	Computer Science Department/College of Engineering and Computer Science
	CSc 020: Programming Concepts and Methodology II (Spring 2018)
	Lab 2 – Writing a simple Java program

Objective:

This lab is to introduce you to the jGRASP environment and to help you become familiar with some of the basic concepts in Java.

Preparation: (at home)

Write an interactive console program in a class named **CalculateLine** that calculates y coordinates on a line. First, it prompts the user for a slope m, and an intercept b (as seen in the line equation of the form y = m x + b). Then the program prompts the user for x values until the user enters a -1. For each entered number, print the y value on that line for that entered x value. Here is a sample run of the program (user input is shown like this):

```
This program calculates y coordinates for a line.
Enter slope (m): 2
Enter intercept (b): 4
Enter x: 5
f(5) = 14
Enter x: 1
f(1) = 6
Enter x: -1
```
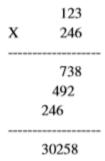
Test your program with the following web site:

https://www.codestepbystep.com/problem/view/java/basics/CalculateLine
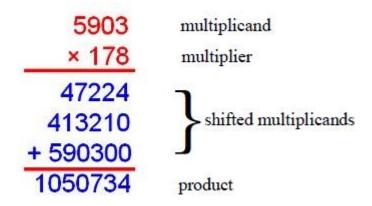
Lab work: (in school laboratory)

In this lab you are to write a simple Java program to prompt a user for two integers and print the product of the two integers in the following form:

Credit: The CalculateLine program is credited to https://www.codestepbystep.com/

```
          123
    X     246
    ------------------
          738
         492
        246
    ------------------
        30258
```

Do this problem using two integers with either 3, or 4, or 5-digit. The two numbers might not have the same digit's length. Please use only **one** single loop with **one** System.out.printf statement for printing the shifted multiplicands as shown in the example below. Please name the class name as **PrintMultipOfNDigits.**

```
    5903        multiplicand
  × 178         multiplier
  -----
   47224   ⎫
  413210   ⎬  shifted multiplicands
+ 590300   ⎭
  -------
 1050734       product
```

Activities:

Analyze the steps required to compute the output lines, using the above example as your reference. Design your program, code, and test it.

Deliverables:

(1) Demonstrate your program **CalculateLine's** execution running inside the https://www.codestepbystep.com/ website to your instructor.

(2) Demonstrate your program **PrintMultipOfNDigits's** execution to your instructor.

(3) Upload your final **PrintMultipOfNDigits's** java program (file with extension .java in text) and your program's ouput (in PDF) to Csus's

Canvas LMS.

(4) Using a debugger (learned from your lab 1) and set a breakpoint at the location where the final product was computed, do a screen capture of this debugged final value and attached this image inside your pdf file.

Note: To earn a full mark in <u>all</u> of your CSC 20 labs, please be sure to include your name, date, and the program's description in the header section. Please see a sample program's description below:

```
1 ///////////////////////////////////////////////////////////////////////////////
2 // Lab number: 2                                                             //
3 // Author Name: John Doe                                                     //
4 // Module Description: This program prompts an user for two N-digit integers, and prints //
5 //                     the shifted multiplicands, with their final product.  //
6 // Date: 1/7/2018                                                            //
7 ///////////////////////////////////////////////////////////////////////////////
```