

**OBJECT ORIENTED PROGRAMMING LABORATORY WORK**

**MODULE 4**



**CREATED BY :**

**KURNIAWAN BAGASKARA**

**L200214253**

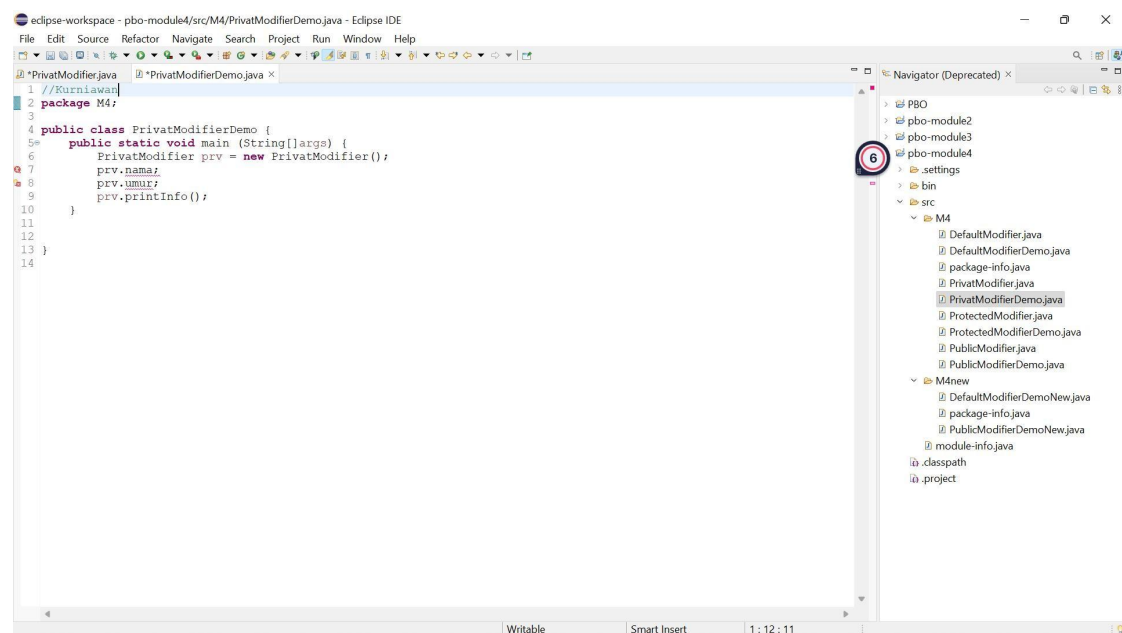
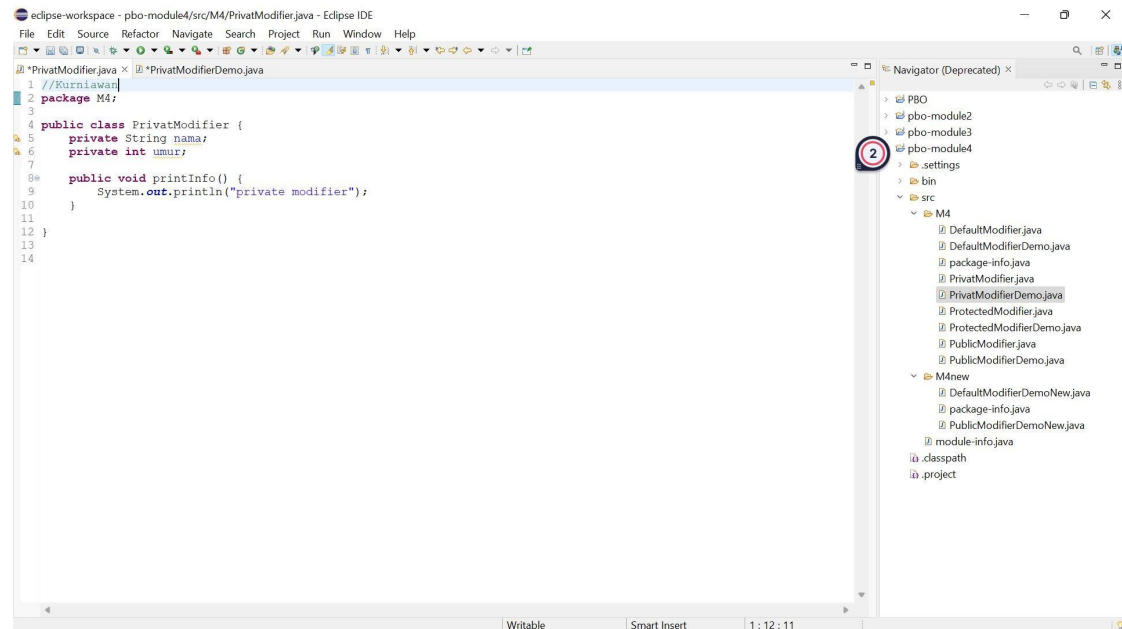
**INFORMATICS STUDY PROGRAM**

