CSCI-101 Programming 1

Lab 11

Create a **lab11** directory and put all of the files for this lab in the **lab11** directory.

1. Create a file named **game1.txt** and include in the file the following content:

1,0,2
2,0,1
0,1,2

2. Create a file named **game2.txt** and include in the file the following content:

1,0,**2**
2,**2**,**2**
0,1,**2**

3. Create a file named **game3.txt** and include in the file the following content:

1,0,**2**
2,**2**,**2**
2,1,0

4. Write a class named **Lab11** in your **lab11** directory that contains the following:

   - A method named **printMatrix** that takes a 2D array of integers as an argument and prints each row of elements (array) in the 2D array on a separate line with spaces between the elements.

   - A method named **checkRows** that has 2 parameters. The first parameter is a 2D array of integers named **matrix** and the second parameter is an integer named **val**. The method returns true if all of the values in any row of **matrix** are set to the value in **val**; otherwise the method returns false.

   - A method named **checkColumns** that has 2 parameters. The first parameter is a 2D array of integers named **matrix** and the second parameter is an integer named **val**. The method returns true if all of the values in any column of **matrix** are set to the value in **val**; otherwise the method returns false.

   - A method named **checkDiagonals** that has 2 parameters. The first parameter is a 2D array of integers named **matrix** and the second parameter is an integer named **val**. The method returns true if all of the values in any diagonal of **matrix** are set to the value in **val**; otherwise the method returns false.

   - A method named **main** that does the following:
     - Declares a 3x3 2D array of integers named **gameBoard**.

     - Ask the user to enter a file name. Read the value from the keyboard, and store the value in a variable named **fileName**.

     - Reads the integers in the file whose name is in the variable **fileName** and stores the integers in **gameBoard.**
     - Print the contents of **gameBoard** to the screen using **printMatrix**.

     // Check to see if gameBoard has all 2's in any row
     - Call **checkRows**, passing to the method **gameBoard** and the value **2**. Save the value returned by the method in a variable named **foundWinningRow**.
     - Print to the screen "Found winning row: " followed by the value in **foundWinningRow.**

     // Check to see if gameBoard has all 2's in any column
     - Call **checkColumns**, passing to the method **gameBoard** and the value **2**. Save the value returned by the method in a variable named **foundWinningColumn**.
     - Print to the screen "Found winning column: " followed by the value in **foundWinningColumn.**

     // Check to see if gameBoard has all 2's in any diagonal
     - Call **checkDiagonals**, passing to the method **gameBoard** and the value **2**. Save the value returned by the method in a variable named **foundWinningDiagonal**.
     - Print to the screen "Found winning diagonal: " followed by the value in **foundWinningDiagonal.**

5. Test your program using **game1.txt**, **game2.txt**, and **game3.txt**. Verify that your program works properly.