

Programming Assignment

In the code below, `Middle` is an inner class of `Top`, and `Bottom` is an inner class of `Middle`. `Top` has a method `readBottom`, which should return the value in the instance variable of `Bottom`. `Middle` has a method `addTopAndBottom` that returns the sum of the instance variable in the `Top` class and the instance variable in the `Bottom` class. Finally, `Bottom` has a method `multiplyAllThree` that returns the product of all the instance variables in all of the classes.

The `main` method attempts to access these methods and output results. Implement the methods so that the `main` method produces the correct output. Perform all initialization of the inner classes inside the body of the default constructor for `Top` (you will need to insert this constructor). Source code is available in the directory for this lab.

```
public class Top {
    int t = 1;
    Middle mid;
    Middle.Bottom midbot;
    //returns the value in the instance vble of Bottom
    int readBottom() {
        //implement
        return 0;
    }
    class Middle {
        int m = 2;
        //returns sum of instance vble in Top and
        //instance vble in Bottom
        int addTopAndBottom() {
            //implement
            return 0;
        }
        class Bottom {
            int b = 3;
            //returns the product of the instance vbles
            //in all three classes
            int multiplyAllThree() {
                //implement
                return 0;
            }
        }
    }
    public static void main(String[] args){
        Top top = new Top();
        System.out.println(top.readBottom());
        System.out.println(top.mid.addTopAndBottom());
        System.out.println(top.midbot.multiplyAllThree());
    }
}
```