**FACULTY OF COMMUNICATION AND INFORMATION SCIENCE**

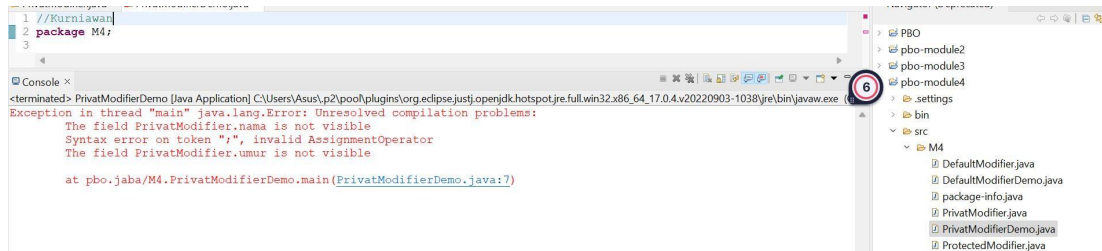
**MUHAMMADIYAH SURAKARTA UNIVERSITY**

## 1. Private Modifier

Rewrite the code from program 1, and create a new class to access variables from program 1.



Output :

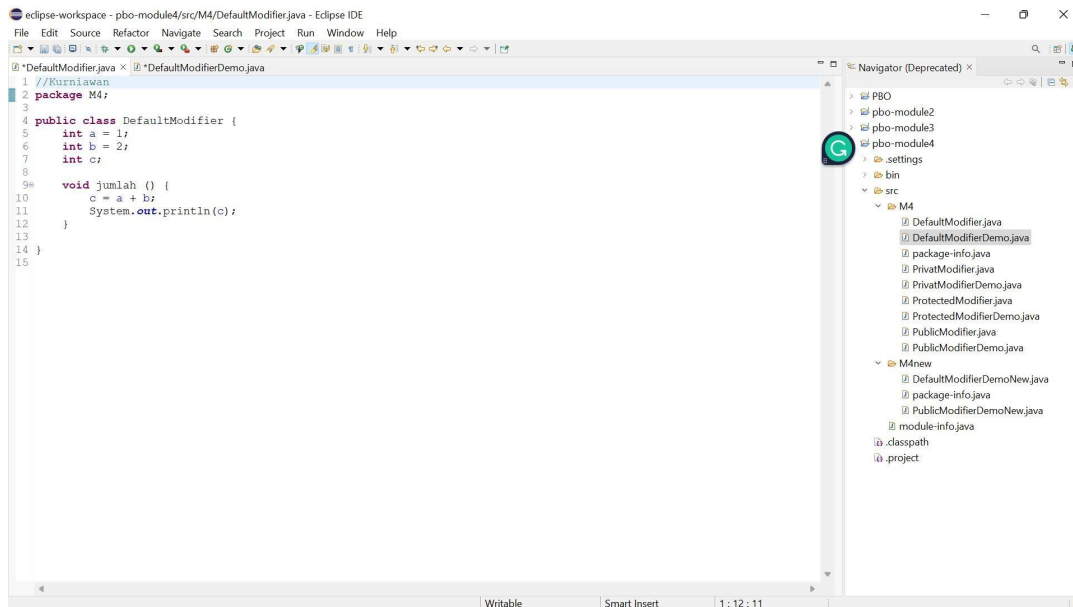


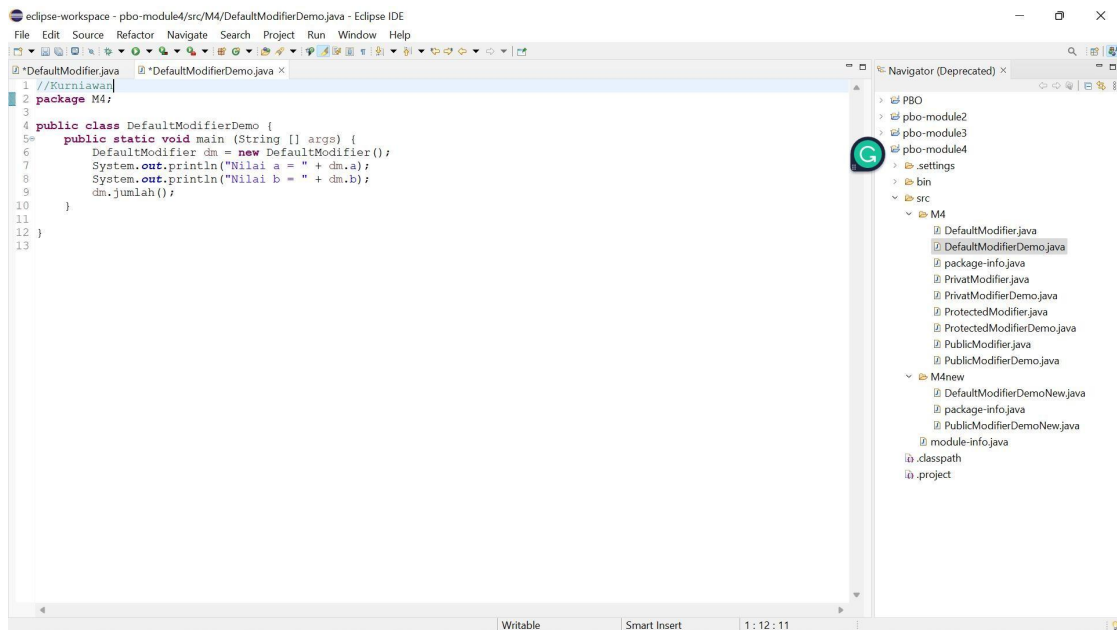
## 2. Can these variables be accessed in other classes?

Cannot be accessed in other classes, because the variable is a private variable. So to call the variable it must be in one class, it cannot be called in another class.

