

# Matrix Inversions

Given a square matrix  $A$  of size  $N$ , you need to calculate the number of inversions in it.

**Inversion** count in a matrix is usually defined as number of pairs satisfying the following given conditions :-

- $x_1 \leq x_2$
- $y_1 \leq y_2$
- $A[x_2][y_2] < A[x_1][y_1]$

## Input Format

First line contains a single integer  $N$ , denoting the size of the square matrix.  
Next  $N$  lines contain  $N$  space separated integers representing the elements in the matrix

## Constraints

- $1 \leq N \leq 10^3$
- $1 \leq A_{i,j} \leq 10^9$

## Output Format

Output the number of inversions in the square matrix in a single line.

## Sample Input

```
2
9 7
1 2
```

## Sample Output

```
4
```

## Explanation

The inversion pairs are:

- $(1, 1)(1, 2)$
- $(1, 1)(2, 1)$
- $(1, 1)(2, 2)$
- $(1, 2)(2, 2)$