# **Access Modifiers in Java**

access modifiers are used to control the visibility of a class or a method or a variable or a constructor. There are 4 different access modifiers are available in java. They are – default, public, private and protected.

**default:** default members or members with no access modifier are visible within the package. And they are inherited to only sub classes which reside in the same package. That means they are not inherited and visible outside the package.

**public:** public members are visible everywhere and they are inherited to any sub class.

**private:** private members of a class, whether it is a field or a method or a constructor, can not be accessed outside the class in which they are defined. private members are also not inherited to sub class.

**protected:** protected members have half the characteristics of public members and half the characteristics of default members i.e. protected members are visible within package like default members and they can be inherited to any sub class just like public members.

Class – Access modifiers for class of public and default. Private and Protected can’t be used for class.

Methods – Access modifiers for method are default, public, private, protected.

Variables – Access modifiers for variables are default, public, private and protected.

Create two pacakges FPPackage and SPPackage

Under FPPackage create two classes FirstProgram.java and SecondProgramInFPP.java

**FirstProgram.java:**

**package** FPPackage;

**public** **class** FirstProgram {

**public** **static** **void** main(String[] args) {

System.***out***.println("Hello World!");

}

**protected** **int** sum(**int** a, **int** b) {

**int** c = a+b;

**return** c;

}

}

**SecondProgramInFPP.java**

**package** FPPackage;

**public** **class** SecondProgramInFPP {

**public** **static** **void** main(String[] args) {

System.***out***.println("Calling First Program in same package");

FirstProgram fp = **new** FirstProgram();

**int** a = 5;

**int** b = 7;

**int** c;

c = fp.sum(a, b);

System.***out***.println("Sum is "+c);

}

}

Under SPPackage create a class SecondProgram.java

**package** SPPackage;

**import** FPPackage.FirstProgram;

**public** **class** SecondProgram **extends** FirstProgram {

**public** **static** **void** main(String[] args) {

System.***out***.println("Calling FirstProgram in FPPackage");

FirstProgram fp = **new** FirstProgram();

**int** c = fp.sum(5, 5);

System.***out***.println("Sum is "+c);

}

}

Now modify the access types and check them.