**ARRAY-RELATED PRACTICE DAY**

1. WAP that will take (n x n) integer inputs into a square matrix of dimension n (where n must be an odd number). Then calculate the sum of the integers based on the following position pattern (consider only the boxed position during the sum). Please see the input-output.

|  |  |
| --- | --- |
| **Sample Input** | **Sample output** |
| 5  1 2 3 4 5  2 3 4 1 6  3 4 9 6 7  4 2 6 7 8  5 4 3 2 1 | 71 |
| 7  1 1 1 1 1 1 1  1 1 1 1 1 1 1  1 1 1 1 1 1 1  1 1 1 1 1 1 1  1 1 1 1 1 1 1  1 1 1 1 1 1 1  1 1 1 1 1 1 1 | 25 |

1. WAP that will take inputs of a n sized square matrix into a 2D array. Now show all the elements of its two diagonals. Reference:<http://en.wikipedia.org/wiki/Main_diagonal>

|  |  |
| --- | --- |
| **Sample input** | **Sample output** |
| 5  1 2 3 4 5  5 4 3 2 1  2 2 2 2 2  6 7 8 9 0  1 9 3 7 4 | Major diagonal: 1 4 2 9 4  Minor diagonal: 5 2 2 7 1 |

3. WAP that will take the size of an identity matrix from the user and generate the identity matrix into a 2D array. Finally display it. Reference:<http://en.wikipedia.org/wiki/Identity_matrix>

|  |  |
| --- | --- |
| **Sample input** | **Sample output** |
| 5 | 1 0 0 0 0  0 1 0 0 0  0 0 1 0 0  0 0 0 1 0  0 0 0 0 1 |

4. WAP that will take (m x n) integer inputs into a matrix of dimension m x n. Now reverse that matrix within itself and display it. The reversal means swapping the 1st column with the nth column, the 2nd column with the (n-1)th column, and so on…

|  |  |
| --- | --- |
| **Sample input** | **Sample output** |
| 3 3  1 2 3  4 5 6  2 9 2 | 3 2 1  6 5 4  2 9 2 |
| 2 6  1 2 3 4 5 6  9 8 7 6 5 4 | 6 5 4 3 2 1  4 5 6 7 8 9 |

5. WAP that will take (m x n) positive integer inputs into a matrix of dimension m x n. Now replace all the duplicate integers by -1 in that matrix. Finally display it.

|  |  |
| --- | --- |
| **Sample input** | **Sample output** |
| 3  3  1  7  3  7  4  5  3  5  6 | 1  7  3  -1  4  5  -1 -1  6 |
| 2 6  2  2  2  2  2  2  6  5  4  3  2  1 | 2 -1 -1 -1 -1 -1  6  5  4   3 -1  1 |