ECET 3810
W8: Casting, Scope, Access Specifiers, and Variable Types

Casting --> temporarily changes the type

Two Types: implicit (implied) and explicit (stated)

Rule of Thumb: implicit casting can occur, if precision is not lost

```
float pi = 3.1415926;

int  i = pi;      // requires an explicit cast

int  i = (int)pi;
```

What about?

```
int  i = (int)(pi/2);
// yes, this will work. (pi/2) is an implicit cast; 2 becomes 2.00…
```

```
Balloon myBalloon = new Balloon("green", 10,10);
:
// myBalloon can be recast as an object, because it is an object
aMethod((Object)myBalloon)

:
:
public void aMethod(Object o)
{
        //do something
}
```

```
Balloon myBalloon2 = new Balloon("yellow", 20,30);
String str = "a string";

Object[ ] obj = {(Object)myBalloon2, (Object)str};
anotherMethod(obj);



private void anotherMethod(Object[ ] o)
{
            :
// here we use two concepts: selecting array elements and casting
            String s = (String)o[1];
            Balloon b = (Balloon)o[0];
}
```

Scope specifies the range of influence of a variable, method, or parameter

The scope of a method is the entire class

The scope of a variable depends on where it is located: variables not contained within a method are global to the entire class, whereas variables contained within a method are local to that method

```
public class MyClass
{
   private int i,j;  //I and j are global variables
   :
    private void aMethod( )
    {
                :
                int k = i*j;  //k is a local variable
    }
}
```

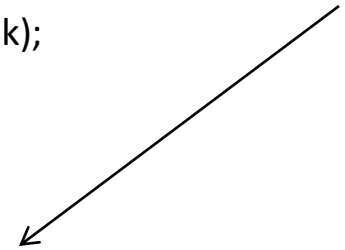
```
public class MyClass
{
   private static int i,j;  //I and j are global variables

   public static void main(String[] args)
   {
                              i = 3;
                              j = 2;
                              aMethod();
               }

   private static void aMethod()
   {

                              int k = i*j;  //k is a local variable
                              System.out.println(k);
   }

   private static void anotherMethod()
   {
                              System.out.println(k);
               }
}
```



"k" is undefined in anotherMethod

Can an access modifier broaden or narrow the scope? Yes.

```
public class MyClass
{
   private static int i,j,k;  //I and j are global variables

:
   private static void aMethod( )
   {

                        k = i*j;  //k is now global
                        System.out.println(k);
   }
}
```

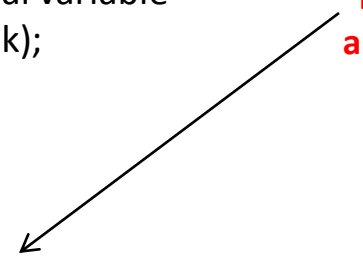
```
public class MyClass
{
   private static int i,j,k;  //I and j are global variables

   public static void main(String[] args)
   {
                        i = 3;
                        j = 2;
                        aMethod();
         }

   private static void aMethod()
   {

                        k = i*j;  //k is a global variable
                        System.out.println(k);
   }

   private static void anotherMethod()
   {
                        System.out.println(k);
         }
}
```



"k" is global, and can be seen within anotherMethod

```
public class MyClass
{
   private static int i,j,k;  //I and j are global variables

   public static void main(String[] args)
   {
                        i = 3;
                        j = 2;
                        aMethod(i,j);
            }

            // parameters a and b are local to aMethod
   private static void aMethod(int a, int b)
   {

                        k = a*b;  //k is a local variable
                        System.out.println(k);
   }

   private static void anotherMethod()
   {
                        System.out.println(k);
            }
}
```

Parameters are local to their method

Access Specifier: private, public, protected, and friendly (default)

private – scope restricted to current class in which it's contained

public – scope open to all classes

protected – scope available within the current class, to subclasses, or classes not even in the same package, but not to classes outside of the member's inheritance tree.

friendly – "package" scope open to all classes in the current package

Variable types:
http://journals.ecs.soton.ac.uk/java/tutorial/java/nutsandbolts/vars.html

Java keywords:

http://java.sun.com/docs/glossary.html