Given a 2D integer array matrix, return *the****transpose****of* matrix.

The **transpose** of a matrix is the matrix flipped over its main diagonal, switching the matrix's row and column indices.



**Example 1:**

**Input:** matrix = [[1,2,3],[4,5,6],[7,8,9]]

**Output:** [[1,4,7],[2,5,8],[3,6,9]]

**Example 2:**

**Input:** matrix = [[1,2,3],[4,5,6]]

**Output:** [[1,4],[2,5],[3,6]]

**Constraints:**

* m == matrix.length
* n == matrix[i].length
* 1 <= m, n <= 1000
* 1 <= m \* n <= 105
* -109 <= matrix[i][j] <= 109