Announcements:
Program 3 due Wed; Embedded 5 due Th; OWL 4 due Fri

Lecture Summary: ch 4, most attention to for loops, Math class, random(). Static methods introduced. Casting introduced.

1. Remember that casting converts between types: (int)’a’ -> 97; (char)97 -> ‘a’. What is (char)('a'+1), and why?

2. public static void main(String[] args){
   // this does what?
   for(int j = 0; j < 5; j++){
      System.out.println(j);
      System.out.println(j*j); }
}

3. public static void main(String[] args){
   // this does what?
   int sum = 0;
   for( j = 0; j < 5; j++){
      sum = sum + j; // or: sum += j;
   }
   System.out.println(sum);
}

4. for (int n = 0; n < 50; n++){
   // this does what?
   if (((n % 3 == 2) && (n % 5) == 0)
      System.out.println(n);
}

5. double r = 2.0;
   for (int n = 0; n < 5; n++){
   // this does what?
   r = Math.sqrt(r);
      System.out.println(r);
   }
   Also: what kind of method is Math.sqrt()???

6. for (int n = 0; n < 20; n++){
   System.out.println((int)(Math.sqrt(n)));}
   //What does this print??

7. If s is a String, write a loop that prints its characters in a column.

8. If s is a String, write a loop that prints its characters in a column – except for letters a through e (lower case). These should simply generate blank lines.

9. If s is a String consisting of all digits, write a loop that prints its digits back to the console in a row – except for 5’s. 5’s should generate a new line. Thus, if s = 3456, then your loop should print this:

3
4
5
6
More Practice

10. Create a class that includes a main method and works as follows:
You should create two Infant objects in the application, myKid and
yourKid. Use a Scanner object to read in the name field for each
object. For the age field, generate a “month” (between 0 and 9) for
each kid using Math.random(). Finally, print the age of the older kid.
(Hint: pull off the first digit to right of decimal point)

11. Look over this program, which estimates the square root of 3:

   import java.util.*;
   public class RootThree{
     public static void main(String[] args){
       Scanner s = new Scanner(System.in);
       System.out.println("Enter a number of trials");
       int trials = s.nextInt();
       double target = 3.0;
       double cur;
       int below = 0;
       for (int n = 0; n < trials; n++){
         cur = 1 + Math.random();  // root is between 1 and 2
         if ((cur*cur) < target) below++;
       }
       System.out.println ("root est for "+ target + ": " +
                                 (1 + (double)below/trials));
       System.out.println("actual: "+ Math.sqrt(target));
     }
   }

   a. why the import statement?
   b. What are the types of the operands of the very last division, and
      why the expression (double)below?
   c. Explain in your own words why this program approximates sqrt of 3

12. Write a program that reads in a string, then prints the number of
    a’s, and b’s in the string (upper or lower case).

13 Write a program that reads in a string, then prints the sum of the
    numbers associated with the chars in the string. (The number associated
    with a char is the value you get when you cast the char as an int).

14. Write a program that reads in a positive int, and then continually
    halves that number and prints the result until 0 is reached. So if 100
    is read in then your program should print: 50 25 12 6 3 1