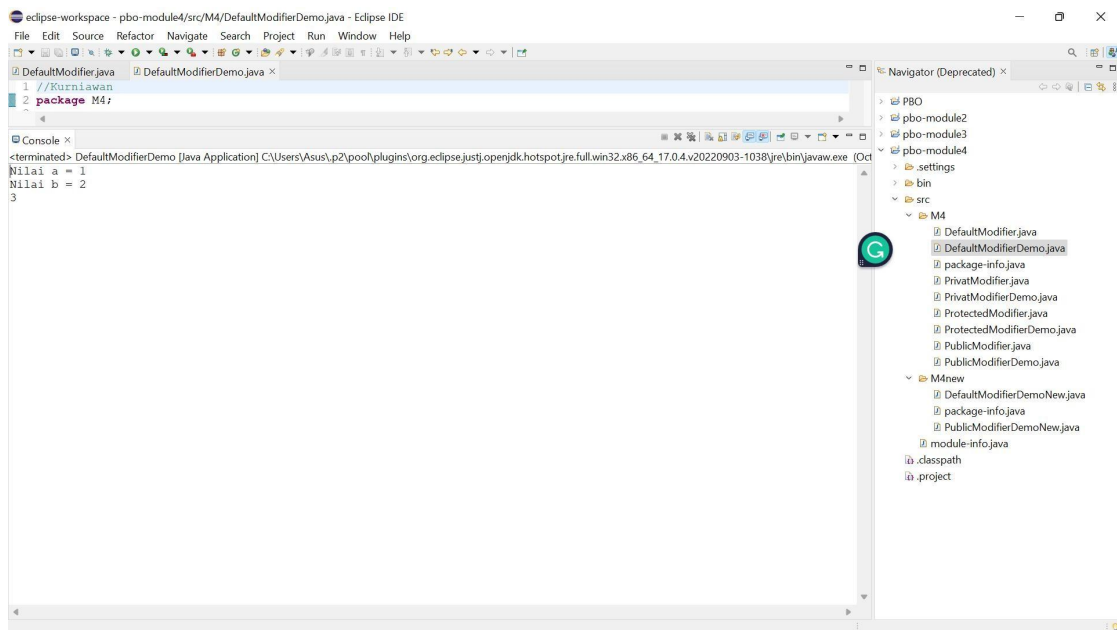
## 2.Default Modifier

Rewrite the code from program 2, and create a new class to access the variables and methods of program 2.



