CIS 36A – 11th In Class / Take Home Assignment – **10 Points**

Student Name **Ka Chi Lau** **Student ID** **10819338** **Point Total**

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Class and Object expanded

Due Monday 3/10/14 during lab

Section 1: Define / Answer

"programmer created" class- A class is the blueprint from which individual objects are created.

"programmer created" object- member you created in class

"programmer created" method-collection of statements that are grouped together to perform an operation; use to access the static field

dot.operator- Dot operator is used to access methods and variables within objects and classes. They are used to access instance members of an object and class members of a class

Discribe the purpose of the following statement inrefernce to a "programmer created object"

Vehicle minivan = **new** Vehicle();

creating a vehicle object

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void method- a method in java is a sub-routine. The program executes linearly downwards through a list of instructions and when it encounters a method, execution branches and returns to the line following the method call. If the method was supposed to return something, it would have been defined as such, for instance return a value of double, or String. If no value is expected, the method is defined as 'void'.

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Programming Assignment

Task 1- Create a computer program that will calculate the range for 3 different vehicles.

The program should create a "programmer created" class, where 3 **int objects** are created passengers, fuel capacity, mpg.

Create a **void()** method inside the "programmer created " class to calculate vehicle range.

range = fuel capacity * miles per gallon.

Each Vehicle type should have unique values for number of passengers, fuel capacity, and miles per gallon.

Follow the sample below and return information on 3 vehicle types.

Sample Output: // Create similar output for 3 Vehicle Types

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The minivan carries= 7

The minivan has a fuel capacity of = 16

The minivan mpg = 21

The minivan has a range of: 336 miles

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```java

package javaapplication1;

class Vehicle {

    int passangers ,fuelcapacity, mpg;

    void range() {
        System.out.print(fuelcapacity * mpg);
    }
}
public class JavaApplication1 {

    public static void main(String[] args) {

        Vehicle minivan = new Vehicle();
        minivan.passangers = 7;
        minivan.fuelcapacity = 16;
        minivan.mpg = 21;

        System.out.println("The minivan carries= " + minivan.passangers);
        System.out.println("The minivan has a fuel capacity of= " + minivan.fuelcapacity);
        System.out.println("The minivan mpg= " + minivan.mpg);
        System.out.print("The minivan has a range of: ");
        minivan.range();
        System.out.println(" miles \n");

        Vehicle truck = new Vehicle();
        truck.passangers = 4;
        truck.fuelcapacity = 20;
        truck.mpg = 24;
        System.out.println("The truck carries= " + truck.passangers);
        System.out.println("The truck has a fuel capacity of= " + truck.fuelcapacity);
        System.out.println("The truck mpg= " + truck.mpg);
        System.out.print("The truck has a range of: ");
        truck.range();
        System.out.println(" miles \n");

        Vehicle motorcycle = new Vehicle();
        motorcycle.passangers = 2;
        motorcycle.fuelcapacity = 5;
        motorcycle.mpg = 8;
        System.out.println("The motorcycle carries= " + motorcycle.passangers);
```

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```java
            System.out.println("The motorcycle has a fuel capacity of= " + motorcycle.fuelcapacity);
            System.out.println("The motorcycle mpg= " + motorcycle.mpg);
            System.out.print("The motorcycle has a range of: ");
            motorcycle.range();
            System.out.println(" miles \n");

        }
    }
```

Output - JavaApplication1 (run)

```
run:
The minivan carries= 7
The minivan has a fuel capacity of= 16
The minivan mpg= 21
The minivan has a range of: 336 miles

The truck carries= 4
The truck has a fuel capacity of= 20
The truck mpg= 24
The truck has a range of: 480 miles

The motorcycle carries= 2
The motorcycle has a fuel capacity of= 5
The motorcycle mpg= 8
The motorcycle has a range of: 40 miles

BUILD SUCCESSFUL (total time: 0 seconds)
```

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#13 Modified Version

Task 2- Create a **Die** "programmer created" class. Inside the "programmer created class" create 2 instance variables, each instance variable will be an integer type.

Create a void method that returns the value of a die roll. (random number between 1-6)

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Create a void method the returns the value of two dice being rolled.

All calculations and integer assignment will take place in the "programmer created" class. **main** in your program will only operate the execution of the program.

Output will be the value of one random die roll and then the value of 2 random dice being rolled.

Sample Output

1 die Roll = 5

2 dice Roll = 7

Example of main in the program.//main only contains calls to methods/objects created in the "programmer created" class

```
public class DieRollClassDemo {
    public static void main(String[] args) {
    Die rollingdice = new Die();
    rollingdice.dieroll();
    rollingdice.diceroll();
```

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```java

package javaapplication1;

class Die {
    Double die1 = (Math.random()*5.00)+1;
    Double die2 = (Math.random()*5.00)+1;
    Double dice = die1 + die2;

    void  dieroll() {
        System.out.println("1 die Roll = " + Math.round(die1));
    }
    void  diceroll() {
        System.out.println("2 dice Roll = " + Math.round(dice));
    }
}
public class JavaApplication1 {

    public static void main(String[] args) {

        Die rollingdice = new Die();

        rollingdice.dieroll();
        rollingdice.diceroll();

    }
}

```

Die > dieroll >

Output - JavaApplication1 (run)

```
run:
1 die Roll = 4
2 dice Roll = 8
BUILD SUCCESSFUL (total time: 0 seconds)
```

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```java

package javaapplication1;

class Die {
    Double die1 = (Math.random()*5.00)+1;
    Double die2 = (Math.random()*5.00)+1;
    Double dice = die1 + die2;

    void  dieroll() {
        System.out.println("1 die Roll = " + Math.round(die1));
    }
    void  diceroll() {
        System.out.println("2 dice Roll = " + Math.round(dice));
    }
}
public class JavaApplication1 {

    public static void main(String[] args) {

        Die rollingdice = new Die();

        rollingdice.dieroll();
        rollingdice.diceroll();

    }
}

```

Die

Output - JavaApplication1 (run)

```
run:
1 die Roll = 5
2 dice Roll = 10
BUILD SUCCESSFUL (total time: 0 seconds)
```