CSC108 – Introduction to Programming

Lab05A:

**ISBN-10 and ISBN-13:** are standards for identifying books. ISBN = International Standard Book Number

ISBN-10 uses 10 digits: d1d2d3d4d5d6d7d8d9d10

The last digit, d10, is a checkSum, which is calculated from the other digits using the following formula:

checkSum = (d1 \* 1 + d2 \* 2 + d3 \* 3 + d4 \* 4 + d5 \* 5 + d6 \* 6 + d7 \* 7 + d8 \* 8 + d9 \* 9) % 11

If the checkSum is 10, replace it with X. Your program should read input as a string.

ISBN-13 uses 13 digits: d1d2d3d4d5d6d7d8d9d10d11d12d13

The last digit, d13, is a checkSum, which is calculated from the other digits using the following formula:

checkSum = 10 – (d1 + 3d2 + d3 + 3d4 + d5 + 3d6 + d7 + 3d8 + d9 + 3d10 + d11 + 3d12 ) % 10

If the checkSum is 10, replace it with 0.

Create a Java application in NetBeans called “Lab05A” that asks for either the first 9 or 12-digits of an ISBN number as a string, and will continue asking until QUIT is entered to exit the looping. You **must** use the next() method from the Scanner class to retrieve all input. Depending on the length of the string entered, your program will calculate the checkSum and append it onto the previous digits based on the formulas above. Reject any input that is not a length of 9 or 12, or QUIT as invalid input, and continue asking for input. You can save your output of ISBN-10 and ISBN-13 numbers by concatenating them to an output variable similar to the example in the SubtractionQuizLoop program posted in Blackboard. Once QUIT is entered, in either upper or lower case, your program will output all the ISBN-10 numbers first, and then all the ISBN-13 numbers next. Be sure to test your program thoroughly with many ISBN book numbers available to you.

**Sample Java output:**

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: 123456789

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: 013601267

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: 013031997

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: 978013213080

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: 978013213079

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: end

end is an invalid input

Enter the first 9 or 12-digits of an ISBN number. Enter QUIT to exit: quit

The ISBN-10 numbers are:

123456789X

0136012671

013031997X

The ISBN-13 numbers are:

9780132130806

9780132130790

Zip the Lab05A folder and send it to me as an attachment in Blackboard. Below is s sample flowchart of **one** solution. You may use this, or one of your own design, however, your solution must satisfy the requirements above.

**Lab05A Flowchart:**

