

Round 2 2014

A. Data Packing[B. Up and Down](#)[C. Don't Break The Nile](#)[D. Trie Sharding](#)[Contest Analysis](#)[Questions asked](#)

Submissions

Data Packing

5pt	Not attempted 2522/2552 users correct (99%)
8pt	Not attempted 2454/2525 users correct (97%)

Up and Down

7pt	Not attempted 1728/2380 users correct (73%)
11pt	Not attempted 1351/1426 users correct (95%)

Don't Break The Nile

10pt	Not attempted 685/1167 users correct (59%)
20pt	Not attempted 221/287 users correct (77%)

Trie Sharding

9pt	Not attempted 1408/1533 users correct (92%)
30pt	Not attempted 78/115 users correct (68%)

Top Scores

Gennady.Korotkevich	100
yeputons	100
squark	100
wata	100
rng..58	100
PavelKunyavskiy	100
ecnerwala	100
winger	100
WJMZBMR	100
eatmore	100

Problem A. Data Packing

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input
5 points

Solve A-small

Large input
8 points

Solve A-large

Problem

Adam, being a well-organized man, has always been keenly interested in organizing all his stuff. In particular, he fondly remembers the many hours of his youth that were spent moving files from his computer onto Compact Discs.

There were two very important rules involved in this procedure. First, in order to ensure that all discs could be labeled clearly, Adam would never place more than two files on the same disc. Second, he would never divide a single file over multiple discs. Happily, the discs he was using were always large enough to make this possible.

Thinking back, Adam is now wondering whether he arranged his files in the best way, or whether he ended up wasting some Compact Discs. He will provide you with the capacity of the discs he used (all his discs had the same capacity) as well as a list of the sizes of the files that he stored. Please help Adam out by determining the minimum number of discs needed to store all his files—following the two very important rules, of course.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case begins with a line containing two integers: the number of files to be stored **N**, and the capacity of the discs to be used **X** (in MBs). The next line contains the **N** integers representing the sizes of the files **S_i** (in MBs), separated by single spaces.

Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1) and y is the minimum number of discs needed to store the given files.

Limits

$1 \leq T \leq 100$.
 $1 \leq X \leq 700$.
 $1 \leq S_i \leq X$.

Small dataset

$1 \leq N \leq 10$.

Large dataset

$1 \leq N \leq 10^4$

Sample

Input	Output
3	Case #1: 2
3 100	Case #2: 2
10 20 70	Case #3: 3
4 100	
30 40 60 70	
5 100	
10 20 30 40 60	

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