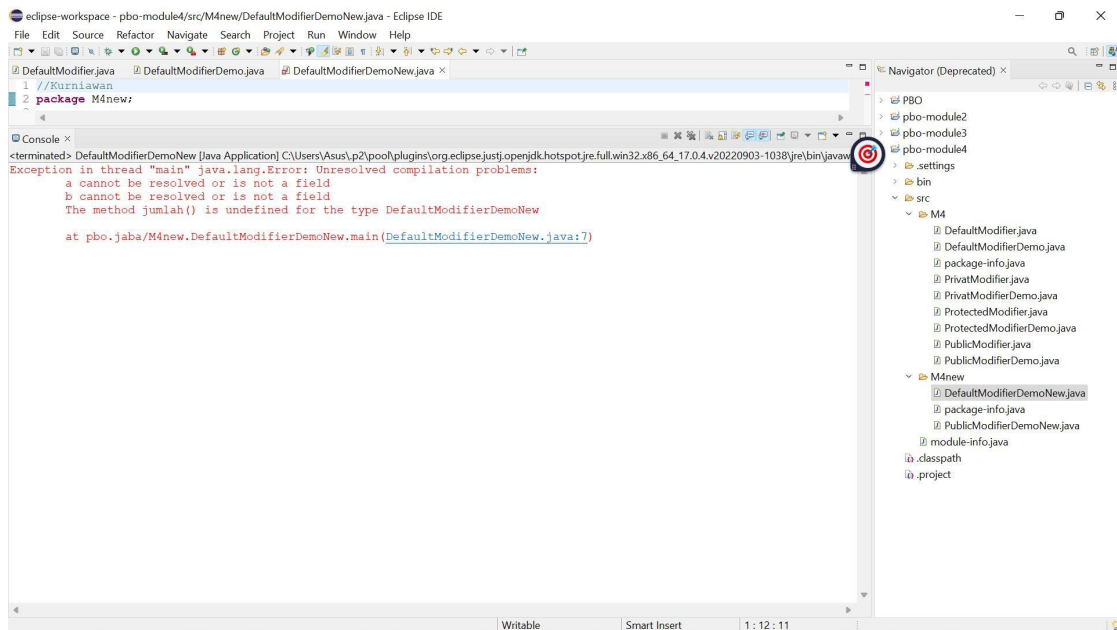


## Output:

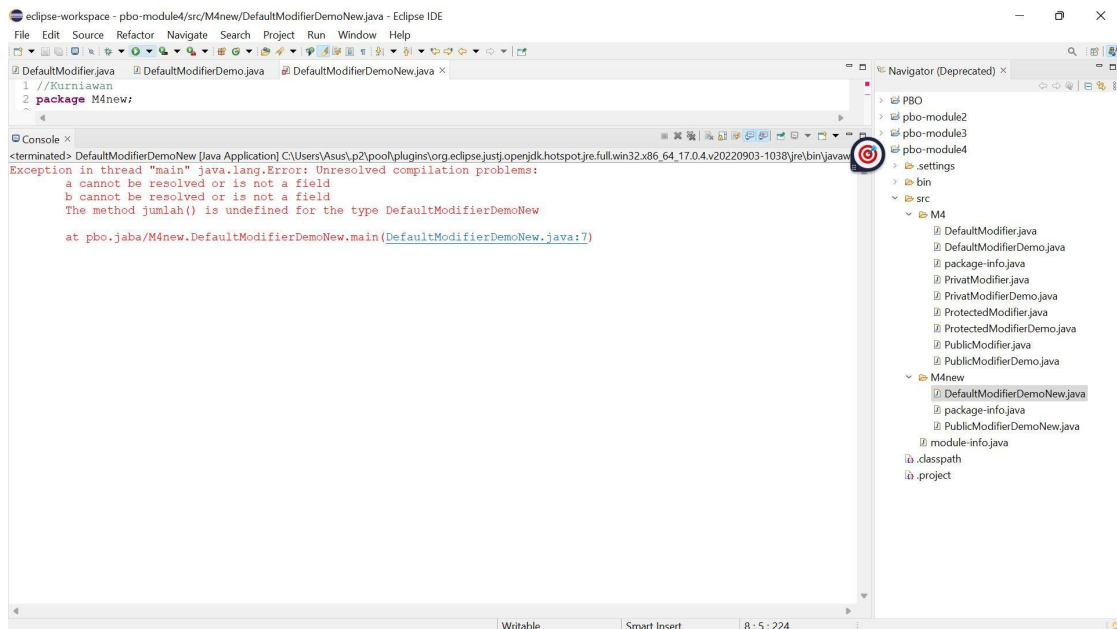


>> From the code above, it can be concluded that the default modifier can be accessed in different classes but in the same package.

2. Create a new package to access variables in the DefaultModifier class.



