

# Task For Benq

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         256 megabytes

One week before the contest, CULC organizers learned that a certain highly rated coder will participate. In shock, they quickly opened TaskGPT, and, with trembling fingers, typed:

ikaurov	can u make task for benq asap? make no mistakes
TaskGPT	Fantastic question! The following task would be a great fit. You are given a list $a$ of $n$ non-negative integers, where $n \leq 1000$ . You can perform the following operation on this list zero or more times. Choose two <b>distinct</b> positions $1 \leq x, y \leq n$ and assign: $a_x := a_x \oplus a_y$ Above, $\oplus$ is the bitwise XOR of the two numbers. You need to perform these operations so that the resulting list is sorted in non-decreasing order — i.e., $a_i \leq a_{i+1}$ for each position $i$ from 1 to $n - 1$ . The final set of numbers <b>does not</b> have to match the initial one. You must sort the list using <b>at most</b> 2500 operations. Would you like to know the solution?

## Input

The first line contains the number  $n$  ( $1 \leq n \leq 1000$ ), the size of the list.

The second line contains  $n$  integers  $a_1, \dots, a_n$  ( $0 \leq a_i \leq 2^{20} - 1$ ), the list to be sorted.

## Output

On the first line, print the number of operations  $m$  ( $0 \leq m \leq 2500$ ).

On the following  $m$  lines, print  $x$  and  $y$  ( $1 \leq x, y \leq n$ ,  $x \neq y$ ) — the positions selected on each operation.

The list must be sorted in non-decreasing order after the  $m$  operations.

It can be shown that it is always possible to sort the list using at most 2500 operations.

## Examples

standard input	standard output
5 0 1 1 1 2	0
5 4 3 2 1 0	5 5 1 1 5 2 3 2 4 4 3

## Note

In the first test case, the list is already sorted, so nothing needs to be done.

In the second test case, the list evolves as follows:  $[4, 3, 2, 1, 0] \rightarrow [4, 3, 2, 1, 4] \rightarrow [0, 3, 2, 1, 4] \rightarrow [0, 1, 2, 1, 4] \rightarrow [0, 0, 2, 1, 4]$