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Bhallaladeva

Problem code: AMR15D

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Bhallaladeva was an evil king who ruled the kingdom of Maahishmati. He wanted to erect a 100ft golden statue of himself and he looted gold from several places for this. He even looted his own people, by using the following unfair strategy:

There are **N** houses in Maahishmati, and the **i**th house has **A$_i$** gold plates. Each gold plate costs exactly 1 **Nimbda**, which is the unit of currency in the kingdom of Maahishmati. Bhallaladeva would choose an integer **K**, and loots all the houses in several steps. In each step:

- He would choose a house **i** which hasn't been looted yet, pay the owner exactly **A$_i$** Nimbdas, and take away all the gold plates in that house (Hence, he also ends up looting this house).
- He would now choose **atmost K** houses which haven't been looted yet and take away all the gold plates from these houses without paying a single Nimbda (Yes, he takes all of them for free).

He repeats the above steps until all the **N** houses have been looted. Your task is to devise a strategy for Bhallaladeva to loot the houses in some order, so that the number of nimbdas he has to pay is **minimium**. You'll also be given multiple values of **K** (**Q** of them to be precise), and you need to find the minimum number of nimbdas for each of these values.

Input

The first line of input consists of a single integer **N** denoting the number of houses in Maahishmati. The second line of input consists of **N** space separated integers denoting **A$_1$, A$_2$, ..., A$_N$**, where **A$_i$** denotes the number of gold plates in the **i**th house. The third line of input consists of a single integer **Q** denoting the number of values of **K** to follow. Each of the following **Q** lines consist of a single integer, where the value on the **i**th line denotes the value of K for the **i**th query.

Output

Output exactly **Q** integers on separate lines, where the output on the **i**th line denotes the answer for the **i**th value of **K**.

Constraints

- $1 \le N \le 10^5$
- $1 \le Q \le 10^5$
- $0 \le K \le N-1$
- $1 \le A_i \le 10^4$

Example

Input:
```
4
3 2 1 4
2
0
2
```

Output:
```
10
3
```

Explanation

For the first query, **K = 0**. Hence, Bhallaladeva cannot take gold plates from any of the houses for free. It will cost him 3 + 2 + 1 + 4 = **10** nimbdas.

For the second query, **K = 2**. In the first step Bhallaladeva can pay **2** nimbdas for gold plates in house number 2, and take the gold in houses 1 and 4 for free (Note that house 1 has 3 gold plates and house 4 has 4 gold plates). Now, he has looted houses 1, 2 & 4. Now in the second step, he loots house 3, by paying **1** nimbda. Hence, the total cost = 1 + 2 = **3**. Note that there might be multiple ways to achieve the minimum cost, and we have explained only one of them.

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