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COIMBATORE-641 035, TAMIL NADU



UNIT IV INHERITANCE AND POLYMORPHISM

Java protected keyword

A Java protected keyword is an access modifier. It can be assigned to variables, methods, constructors and inner classes.

Points to remember

- The protected access modifier is accessible within the package. However, it can also be accessible outside the package but through inheritance only.
- We can't assign protected to outer class and interface.
- If you make any constructor protected, you cannot create the instance of that class from outside the package.
- If you are overriding any method, overridden method (i.e., declared in the subclass) must not be more restrictive.
- According to the previous point, if you assign protected to any method or variable, that method or variable can be overridden to sub-class using public or protected access modifier only.

Examples of protected keyword

Example

Let's see an example to determine whether the **protected variable** is accessible or not outside the package.

```
//save by A.java
```

```
package com.java;
```

```
public class A {
```

```
    protected String msg="Try to access the protected variable outside the package";
```

```
}
```

```
//save by ProtectedExample1.java
```

```
package com.javatpoint;
```

```
import com.java.A;
```

```
public class ProtectedExample1 {
public static void main(String[] args) {
    A a=new A();
    System.out.println(a.msg);

}
}
```

Output:

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
The field A.msg is not visible
```

Example

Let's see an example to determine whether the **protected method** is accessible or not outside the package using inheritance.

//save by A.java

package com.java;

public class A {

protected void msg()

{

System.out.println("Try to access the protected method outside the package using inheritance");

}

}

//save by ProtectedExample4.java

package com.javatpoint;

import com.java.A;

public class ProtectedExample4 **extends** A {

public static void main(String[] args) {

ProtectedExample4 a=new ProtectedExample4();

a.msg();

}

}

Output:

```
Try to access the protected method outside the package using inheritance
```