Title

Matrix multiplication

Problem Description

Have the user enter the values stored in two, 2x2 matrices (they should be entering 8 values total). Read this data into two, 2D arrays named A and B. You may choose an appropriate data type to use. Using the formula given below, compute the matrix product AB.

$$(AB)_{ij} = \sum_{k}^{2} A_{ik} B_{kj}$$

Where $(AB)_{ij}$ is the entry of matrix AB in row *i* and column *j*.

Note: the equation is true for any matrices A and B as long as they are the correct size. However, we've chosen to use a 2x2 matrix to avoid having to type in an excessive amount of numbers. If you'd like to generalize this code to larger matrices you are encouraged to do so.

Testing

Test Input	Expected Output
$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}, B = \begin{bmatrix} 5 & 6 \\ 8 & 7 \end{bmatrix}$	$AB = \begin{bmatrix} 21 & 20 \\ 47 & 46 \end{bmatrix}$
$A = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}, B = \begin{bmatrix} 5 & 6 \\ 8 & 7 \end{bmatrix}$	$AB = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
$A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}, B = \begin{bmatrix} 5 & 6 \\ 8 & 7 \end{bmatrix}$	$AB = \begin{bmatrix} 5 & 6 \\ 8 & 7 \end{bmatrix}$

Time Target

*** less than 20 minutes

** 20-30 minutes

* greater than 30 minutes

Section

Arrays