2D Arrays

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Java

Let's start with just a normal array.

```
int [] arr = new int[5];
```

This is an array of size 5!

index	value
0	0
1	0
2	0
3	0
4	0

Creation of a 2 Dimensional Array

This is a 2D array of width 5 and height 4.

```
int [][] arr = new int[5][4];
```

Rows   Columns

This array represents 5 rows and 4 columns!

Creation of a 2 Dimensional Array

```
int [][] arr = new int[5][4];
```

This is 2D array is represented as the below

	Column			
Row	0	1	2	3
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

2D Array Lengths

```
int [][] arr = new int[5][4];
```

To get rows:
```
int rows = arr.length;
```
arr.length gets how many rows are in the 2D array

To get columns:
```
int columns = arr[0].length;
```
arr[0].length gets how many columns are in the 2D array
This uses the first row to count how many column elements there are.

Lab: 2D Arrays

1. Create a 2D array of integers
   a. Size determined by you
2. Manually store values in all slots in the 2D array
3. Print the average of the entire 2D array.