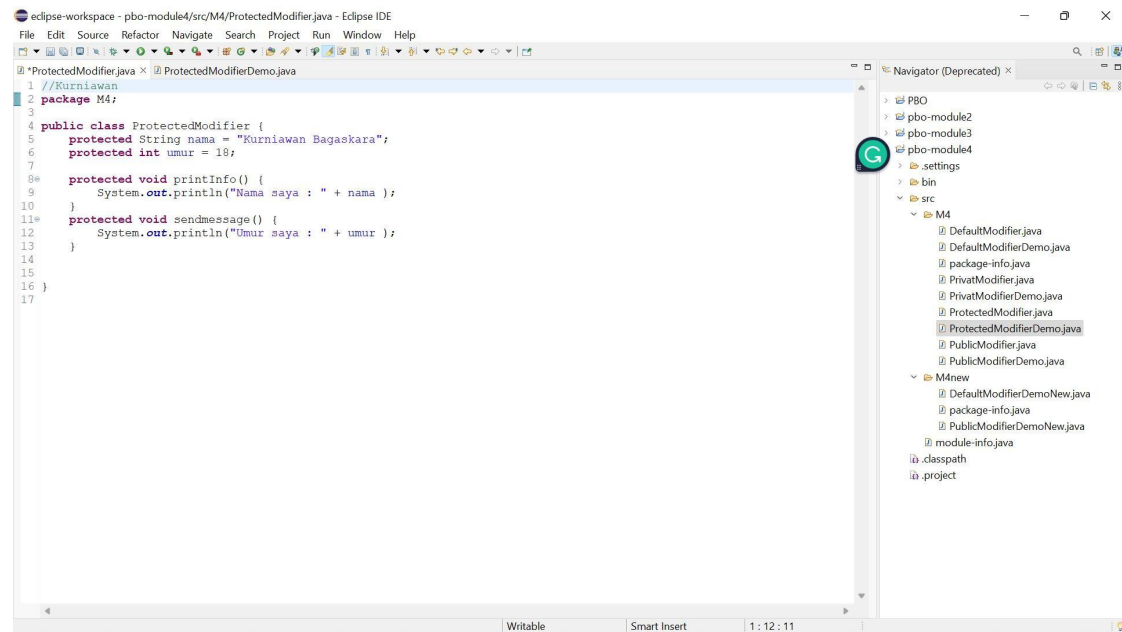
## Output :



>>From the code above it can be concluded that the default modifier cannot be accessed in different packages. The default modifier can only be accessed in one package but can be in different classes.

