CECS 174 – Lecture 25

Implicit and Explicit Parameters – we have seen that when a method is called on an object its instance variables can be accessed from the method, these are called implicit parameters. We have also seen that parameters can be passed through the method's parameter list, these are explicit parameters. Below is an example of a class where some of the parameters of the methods are instances of the class itself either as implicit or explicit parameters.

Example – Fraction Class

```
public class Fraction{
     private int num; //numerator – top of fraction
     private int den; //denominator – bottom of fraction

     public Fraction(int n, int d){
          num=n;
          den=d;
     }
```

Implicit Parameter – the object variables that are being used are not passed through the parameter list, the method is using the object that it was called on to access its variables.

```
     public void printFraction(){
          System.out.print(num+ "/"+ den);
     }
```

Explicit Parameter – here, a different object of the same class is passed to the method through the parameter list for use within the method. Notice that it is also using an implicit parameter. You can use the keyword 'this' to ensure that you are specifying the implicit parameter object ('this' represents the current object that is being referenced).

```
     public Fraction add(Fraction f){
          int n = 1;
          int d = 1;
          if(this.den == f.den){
               n = this.num+f.num;
               d = this.den;
          }else{
               n = this.num*f.den + f.num*this.den;
               d = this.den*f.den;
          }
          Fraction res = new Fraction(n, d);
          return res;
     }
}
```

Object Testbench –

After creating a class you should test your class for correctness before moving on to create the program that will use your class. A testbench is used to create instances of your objects, call methods, and display the results, so that you can ensure that your class is working correctly.

An Example Test Class:

```
public class TestFraction{
     public static void main(String [] args){
          Fraction f1 = new Fraction(1, 2);
          Fraction f2 = new Fraction(3, 4);
          Fraction f3 = new Fraction(3, 2);

          //Test both types of adding fractions
          //same denominators
          System.out.println("1/2 + 3/2 = 4/2");
          Fraction result1 = f1.add(f3);
          //print out resulting fraction to check
          result1.printFraction();

          //different denominators
          System.out.println("1/2 + 3/4 = 10/8");
          Fraction result2 = f1.add(f2);
          //print out resulting fractions to check
          result2.printFraction();
     }
}
/* Output
1/2 + 3/2 = 4/2
4/2
1/2 + 3/4 = 10/8
10/8
*/
```