

### using a package member from outside its package

must use fully qualified name  
animals.Dog  
to use class (member)  
new animal- s.Dog();  
this is from the animals package

### how to prevent

#### EXAMPLE

```

Patient.java
public class Patient{
    private String name;
    private int age;
    private double[] temps;
    public Patient(String n, int a, double[] t){
        this.name = n;
        this.age = a;
        this.temps = t;
    }
}

TestPatient.java
public class TestPatient{
    public static void main(String[] args) {
        double[] tempsForP = {37.9, 38.6, 40.0, 37.4, 36.5};
        Patient p = new Patient("John", 42, tempsForP);
        tempsForP[0] = 41;
    }
}
    
```

The last statement in TestPatient.java will change the value of the field temps even though it is a private field!

### create a deep copy in the constructor

### condition for class to be immutable

if all fields are private and no mutator methods  
only way to assign values to fields through constructor  
if public or set type is provided, its mutable  
if fields are private and no get or set methods...its immutable

### static vs non-static

static is called on class  
nonstatic is called on object  
reference static from outside class  
from outside class: ClassName.rName  
call from outside class: obj.methodName()

### static vs non-static (cont)

reference obj from outside class  
obj.va- rName

### changing static

g2.msg, g.msg  
change g2.msg if static will change g.msg

### java auto imports two packages each src file

### java.lang package the current package

### !s!

in patient class, overload the constructor by adding another one that takes as input age, name, temperatures of new patient  
does it make a difference if we copy the elements of the input array, or just the address directly

### this field in static method

no

### if field is package private, (no access modifier)

can access as long as classes are in the same package  
public class Dog { String name';}

from class beagle, can access through d.name

### overloading constructor

create two constructors in same class file  
one takes no input, other takes input

### does a constructor have to initialize all fields?

no...other fields will be initialized by default  
in java you cannot assign default value in args

### static method access

if method is static, has access to class variables  
if method is not static, has access to both class and instance variables

### can only access field by class name if

public and static, not public is insufficient

### the result of the new operator is

a reference to the new object  
Random random-Generator = new Random();

### methods; same package but different classes

we need to use name of class.method to access

### can we access private field from constructor?

no cannot, need getter or setter...but the field is initialized just not accessible

### in what case do we try to leave fields public?

if they are constants

### private vs public fields

private field is accessible only within class in which it was written  
public field is accessible from anywhere

package private is only accessible within class, or its own package...not accessible to world