Project Four

Due: 11:55p 9/24/2013

Objective:

1. Become familiar with the use of multidimensional arrays in Java
2. Develop familiarity with development of static methods

Description:

Write a program that finds the greatest product of four consecutive numbers in any direction (up, down, left, right, or diagonal) in the 20x20 matrix or grid of numbers.

Input:

Since the concept of file I/O has not been introduced yet, all data can be obtained by the way of the standare input (keyboard) prompt in an interactive fashion. You can then feed the data to your program from a file by using file redirection. The input file will contain the matrix of numbers. The data will be presented from the top left of the table to bottom right.

Output:

The final results should consist of the (i,j) index of each of the four numbers. The next line should print the numbers and the final product of the four.

Specific Requirements:

1. Your program should contain at least one two dimensional array
2. Your program should adhere to standard programming practices and should not use any global variables
3. Your program should contain at least three static methods. One for accepting the data from keyboard, one for printing the final results to console and one other function that is used during your calculations
4. Your program must be prepared to work for an nx20 matrix of data. The value of n needs to be passed to the program via the command line argument. The example below is for a 20x20 matrix and the command line argument would consist of "a.out 20".

Sample:

08 02 22 97 38 15 00 40 00 75 04 05 07 78 52 12 50 77 91 08
49 49 99 40 17 81 18 57 60 87 17 40 98 43 69 48 04 56 62 00
81 49 31 73 55 79 14 29 93 71 40 67 53 88 30 03 49 13 36 65
52 70 95 23 04 60 11 42 69 24 68 56 01 32 56 71 37 02 36 91
22 31 16 71 51 67 63 89 41 92 36 54 22 40 40 28 66 33 13 80
24 47 32 60 99 03 45 02 44 75 33 53 78 36 84 20 35 17 12 50
32 98 81 28 64 23 67 10 **26** 38 40 67 59 54 70 66 18 38 64 70
67 26 20 68 02 62 12 20 95 **63** 94 39 63 08 40 91 66 49 94 21
24 55 58 05 66 73 99 26 97 17 **78** 78 96 83 14 88 34 89 63 72
21 36 23 09 75 00 76 44 20 45 35 **14** 00 61 33 97 34 31 33 95
78 17 53 28 22 75 31 67 15 94 03 80 04 62 16 14 09 53 56 92
16 39 05 42 96 35 31 47 55 58 88 24 00 17 54 24 36 29 85 57
86 56 00 48 35 71 89 07 05 44 44 37 44 60 21 58 51 54 17 58
19 80 81 68 05 94 47 69 28 73 92 13 86 52 17 77 04 89 55 40
04 52 08 83 97 35 99 16 07 97 57 32 16 26 26 79 33 27 98 66
88 36 68 87 57 62 20 72 03 46 33 67 46 55 12 32 63 93 53 69
04 42 16 73 38 25 39 11 24 94 72 18 08 46 29 32 40 62 76 36
20 69 36 41 72 30 23 88 34 62 99 69 82 67 59 85 74 04 36 16
20 73 35 29 78 31 90 01 74 31 49 71 48 86 81 16 23 57 05 54
01 70 54 71 83 51 54 69 16 92 33 48 61 43 52 01 89 19 67 48