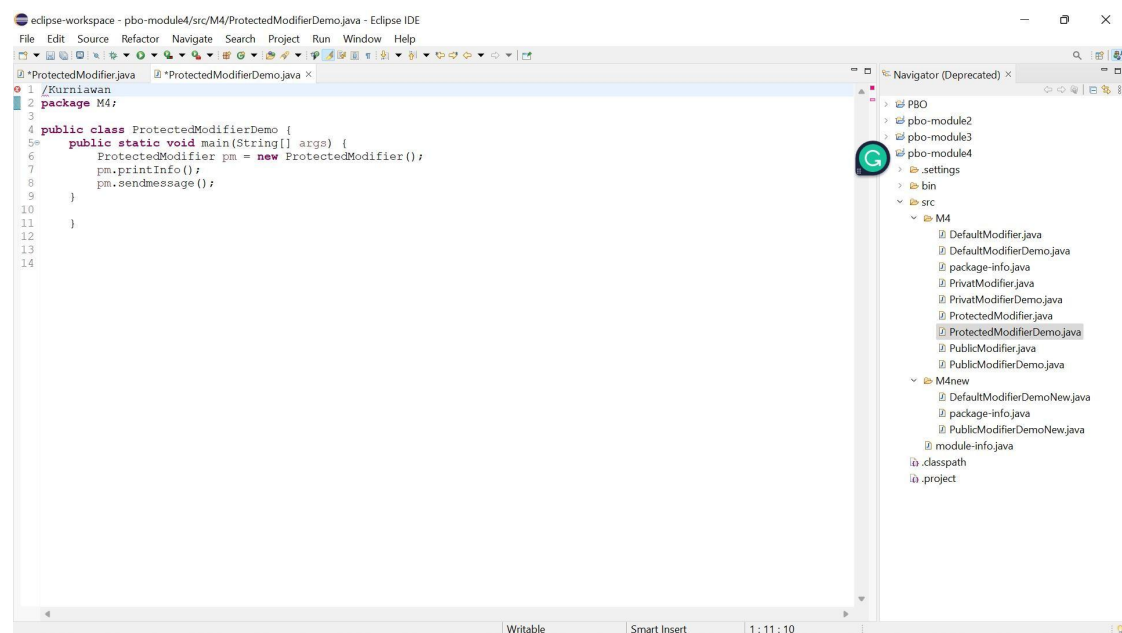
### 3.Protected Modifier

Rewrite the code from program 3, and create a new class and its objects to access the methods of program 3.



The screenshot shows the Eclipse IDE with the file `ProtectedModifier.java` open. The code defines a package `M4` and a public class `ProtectedModifier`. The class has two protected attributes: `String nama` (value: "Kurniawan Bagaskara") and `int umur` (value: 18). It also has two protected methods: `printInfo()` which prints the name, and `sendMessage()` which prints the age. The IDE's Navigator on the right shows the project structure, including the `M4` package and its contents.

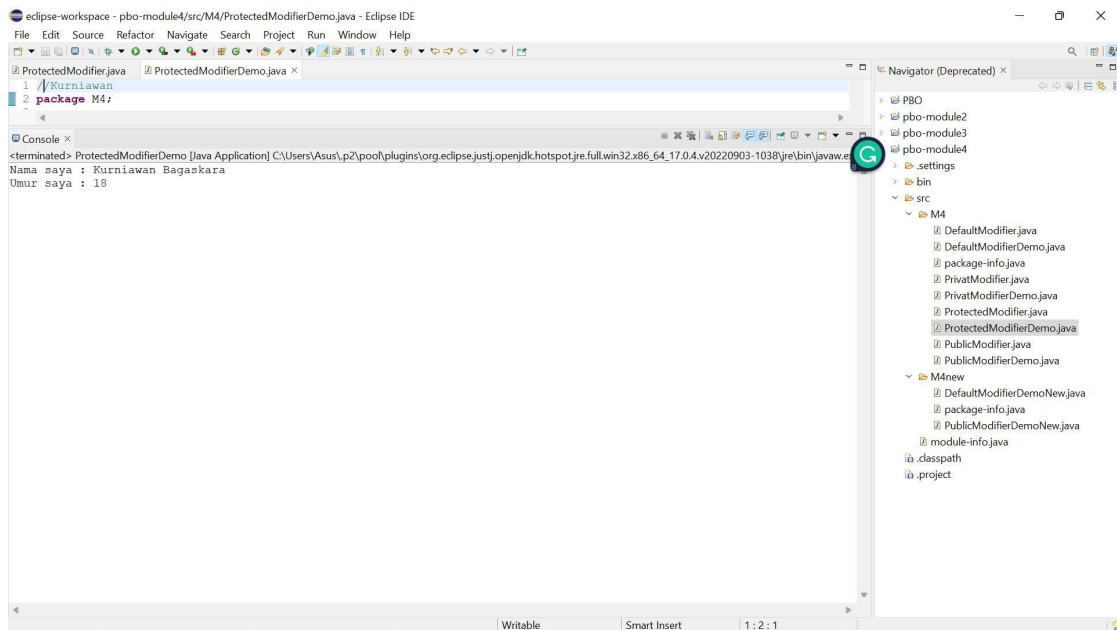
```
1 //Kurniawan
2 package M4;
3
4 public class ProtectedModifier {
5     protected String nama = "Kurniawan Bagaskara";
6     protected int umur = 18;
7
8     protected void printInfo() {
9         System.out.println("Nama saya : " + nama);
10    }
11    protected void sendMessage() {
12        System.out.println("Umur saya : " + umur);
13    }
14 }
15
16 }
17
```



