

Practice Problem Set 5

1. Write a C program that adds 2 to the even indexed elements and 3 to the odd indexed elements.

Examples

Input
Array Size: 9
Input Array: 1 2 0 4 5 7 1 3 5
Output
Output Array: 3 5 2 7 7 10 3 6 7

2. Write a C program that 2 to the even elements and 3 to the odd elements.

Examples

Input
Array Size: 9
Input Array: 1 2 0 4 5 7 1 3 5
Output
Output Array: 4 4 2 6 8 10 4 6 8

3. Write a C program that counts the negative numbers of a given array.

Examples

Input
Array Size: 9
Input Array: 1 -2 0 4 -5 7 1 -3 5
Output
3

4. An array is called Major Negative if most of the elements are negative and called Major Positive if most of the elements are positive. If there are equal number of positive and negative elements, then it is called Neutral.

Write a C program that finds whether a given array is Major Negative, Major Positive or Neutral.

NB: 0 is a non-negative number: neither positive nor negative (neutral).

Examples

Input	Input
Array Size: 9	Array Size: 9
Input Array: 1 -2 0 4 -5 7 1 -3 5	Input Array: 1 -2 0 -4 -5 7 -1 3 5
Output	Output
Major Positive	Neutral

5. Write a C program that finds the sum and average of a given array.

Examples

Input
Array Size: 9
Input Array: 1 -2 0 4 -5 7 1 -3 5
Output
Sum = 8, Ave = 0.89

6. Write a C program that finds the last occurrence of an element in a given array.

Examples

Input
Array Size: 9
Input Array: 1 2 0 4 5 7 1 3 5
Output
6

7. Write a C program that finds the minimum and 2nd minimum element of a given array.

Examples

Input
Array Size: 9
Input Array: 1 2 0 4 5 7 1 3 5
Output
Min = 0, 2 nd Min = 1

8. Write a C program that finds the maximum element of the input 2D array.

Examples

Input	Output
4 5 1 2 3 4 5 4 5 6 7 8 5 6 7 8 9 1 2 4 5 7	Max Element: 9

9. Write a C program that finds the row-wise maximum element of the input 2D array.

Examples

Input	Output
4 5 1 2 3 4 5 4 5 6 7 8 5 6 7 8 9 1 2 4 5 7	Max element of row 0: 5 Max element of row 1: 8 Max element of row 2: 9 Max element of row 3: 5

10. Write a C program that finds the column-wise maximum element of the input 2D array.

Examples

Input	Output
4 5 1 2 3 4 5 4 5 6 7 8 5 6 7 8 9 1 2 4 5 7	Max element of column 0: 5 Max element of column 1: 6 Max element of column 2: 8 Max element of column 3: 9

11. Write a C program that asks the user to enter m (number of rows) and n (number of columns) and creates a new array with the first m rows and n columns of the input array.

Examples

Input	Output
4 5 1 2 3 4 5 4 5 6 7 8 5 6 7 8 9 1 2 4 5 7 3 3	3 3 1 2 3 4 5 5 5 6 7

12. Write a C program that calculates the sparsity and density of a matrix.

Hints: A sparse matrix is a matrix where most of the elements are zero and a dense matrix is a matrix where most of the elements are non-zero.

Sparsity = number of zero elements / total elements, Density = number of non-zero elements / total elements

Examples

Input	Output
5 5 0 0 0 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0 1 0 1 0	Sparsity = 0.76 Density = 0.24