CSCI-101 Programming I

Lab 8

Instructions: Inside your **labs** directory create a directory named **lab8**. Inside the **lab8** directory create a file named **Lab8.java** and add code that satisfies the following.

1. Add a method named **printMenu** that prints the following to the screen.

   1) Modify array
   2) Print array
   3) Compute sum
   4) Exit

   Choose a menu option:

2. Add a method named **modifyArray**. The method has a single parameter named **m** that holds a reference to a 2D array of integers.

   The method asks the user for the index of a row, and an index of a column of the 2D array. The method then reads the two values from the keyboard and stores them in variables named **row** and **col**, respectively.

   If the value in **row** or **col** are not valid indices for the array then the method returns.

   Otherwise the method asks the user to enter a value, reads the value from the keyboard and stores the value in a variable named **val**.

   It then sets the element at the given row and column to the value stored in **val**.

3. Add a method named **printArray**. The method has a single parameter named **m** that holds a reference to a 2D array of integers. The method print the elements in the 2D array to the screen, with each row on a separate line with spaces between the elements.

4. Add a method named **computeSum**. The method has a single parameter named **m** that holds a reference to a 2D array of integers. The method computes the sum of the integers in **m** and prints the sum to the screen.

5. In the **main** method do the following.
   1. Declare a 3x3 array of integers named **matrix**.

   2. Add a continuous loop that does the following:
      a. Print the menu by calling **printMenu**
      b. Read a user's choice from the keyboard
      c. Performs one of the following actions based on the user's choice

         - If the user chooses 1, invoke **modifyArray** passing to the method **matrix**.
         - If the user chooses 2, invoke **printArray** passing to the method **matrix**.
         - If the user chooses 3, invoke **computeSum** passing to the method **matrix**.
         - If the user chooses 4, terminate the program.
         - Otherwise print "Invalid option" to the screen., the method return.