Access Modifiers

Access Modifiers is the way of specifying the accessibility of a class and its members with respective to other classes and members.

The access modifiers in java specifies accessibility (scope) of a data member, method, constructor or class.

**Access Modifiers Types**

The basic Accessibility Modifiers are of 4 types in Java. They are

1. public
2. protected
3. package /default
4. private

There are other Modifiers in Java. They are

1. static
2. abstract
3. final
4. synchronized
5. transient
6. native
7. volatile

### public access modifier

a) Members are accessible to the classes which are inside and outside of the package where this class is visible.

b) The least restrictive of all the accessibility modifiers.

### protected access modifier

The **protected access modifier** is accessible within package and outside the package but through inheritance only.

The protected access modifier can be applied on the data member, method and constructor. It can't be applied on the class.

1. accessible to all classes in the package .
2. all subclasses of its class in any package where this class is visible.

### default access modifier

|  |
| --- |
| * 1. When no accessibility modifier is specified for the member then implicitly it is declared as Default.   b)The default modifier is accessible only within package. |

### private access modifier

a) These members are accessible only with in the same class.

b) These are not accessible from any other class within a class’s package also.

c) This is the most restrictive of all accessibility modifiers.

### Understanding all java access modifiers

Let's understand the access modifiers by a simple table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Access Modifier** | **within class** | **within package** | **outside package by subclass only** | **outside package** |
| **Private** | Y | N | N | N |
| **Default** | Y | Y | N | N |
| **Protected** | Y | Y | Y | N |
| **Public** | Y | Y | Y | Y |

Restrictively(max to min)

private ----🡪 default ----🡪protected --------🡪public

### Java access modifiers with method overriding

If you are overriding any method, overridden method (i.e. declared in subclass) must not be more restrictive.