F. Buy One, Get One Free

time limit per test: 5 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

A nearby pie shop is having a special sale. For each pie you pay full price for, you may select one pie of a strictly lesser value to get for free. Given the prices of all the pies you wish to acquire, determine the minimum total amount you must pay for all of the pies.

Input

Input will begin with an integer n ($1 \leq n \leq 500000$), the number of pies you wish to acquire. Following this is a line with n integers, each indicating the cost of a pie. All costs are positive integers not exceeding 10^9.

Output

Print the minimum cost to acquire all the pies.

Please, do not use the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Examples

input
6 3 4 5 3 4 5

output
14

input
5 5 5 5 5 5

output
25

input
4 309999 6000 2080 2080

output
314159

Note

In the first test case you can pay for a pie with cost 5 and get a pie with cost 4 for free, then pay for a pie with cost 5 and get a pie with cost 3 for free, then pay for a pie with cost 4 and get a pie with cost 3 for free.

In the second test case you have to pay full price for every pie.