Problem F5103
Summation Problem 2

You are given a sequence of integer $a_1, a_2, \ldots, a_n$. You know the summation of first k nature number very well. So you decide to find a formula for summation of first k squared nature number. To do this, you are considering finding the summation of first a_i squared nature number first.

Input

The first line consist of a single integer $n(1 \leq n \leq 100)$, denoting the total number of integers in the sequence.

The second line consist of n space separated integers $a_1, a_2, \ldots, a_n$, and each a_i is between 1 and 100 inclusive$(1 \leq a_i \leq 100)$.

Output

Print n space separated integers. The $i\text{-}th$ integer is the result of $\sum_{j=1}^{j=a_i} j^2$.

Sample Input

```
4
4 1 3 2
```

Sample Output

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30 1 14 5
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