The screenshot shows the Eclipse IDE with the file `ProtectedModifierDemo.java` open. The code defines a package `M4` and a public class `ProtectedModifierDemo`. The class has a public static method `main` which creates an instance of `ProtectedModifier` and calls its `printInfo()` and `sendMessage()` methods. The IDE's Navigator on the right shows the project structure, including the `M4` package and its contents.

```
1 //Kurniawan
2 package M4;
3
4 public class ProtectedModifierDemo {
5     public static void main(String[] args) {
6         ProtectedModifier pm = new ProtectedModifier();
7         pm.printInfo();
8         pm.sendMessage();
9     }
10 }
11
12 }
13
14
```

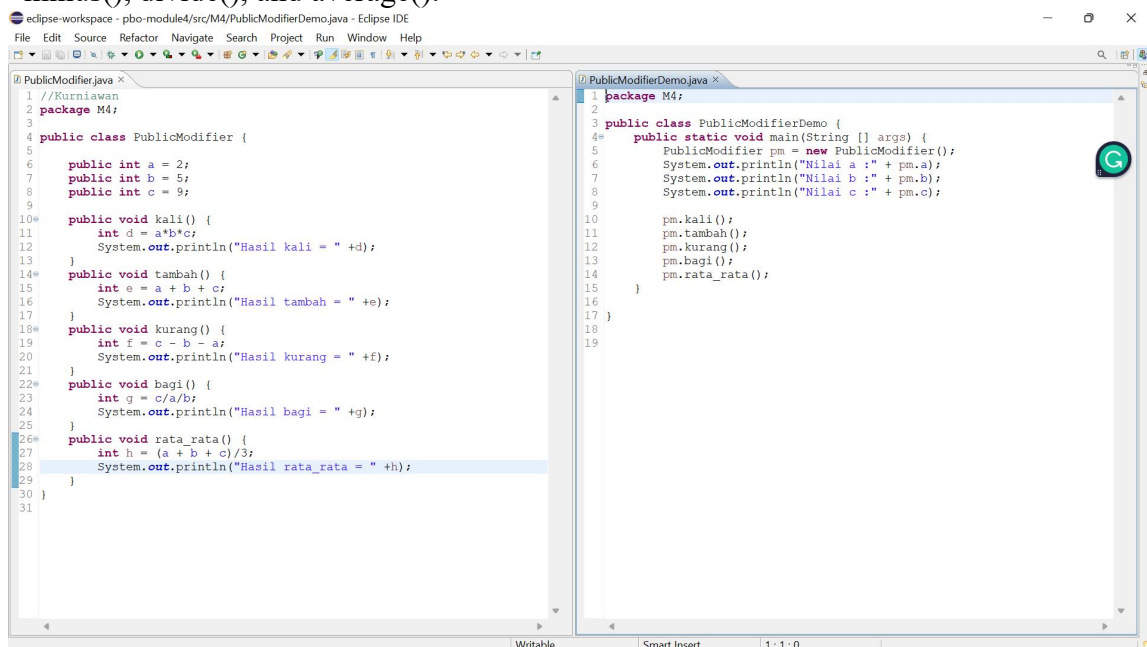
Output :



