* 867. Transpose matrix :-

→ This is for square matrix where the elements are swapped over the diagonal.

→ For a rectagular matrix, we will have to create a new maxtrix, traverse over the orig matrix & add to the new matrix.

* For square matrix :-

	0	1	2
0	2	4	-1
1	-10	5	11
2	18	-7	6

0^{th} row 1^{st} col $\Leftrightarrow$ 1^{st} row 0^{th} col

0^{th} row 2^{nd} col $\Leftrightarrow$ 2^{nd} row 0^{th} col

1^{st} row 2^{nd} col $\Leftrightarrow$ 2^{nd} row 1^{st} col

→ We have to do it only for the upper half otherwise we would be re-swapping.

```
for (let row = 0; row < n; row++) {
    for (let col = row; col < n; col++) {
        let temp = arr[row][col];
        arr[row][col] = arr[col][row];
        arr[col][row] = temp;
    }
}
```

* Rectangular matrix :-

→ We will have to create a new matrix for this.

	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12

m x n

	0	1	2
0	1	5	9
1	2	6	10
2	3	7	11
3	4	8	12

n x m

→ Read row wise & insert column wise

```
public static int[][] transpose (int[][] arr) {
    int totalRows = arr.length;
    int totalCols = arr[0].length;
    int[][] result = new int[totalCols][totalRows];

    for (int row = 0; row < totalRows; row++) {
        for (int col = 0; col < totalCols; col++) {
            result[col][row] = arr[row][col];
        }
    }

    return result;
}
```