Packages

A package is a grouping (or folder structure) of related classes/ interfaces

This helps in:

* Grouping of related type like classes or interfaces.
* Avoiding name conflicts with classes created in same or other projects.
* You can allow types within the package to have unrestricted access to one another yet still restrict access for types outside the package.



**Access specifier:** The access specifier in java indicates the visibility of the members of the class. Java support following.

1. private
2. default (without any keyword)
3. protected
4. public

**Private:**

The private (most restrictive) variables or methods cannot be used for classes. Variables , methods declared private are strictly controlled, which means they cannot be access by anywhere outside the class.

**NOTE:**

1.constructor can be declared as private, but object creation is allowed inside same class and does not allow outside class

2.A outer class cant be defined as private, since class loader cannot access private class. Inner class can be private. In practical Class can be declared either as public or as default (no keyword), it cannot be declared as private or protected.

**DEFAULT:**

* Default can be applied to either class/method/variables
* Default members have visibility within same class and within same package.
* Default members cannot be accessed from different package.

If we don’t declare any (access specifier) keyword it becomes default.

**PROTECTED:**

1.Protected members behave like default within the same package.

2. protected members are accessible outside package through inheritance.

3.protected members are accessible outside package only for sub class.

4.The visibility of protected members is between default and public.

**IMPORTANT POINTS ON PROTECTED:**

The protected members have the visibility with the class and within the same package as well, but if we want to access the protected members from another package then it can only be done through inheritance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | private | default | protected | public |
| Same class | yes | yes | yes | yes |
| Different class, same java file | no | yes | yes | yes |
| Different class, same package | no | yes | yes | yes |
| Different class out side package | no | no | yes(by extending and calling sub class object) | yes |