6. Linear Systems

Time limit	1 second
Memory limit	64Mb
Input	standard input or input.txt
Output	standard output or output.txt

Write a computer program in C++ programming language to solve a system of linear equations $A \cdot x = b$. For this purpose implement a class «ColumnVector» with necessary fields, methods and necessary operators' overloading for summation, multiplication, inputting-outputting and computing the norm.

Input format

The input contains:

- A square matrix A as in the previous exercise.
- A vector of free coefficients b (in element-wise manner with the dimension firstly).

Output format

- Code the elimination. Describe the steps as in the previous exercise (see the examples). Do not forget to print out a free vector. (No need to print direct way or way back more.)
- Accomplish the diagonal normalization. Entitle the section with the line «Diagonal normalization:». Do not forget to print out a free vector.
- The final answer should be also placed within the new section «result:»