



Tournament

Problem Code: **ZCO13001**

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Zonal Computing Olympiad 2013, 10 Nov 2012

N teams participate in a league cricket tournament on Mars, where each pair of distinct teams plays each other exactly once. Thus, there are a total of $(N \times (N-1))/2$ matches. An expert has assigned a strength to each team, a positive integer. Strangely, the Martian crowds love one-sided matches and the advertising revenue earned from a match is the absolute value of the difference between the strengths of the two matches. Given the strengths of the N teams, find the total advertising revenue earned from all the matches.

For example, suppose N is 4 and the team strengths for teams 1, 2, 3, and 4 are 3, 10, 3, and 5 respectively. Then the advertising revenues from the 6 matches are as follows:

Match	Team A	Team B	Ad revenue
1	1	2	7
2	1	3	0
3	1	4	2
4	2	3	7
5	2	4	5
6	3	4	2

Thus the total advertising revenue is 23.

Input format

Line 1 : A single integer, N .

Line 2 : N space-separated integers, the strengths of the N teams.

Output format

A single integer, the total advertising revenue from the tournament.

Sample input

```
4
3 10 3 5
```

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Sample output

23

Test data

In all subtasks, the strength of each team is an integer between 1 and 1,000 inclusive.

- **Subtask 1 (30 marks)** : $2 \leq N \leq 1,000$.
- **Subtask 2 (70 marks)** : $2 \leq N \leq 200,000$.

Live evaluation data

- **Subtask 1:** Testcases 0,1,2.
- **Subtask 2:** Testcases 3,4,5.

Note

The answer might not fit in a variable of type `int`. We recommend that type `long long` be used for computing all advertising revenues. If you use `printf` and `scanf`, you can use `%lld` for `long long`.

Author: [admin3 \(/users/admin3\)](/users/admin3)

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Time Limit: 1 secs

Source Limit: 50000 Bytes

Languages: C, C99 strict, CPP 4.3.2, CPP 6.3, CPP14, JAVA, PYTH, PYTH 3.5

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