

## Experiment Number: 5 (Nested Class, Aggregation, Composition)

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**Aim:** Given is file Class1.java. Create a file called Class2.java that defines subclasses of both Class1 and its inner class, InnerClass1. (Call the subclasses Class2 and InnerClass2, respectively.) InnerClass2 should override the getAnotherString method to return "InnerClass2 version of getAnotherString invoked". Class2 should define one constructor and one method:

- A no-argument constructor that initializes the inherited ic instance variable to be an instance of InnerClass2
- A main method that creates an instance of Class2 and invokes displayStrings on that instance

What is the output when you run Class2?

### Program:

Class1.java

```
//Shreya Shetty TE IT 2019140059 Batch D
package oopExp5;
public class Class1 {
    protected InnerClass1 ic;

    public Class1() {
        ic = new InnerClass1();
    }

    public void displayStrings() {
        System.out.println(ic.getString() + ".");
        System.out.println(ic.getAnotherString() + ".");
    }

    public static void main(String[] args) {
        Class1 c1 = new Class1();
        c1.displayStrings();
    }

    protected class InnerClass1 {
        public String getString() {
            return "InnerClass1: getString invoked";
        }

        public String getAnotherString() {
            return "InnerClass1: getAnotherString invoked";
        }
    }
}
```

$$\left\{ \begin{array}{l} \vdots \\ \vdots \\ \vdots \end{array} \right\}$$

## Class2.java

```
//Shreya Shetty TE IT 2019140059 Batch D
package oopExp5;
public class Class2 extends Class1
{
    public Class2()
    {
        ic = new InnerClass2();
    }

    static public void main(String[] args)
    {
        Class2 c2 = new Class2();
        c2.displayStrings();
    }

    protected class InnerClass2 extends InnerClass1
    {
        public String getAnotherString()
        {
            return "InnerClass2 version of getAnotherString invoked";
        }
    }
}
```

**Output:**

```
PROBLEMS 9 OUTPUT DEBUG CONSOLE TERMINAL powershell + - [X] ^ X
```

```
PS D:\PROJECT_AND_CODES\Java> javac -d . Class1.java
PS D:\PROJECT_AND_CODES\Java> javac -d . Class2.java
PS D:\PROJECT_AND_CODES\Java> java oopExp5.Class1
InnerClass1: getString invoked.
InnerClass1: getAnotherString invoked.
PS D:\PROJECT_AND_CODES\Java> java oopExp5.Class2
InnerClass1: getString invoked.
InnerClass2 version of getAnotherString invoked.
PS D:\PROJECT_AND_CODES\Java>
```

Hence, output when I run Class2 is :

*InnerClass1: getString invoked.*

*InnerClass2* version of *getAnotherString* invoked.