CS 157 Lab 4 October 6, 2009
Parameters

Parameter Mystery

1. What output is produced by the following program? Determine the answer before you type in the program and run it. If the results do not correspond to your predictions, and you do not understand why, **ask**.

```
public class ParameterMystery1 {
    public static void main(String[] args) {
        int x = 4,  y = 7,  z = -2;
        mystery(x, y, z);
        mystery(z, 3, x);
        mystery(x + y, y + z, z + x);
    }

    public static void mystery(int c, int a, int b) {
        b = 2;
        c = a + 5;
        a = a - b;
        System.out.println(b + " + " + c + " = " + a);
    }
}
```

2. Same instructions as in problem 1.

```
public class ParameterMystery2 {
    public static void main(String[] args) {
        String major = "fred";
        String fred = "computer";
        String computer = "department";
        String department = "student";
        String student = "major";

        sentence(major, fred, department);
        sentence(student, computer, fred);
        sentence("fred", "honor", computer);
        sentence("foo", "bar", "baz");
        sentence(fred, computer, student);
    }

    public static void sentence(String major, String fred, String foo) {
        System.out.println("Many a " + foo + " in the " + fred + " of " + major);
    }
}
```

3. Same instructions as in problem 1.

```
public class ParameterMystery3 {
    public static void main(String[] args) {
        String a = "king";
        String b = "two";
        String c = "queen";
        String two = "five";

        sentence(a, b, c);
        sentence("b", c, c);
        sentence(two, "two", a);
        sentence(c, a, b);
        sentence(two, "queen", b);
    }

    public static void sentence(String b, String c, String a) {
        System.out.println("a " + c + " and a " + a + " beats a " + b);
    }
}
```

Parameters

4. Create a new class called Lab4. Inside that class, write a method named `printColumns` that accepts two parameters: a maximum number and a number of spaces. The method should print that many numbers starting at 1, with each number separated by the given number of spaces. For example, the call `printColumns(8, 5)` should produce the following output:

   ```
   1    2    3    4    5    6    7    8
   ```

   Test this method extensively from a main method that you also add to the class.

5. Add another method called `printNumberOfQuarters` that takes an `int` as an argument and prints the number of quarter coins represented by that many cents, not counting dollars. For example, `printNumberOfQuarters(64)` would print 2, because there are two quarters in 64 cents, and there would be 14 cents left over. Calling `printNumberOfQuarters(1278)` would print 3, because not counting the 12 dollars, there are 78 cents left, which is 3 quarters with 3 cents left over. After you write the method, how are you going to test it? The two examples given are not enough to inspire confidence. Have your main method call `printNumberOfQuarters` with enough examples that you are very confident that the method works in all cases.

Copy the file Lab4.java to the shared drive.