1201 - Select Your Ropes

Description

Suppose we have n ropes of equal length and we want to use them to lift some heavy object. A tear-off weight t is associated to each rope, that is, if we try to lift an object, heavier than t with that rope, it will tear off. But we can fasten a number of ropes to the heavy object (in parallel), and lift it with all the fastened ropes. When using k ropes to lift a heavy object with weight w, we assume that each of the k ropes, regardless of its tear-off weight, is responsible for lifting a weight of w/k. However, if w/k > t for some rope with tear-off weight of t, that rope will tear off. For example, three ropes with tear-off weights of 1, 10, and 15, when all three are fastened to an object, can not lift an object with weight more than 3, unless the weaker one tears-off. But the second rope, may lift by itself, an object with weight at most 10. Given the tear-off weights of n ropes, your task is to find the weight of the heaviest object that can be lifted by fastening a subset of the given ropes without any of them tearing off.

Input specification

The first line of the input file contains a single integer t (1 <= t <= 10), the number of test cases, followed by the input data for each test case. The first line of each test case contains a single integer n (1 <= n <= 1000) which is the number of ropes. Following the first line, there is a single line containing n integers between 1 and 10000 which are the tear-off weights of the ropes, separated by blank characters.

Output specification

Each line of the output file should contain a single number, which is the largest weight that can be lifted in the corresponding test case without tearing off any rope chosen.

Sample input

```
2
3
10 1 15
2
10 15
```

Sample output

```
20
20
```

Hint(s)

Source	Egypt National Contest 2005
Added by	**ejaltuna**
Addition date	2011-10-11 00:57:46.0
Time limit (ms)	1000
Test limit (ms)	1000
Memory limit (kb)	131072
Output limit (mb)	64
Size limit (bytes)	100000
Enabled languages	C C# C++ Java Pascal Perl PHP Python Ruby Text