

6. Roman Numbers and ReUse

The following Java code writes out the “simple” Roman numbers corresponding to any given input arabic number less than 500. This simpler version allows repetition of 4 symbols; for example, the Arabic number 234 is printed as the Roman CCXXXIII, and 432 is CCCXXXII. There is much repetition in the algorithm; it can be avoided in many ways.

- a. Repackage this program by writing the repeated parts as a method, and show the resulting calls to such a method.
- b. Rewrite the resulting repetitions using an array.

```
class Roman1 {
    public static void main (String args[]) {
        int arabic, rem;
        arabic = getInt (); // given input method
        rem = arabic;

        while (rem >= 100) {
            System.out.print ( "C" );
            rem = rem - 100;
        } // end while

        while (rem >= 50) {
            System.out.print ( "L" );
            rem = rem - 50;
        } // end while

        while (rem >= 10) {
            System.out.print ( "X" );
            rem = rem - 10;
        } // end while

        while (rem >= 5) {
            System.out.print ( "V" );
            rem = rem - 5;
        }

        while (rem >= 1) {
            System.out.print ( "I" );
            rem = rem - 1;
        } // end while

        System.out.println();

    } // end of main method
} // end of class Roman
```