

CS 21 Introduction to Java Programming:

Project 9:

1. In this home work, you have to use Java loops, class and methods.

Name your Java class as **ISBN**.

Book ISBN code project

The International Standard Book Number (ISBN) is a unique numeric commercial book identifier based upon the 9-digit Standard Book Numbering (SBN) code created by Gordon Foster, Emeritus Professor of Statistics at Trinity College, Dublin for the booksellers and stationers W. H. Smith and others in 1965.

A 10-digit ISBN book number consists of 10 digits

$D_0 D_1 D_2 D_3 D_4 D_5 D_6 D_7 D_8 D_9$

The last digit D_9 is a checksum which is calculated from the first 9 digits using the formula:

$$D_9 = (D_0 \times 1 + D_1 \times 2 + D_2 \times 3 + D_3 \times 4 + D_4 \times 5 + D_5 \times 6 + D_6 \times 7 + D_7 \times 8 + D_8 \times 9) \text{ modulus } 11$$

If the checksum is 10, the last character D_9 is set to X because we can not store 10 as a single digit. The Modulus operation is the remainder operation:

<http://www.cprogramming.com/tutorial/modulus.html>

Write a program **ISBN.java** that prompts the user to enter the first 9 digits of an ISBN and displays the complete 10- digit ISBN code including all 0.

Requirements:

ISBN_XXXXX class only has the following private fields:

first9Digits: String type, stores first 9 digits of ISBN code
checksum: char type, stores the 10th character (0 through 9 or X)

Do not add any other instance field. Do not use static fields.

ISBN class has the following constructor and methods:

-public ISBN(String first9DigCode):

public constructor that take 9-digit code

It should call calculateChecksum() and set the checksum field.

-private char calculateChecksum():

private instance method to calculate check sum

Return a checksum character using the field first9Digits for calculation

This method must contain a loop to go through each digit of the first 9 digits.

The method

must return a character result ('0' through '9', or an 'X'). This method returns a character and does NOT display any output.

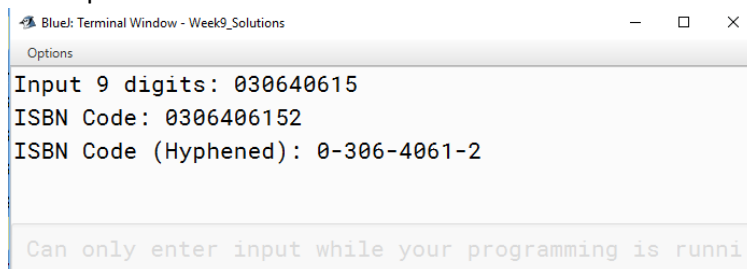
-public String formatWithHyphen():

public instance method that returns a string containing hyphens using the first 9 digits and the checksum field.

The 3 embedded hyphens are after the first digit, after the fourth digit and after the ninth digit. For example, this method will take a full ISBN “0306406152” and returns a string “0-306-40615-2”. This method returns a string and does NOT display any output.

Do not use a loop in this method because the String class has good methods to use.

2. The expected result:



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BlueJ: Terminal Window - Week9_Solutions
Options
Input 9 digits: 030640615
ISBN Code: 0306406152
ISBN Code (Hyphenated): 0-306-4061-2
Can only enter input while your programming is runni
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