Prizes

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

IPEIS CPC , IEEE Computer Society ENIS Student Chapter and Primatec decided to buy n prizes for the winners , they have only two types of coins of values 1 and a , they have an infnite amount of every coin .

Given the prices of the n prizes , print the minimum number of coins needed to buy every prize in seperate lines.

Input

The first line contains two integers n and a ($1 \leq n$, $a \leq 100000$).

The second line contains n integers p_i ($1 \leq p_i \leq 100000$) , p_i is the price of the i'th prize .

Output

Print n lines , the i'th one contains the answer for the i'th prize.

Example

standard input	standard output
2 6 9 9	4 4