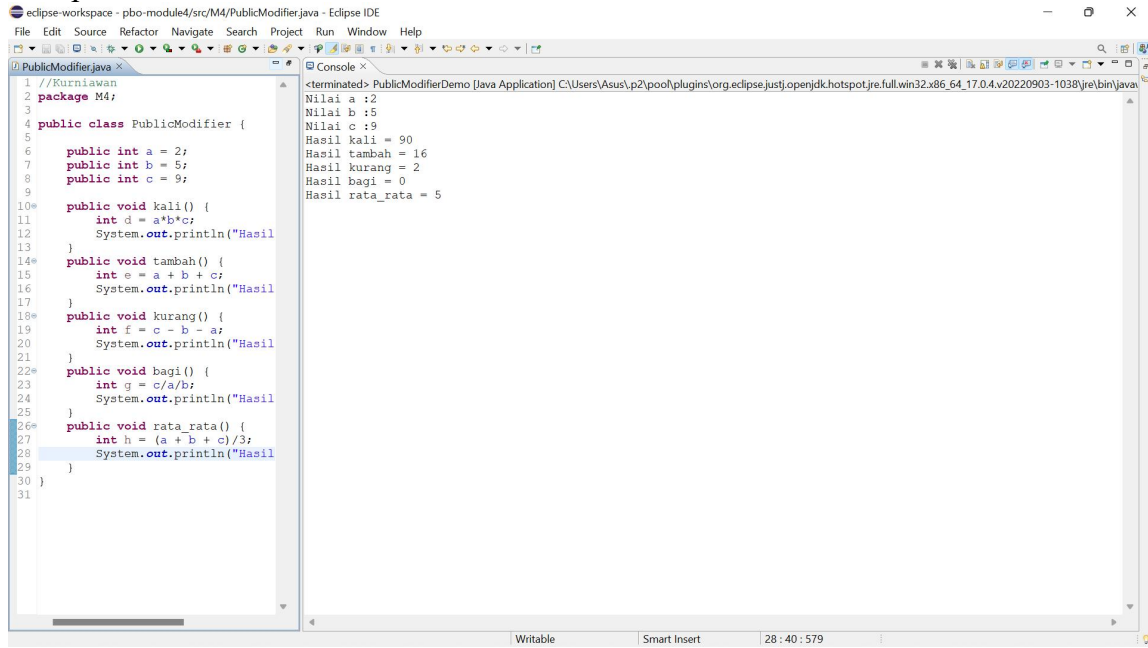
>> Protected Modifier can be accessed by the class itself, other classes in one package, and its subclasses in other packages. When compared to private and default modifiers, protected modifiers can be accessed in subclasses in other packages. While private and default can not.

#### 4.Public Modifier

Do the experiment as in Exercise 4.2.1, and add new methods including add(), minus(), divide(), and average().



## Output :



```
1 //Kurniawan
2 package M4;
3
4 public class PublicModifier {
5
6     public int a = 2;
7     public int b = 5;
8     public int c = 9;
9
10    public void kali() {
11        int d = a*b*c;
12        System.out.println("Hasil
13    }
14    public void tambah() {
15        int e = a + b + c;
16        System.out.println("Hasil
17    }
18    public void kurang() {
19        int f = c - b - a;
20        System.out.println("Hasil
21    }
22    public void bagi() {
23        int g = c/a/b;
24        System.out.println("Hasil
25    }
26    public void rata_rata() {
27        int h = (a + b + c)/3;
28        System.out.println("Hasil
29    }
30 }
31 }
```

```
<terminated> PublicModifierDemo [Java Application] C:\Users\Asus\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.4.v20220903-1038\jre\bin\java
Nilai a :2
Nilai b :5
Nilai c :9
Hasil kali = 90
Hasil tambah = 16
Hasil kurang = 2
Hasil bagi = 0
Hasil rata_rata = 5
```

>>Public modifiers can be accessed in the class itself or from various classes. Public modifiers can also be accessed in different packages.