Lab13: Arrays II

Objectives

Designing and implementing Java programs that deal with:

1. **Partially Filled Array**
   a. Having an array of size 50 BUT only 30 indexed variables are used!

2. **2-Dimension (2D) Arrays – Matrix**
   a. 2D array is actually array of arrays.
   b. The indexed variables has 2 indices, e.g., grade[3][2].
   c. `length` instance variable of a 2D array gives the number of 1st indices (number of rows) of the 2D array.
Exercises

Exercise #01: (Partially Filled Array)

Suppose that you have an array of type int and of size 20. Design and implement a program that will prompt the user to enter an index from 0 to 9, then fill the array with 10 random numbers starting from the index entered by the user. Your program then pass the array along with the minimum and the maximum used indices to a method called shrink. This method has the following header:

```java
public static int[] shrink(int[] a, int min, int max)
```

This method returns an array containing the indexed variables from min to max of the original array a.

Exercise #02: (2D Array – Game)

Write a program that will allow two users to play Tic-Tac-Toe game partially. The program should ask for moves alternately from player X and player O. The program should display the game position as follows:

```
  1 2  3
 4 5  6
 7 8  9
```

The players enter their moves by entering the position number they wish to mark (Assume that player always enter a valid position). The program then displays the changed board. A sample board configuration is

```
   X  O  3
  4  X  6
  7  8  9
```

**NOTE:** Your program shouldn’t decide the winner of the game. It just shows the changing in board.

😊 TRY TO PLAY THE GAME AGAINST YOUR INSTRUCTOR 😊

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1 Check the Java Documentation on how to use the `Math.random()` method