

TwoD arrays – In-Class Exercise / Take-Home Lab



10 Points. – See Canvas for due date.

Submit on paper, in class.

A two-dimensional array is an array of array references: `int[][] twoD = new int[2][3];`
creates a two dimensional array with 2 rows and 3 columns:

This is twoD[0]→

This is twoD[1]→

I'm twoD[0][0]	I'm twoD [0][1]	I'm twoD [0][2]
I'm twoD [1][0]	I'm twoD [1][1]	I'm twoD [1][2]

Two dimensional arrays can be traversed in two ways – standard array traversal or 'for-each' traversal:

Standard:

```
for (int i = 0; i < twoD.length; i++)
{
    for (int j = 0; j < twoD[i].length; j++)
    {
        System.out.print(" " + twoD[i][j]);
    }
    System.out.println(); // New line...
}
```

For-each:

```
for (int[] row : twoD)
{
    for (int value : row)
    {
        System.out.print(" " + value);
    }
    System.out.println(); // New line...
}
```

The purpose of this lab is to give you practice in handling two-dimensional arrays.

Create a Java program according to the following specifications. When finished, print a listing of your code and submit in class on the date it is due. Don't submit to Canvas.

In main method:

- Prompt the user for the dimensions of the array and accept their input.
- Create a two-D int array reference named twoD.
- Call the create2D method to create the actual 2D array instance.
- Call the init2d method to initialize the array.
- Print the array.
- Call the double2D method to double the number of rows in your array.
- Print the array again.

In create2D method:

Code a method (create2D) that accepts two integers, and returns an actual two-d array

In init2d method:

Create a method (init2D) that will fill the array elements with values (use row + column)
This method get a reference to the array as an incoming parm.

In double2d method:

Create a method (double2d) that will accept a reference to a two-D, create an array that is twice the number of rows of the passed-in array, copy the values in the passed-in array to the new array, and return the new array

In printRow method:

Print the elements in one row of the array.

In printArray method:

Call printRow, once for each row in the 2D.