

CS-200: Programming I
Spring 2017
Northeastern Illinois University
PLTL: Week of 04/03/17
2D Arrays

Problem #1

- Write a program that has the class name Problem1 and that has the main method. Leave the main method empty for now.
- Write a method named binaryArr that takes one parameter, an 2-dimensional (2D) boolean array named a and returns a 2D integer array.
- The method should create a new integer array that replaces every false from the boolean array with a 0 and every true with a 1.
- Create a print2DArray method that takes a 2D integer array as a parameter and prints out the elements of each row on its own line separated by spaces.
- Several sample usages are provided for you below. Use the sample usages in the main method to test your code (and use the printArray method to print out the results of calling the transpose method!).

| Sample Method Usage | Output |
|--|-------------------------|
| <code>boolean[][] b1 = {{false, true, false, true, true}, {true, false, false, true, true}, {false, false, true, true, false}};</code> | 01011 10011 00110 |
| <code>boolean[][] b1 ={{true, false, true, false}, {false, false, true, false}};</code> | 1010 0010 |

Problem #2

- Write a program that has the class name Problem2 and that has the main method. Leave the main method empty for now.
- Write a method named inSequence that takes a 2D integer array, and returns a boolean value.
- The method should check if the numbers are in sequence from 1 to $n * n$. If they are, then return true. You may assume that the array is already a perfect square.
- Several sample usages are provided for you below. Use the sample usages in the main method to test your code.

| Sample Method Usage | Return Value |
|--|--------------|
| <pre>int [][] a1 = {{1, 2, 3, 4}, {5, 6, 7, 8}, {9, 10, 11, 12}, {13, 14, 15, 16}};</pre> | true |
| <pre>int [][] a1 = {{1, 3, 2, 4}, {3, 5, 8, 7}, {12, 11, 16, 8}, {12, 14, 15, 16}};</pre> | false |