

Encapsulation : Data Protection Mechanism

Encapsulation is a process of -

1. packaging variables and methods into a single unit.
2. protecting data by declaring them as private.

* How to implement Encapsulation ?

We need to perform two steps to achieve the purpose of Encapsulation -

- Use the private access modifier to all variables/fields of class as private.
- Define public getters and setters methods to read and modify/set the values of abovesaid fields.

* Benefits of Encapsulation :

1. providing provides data hiding
2. Reusability
3. Code can be modified without breaking the code
4. Maintainability : Hiding implementation details reduces complexity.

Code:

```
public class Person
    private String name;
    private int id;
    public void setName (String Name) {
        this.name = name;
    }
    public void setId (int id) {
        this.id = id;
    }
    public String getName () {
        return name;
    }
    public int getId () {
        return id;
    }
}
public class Test {
    public static void main (String args[]) {
        PERSON p1 = new person();
        p1.setName ("JIM");
        SOP (p1.getName());
    }
}
```

Data hiding



Access modifiers are used to achieve data hiding. Access modifiers are the keywords that specify the accessibility or the scope of methods, classes, fields and other members.

The four types of access modifiers are -

1. public
2. private
3. protected
4. Default.

Access Modifiers	Within Class	Within Package	Same package by Subclass	Outside Pack by Subclass	Global
public	Yes	Yes	Yes	Yes	Yes
Protected	Yes	Yes	Yes	Yes	No
Default	Yes	Yes	Yes	No	No
Private	Yes	No	No	No	No