# IOI Training Camp 2010 – Final 1, 25 June, 2010

## Problem 1 Sculptor[1]

The Great Zorgian Sculptor Kbinoi has been engaged by the King Kong of Zorg to erect a grand sculpture to celebrate the declaration of Zorgian as a Modern Language.

Kbinoi is a neoclassical artist with a touch of surrealism and he has decided to showcase his profound thoughts and art in this sculpture. South of the capital of Zorg stands a long line of columns erected during the time when Zorg was ruled by the neighbouring Kingdom of Groz. Kbinoi has decided to use these columns to create this piece of art.

He plans to knock down some of these columns and leave the rest standing. That will be the sculpture! However, he has decided that the columns that finally stand will convey the ascent to power of Zorg and yet touch upon the inevitable decay of civilizations. In his sculpture, the columns that stand in odd positions $1, 3, \ldots$ of the final sculpture will be in strictly increasing order of height to pay homage to the increasing power of Zorg and the columns that stand in even positions $2, 4, \ldots$ of the final sculpture will be in strictly decreasing order of height to convey the impermanence of power and the inevitable degeneration of its civilization that progresses in parallel.

He would, of course, like to leave behind as many columns as he can as part of his sculpture. He has with him the list of heights of the Grozian columns. Your task is to determine the size of the largest sculpture (in term of the number of columns left behind) that Kbinoi can erect.

### Input format

The first line of input contains an integer $N$ giving the number of Grozian columns. This is followed by a line with $N$ integers giving the heights of these columns from left to right.

### Output format

The output should be a single integer, the largest number of columns that may be left behind in Kbinoi's masterpiece.

[1]Problem formulated by Adhiraj

### Test Data

You may assume that $1 \leq N \leq 1500$. You may further assume that in inputs worth at least 20% marks, $1 \leq N \leq 250$. The height of every column is positive and will fit in a 32-bit signed integer.

| Sample input | Sample output |
| --- | --- |
| 10<br>1 5 8 3 2 11 24 9 6 2 | 6 |

### Time and memory limits

The time limit for this task is 2 seconds. The memory limit is 140 MB (actual limit 128 MB, plus 12 MB buffer for 64-bit compilation).