

Homework Assignment #7 – Multi-Dimensional Arrays

Reading Assignment:

Read Chapter 10 in Programming In C++, by D’Orazio
 Exercises 10.1 – 10.2 (not to be submitted, but good practice for tests)

Problem Assignment:

- (34 points) Application Exercise 4 (p. 525 in text). Print the program, the input data file, and the output data file for two examples.

Example 1:

Input data file

2	3	
1	2	3
4	5	6
1	1	1
2	2	2
2	4	6
3	6	9

Output data file

4	7	10
9	13	17

Example 2: Make up your own example using matrices 3 rows and 2 columns

- (34 points) Lesson 10.2 Exercises, Part 2 (p. 524 in text). Note: This is the problem that calculates the weight of steel plates given the length, width, and thickness). Load the 2D array in the main program using a list, call the function to calculate the 1D array values (weight) and then display the values in the 2D and 1D arrays in the main program. Turn in a printout of the program and the output.

- (32 points) Determine the output for each part below by hand (do not compile the programs).

Part A	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = 0; i < R; i++) { for (int j = 0; j < C; j++) cout << setw(3) << A[i][j]; cout << endl; } </pre>	
Part B	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = 1; i < R; i++) { for (int j = 1; j < C; j++) cout << setw(3) << A[i][j]; cout << endl; } </pre>	

Part C	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int j = 0; j < C; j++) { for (int i = 0; i < R; i++) cout << setw(3) << A[i][j]; cout << endl; } </pre>	
Part D	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = R-1; i >= 0; i--) { for (int j = C-1; j >= 0; j--) cout << setw(3) << A[i][j]; cout << endl; } </pre>	
Part E	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = 0; i < R; i++) { for (int j = 0; j < i+1; j++) cout << setw(3) << A[i][j]; cout << endl; } </pre>	
Part F	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = 0; i < R; i++) { for (int j = 0; j < C; j++) if(i==j)cout<<setw(3)<<A[i][j]; cout << endl; } </pre>	
Part G	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = R-1; i >= 0; i--) { for (int j = 0; j < C; j++) cout << setw(3) << A[i][j]; cout << endl; } </pre>	
Part H	<pre>const int R = 3, C = 4; double A[R][C]={1,2,3,4,5,6,7,8,9,10,11,12}; for (int i = 0; i < R; i++) { for (int j = C-1; j >=0; j--) cout << setw(3) << A[i][j]; cout << endl; } </pre>	