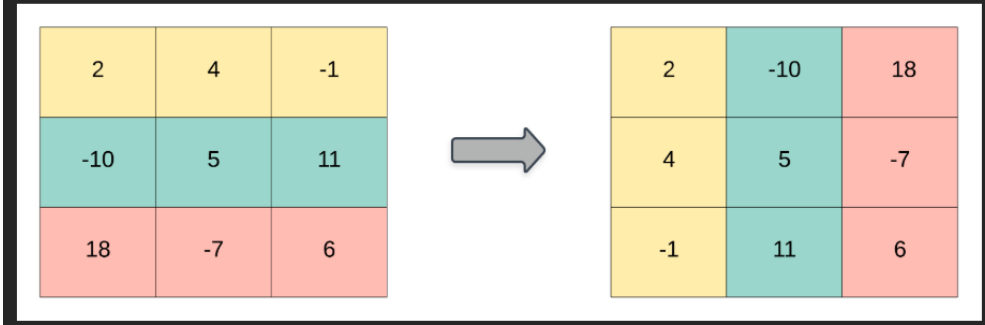
Transpose of a matrix:

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]]

Program:

```
class Solution {
    public int[][] transpose(int[][] matrix) {
        int m = matrix.length;
        int n = matrix[0].length;

        int[][] result = new int[n][m];

        for (int i = 0; i < m; i++) {
            for (int j = 0; j < n; j++) {
                result[j][i] = matrix[i][j];
            }
        }

        return result;
    }
}
```