Cloneable {
    public Object clone() {
        try {
            Vehicle v = (Vehicle)super.clone();
            return v;
        } catch (CloneNotSupportedException e) {
            return null;
        }
    }

    public void print() {
        System.out.println("MPG: " + milesPerGallon);
    }

    protected void setMilesPerGallon (double mpg) {
        milesPerGallon = mpg;
    }

    protected double milesPerGallon = 10;
}
```

Does this code compile? If yes, what is the output of the program? If no, correct the code so that it compiles correctly.