Lab 23 (November 29 or November 30)

Instructions: Complete the steps below. **Be sure to show your code to one of the lab TAs before you leave, so that you can receive credit for this lab.** You must also upload copies of all your source code (.java) files to the link on Blackboard by 11:59 PM on Thursday, November 30.

1. Write a recursive method that takes an integer argument and prints the digits of that integer in reverse order on the console. For example, given the input 12345, the method would print out 54321. Use the following method header:

   ```
   public static void reverseDisplay (int value)
   ```

   Hint: Use modulo (%) and division to extract digits from a number. For example, taking a number modulo 10 will give you the final (rightmost) digit of that number, and dividing it by 10 (using integer division) will give you everything *except* the final digit.

2. Write a recursive method that converts a decimal (base 10) integer into a binary number (represented as a string). The header for this method is:

   ```
   public static String dec2Bin (int value)
   ```

   Remember that the general procedure of converting a base 10 value into a new base N involves repeatedly dividing the value by N and taking the remainders in reverse order (from last to first, left to right). As with the preceding program, use the modulo operator to compute the remainder of dividing by 2. In this case, use a value less than 2 as your base case (e.g., 0 in decimal is 0 in base 2, and 1 in base 10 is 1 in base 2).

Grading Guidelines: This lab is graded on a scale of 0-3 points, assigned as follows:

0 points: Student is absent or does not appear to have completed any work for the lab

1 point: Student has completed some work, but neither program compiles or runs.

2 points: Student has correctly completed only one of the programs. The second program is in-progress, but not yet functional (it may not even compile at this stage).

3 points: Student has correctly completed both programs, without any apparent errors.