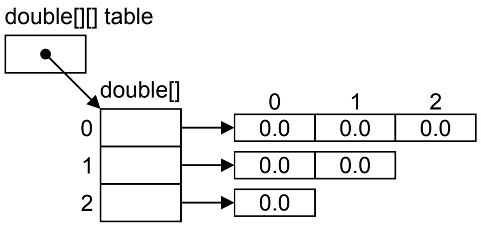
English Name: ____________________

Worksheet: 2D Array Practice 2

1. Write the statement that will declare a variable and initialize it to **a two-dimensional array**:

a)	of `int` with five rows and six columns.	
b)	of `String` with seven rows and no space allocated for columns.	

2. Using a `for` loop, write a method named `upperTriangular` that takes a single integer parameter, `numRows`, and allocates a two-dimensional array where the number of rows is equal to `numRows`. The first row of the array is equal in length to `numRows`, and each subsequent row is one less than the previous row. For example, if `numRows` is equal to `3`, the table to the right is produced.



3. Write a **method** named `sumRows` that takes a two-dimensional array of `double` named `matrix` and returns a one-dimensional array that is equal in length to the number of rows of `matrix` where each element in the array contains the sum of all the elements in the corresponding row of `matrix`. You can assume the precondition that all row lengths are equal.

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4. Write a **method** named `sumCols` that takes a two-dimensional array of `double` named `matrix` and returns a one-dimensional array that is equal in length to the number of columns of `matrix` where each element in the array contains the sum of all the elements in the corresponding column of `matrix`. You can assume the precondition that there is at least one row in the matrix, and that all row lengths are equal.

5. Write a **method** named `verifyRectangular` that takes a two-dimensional array of `double` named `matrix` and verifies that every row in the two-dimensional array has the same length, returning `true` if it is a rectangular matrix (all row lengths equal), otherwise `false`. You can assume the precondition that there is at least one row in the maxtrix.