Thomas Jefferson Invitational Open in Informatics 2012

Contest Part II (Practical—Programming)

Practice Contest

Rules (for the actual contest):

1. You will have 150 minutes to complete this section.
2. For each problem, submit your solution to the Contest Portal at `http://activities.tjhsst.edu/tjioi/contest/`.
3. Up to five points will be awarded for each problem. Each of your programs will be run on five test cases, with each case worth one point. The first case is always equivalent to one of the example cases provided in the problem. When you submit a program, you will receive feedback for the sample case and one randomly chosen test case; no information will be given about the program's results on the other three. All problems are weighted equally, for a total of 55 possible points (but scaled down to 50).
4. Test cases for each problem are guaranteed to follow the input specifications. These cases are generally more difficult than the example cases and may be tricky (but legal), so be sure to consider all boundary cases that might break your program. Later test cases are harder than earlier ones.

5. Your programs should read from standard input and print to standard output. Do not print anything other than the answer to the problem, exactly as specified in the samples given for each problem.

6. All programs should run in less than 30 seconds and use less than 64 MB of memory.

7. The scoreboard only contains information about the two feedback cases. After the contest, all programs will be regraded with the other three cases.

8. For each test case, the following feedback messages are possible:

   - **OK** Your program correctly solved this test case! The number following the message is the number of seconds the program took on this case.
   - **Wrong: incorrect output** Your program printed an answer, but it did not match our answer.
   - **Wrong: restricted function** Your program used a function that it is not allowed to (probably a system call or an illegal file open). See us for details.
   - **Wrong: memory limit exceeded** Your program used more than the allotted memory limit of 64 MB.
   - **Wrong: time limit exceeded** Your program used more than the allotted time limit of 30 seconds.
   - **Wrong: runtime error** Your program crashed before printing an answer.
   - **Wrong: abnormal termination** Your program returned a nonzero exit code. C/C++ users should make sure there is a 'return 0;' at the end of the program. Python users should make sure that the right version of Python is selected.

9. Problems are arranged in approximate difficulty order.

10. Submit Java programs in a primary class and file given by the ID of the problem. The ID is in parentheses after the title of the problem. For example, if the ID is "add", then the program should be in a file "add.java" and be in a class called "add".

11. Good luck, and have fun!

Programming Problem Practice 0

Problem Statement: Addition Is Fun (add)

Addition is hard, but fun. We would like your help to add some numbers for us. There are N ($1 \leq N \leq 10,000$) numbers to add, and the ith number has value V_i ($1 \leq V_i \leq 100$). For each input of N numbers, print the sum.

Input and Output Format

Input:

- Line 1: A single integer: N.
- Line 2...$N+1$: Line $i+1$ contains a single integer: V_i.

Output:

- Line 1: A single integer: the answer to this problem.

Examples

Input:

```
3
1
2
3
```

Output:

```
6
```

Explanation:

There are three numbers to add up. $1 + 2 + 3 = 6$.

Programming Problem Practice 1

Problem Statement: Programming Contest (tjioi)

William and his friends are at the TJ IOI, ready for a day of programming. There are N ($1 \leq N \leq 10,000$) problems for them to solve. The ith problem would take M_i ($1 \leq M_i \leq 4$) minutes to complete, and William's team has T ($1 \leq T \leq 40,000$) minutes total to work. Help William's team figure out the greatest number of problems they can solve in the time given.

Input and Output Format

Input:

- Line 1: A single integer: N.
- Line 2: A single integer: T.
- Line 3...$N+2$: Line $i+2$ contains a single integer: M_i.

Output:

- Line 1: A single integer: the answer to this problem.

Examples

Input:

```
3
10
4
4
3
```

Output:

```
2
```

Explanation:

William's team has time to solve 2 of the 3 problems. They can do this in 3 ways: 1 and 2, 1 and 3, and 2 and 3.