



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

# D. Running Miles

time limit per test: 2 seconds memory limit per test: 256 megabytes

There is a street with n sights, with sight number i being i miles from the beginning of the street. Sight number i has beauty  $b_i$ . You want to start your morning jog l miles and end it r miles from the beginning of the street. By the time you run, you will see sights you run by (including sights at l and r miles from the start). You are interested in the s most beautiful sights along your jog, but every mile you run, you get more and more tired.

So choose l and r, such that there are at least 3 sights you run by, and the sum of beauties of the 3 most beautiful sights minus the distance in miles you have to run is maximized. More formally, choose l and r, such that  $b_{i_1}+b_{i_2}+b_{i_3}-(r-l)$  is maximum possible, where  $i_1,i_2,i_3$  are the indices of the three maximum elements in range [l,r].

#### Input

The first line contains a single integer t ( $1 \le t \le 10^5$ ) — the number of test cases.

The first line of each test case contains a single integer n ( $3 \le n \le 10^5$ ).

The second line of each test case contains n integers  $b_i$  ( $1 \le b_i \le 10^8$ ) — beauties of sights i miles from the beginning of the street.

It's guaranteed that the sum of all n does not exceed  $10^5$ .

#### Output

For each test case output a single integer equal to the maximum value  $b_{i_1}+b_{i_2}+b_{i_3}-(r-l)$  for some running range [l,r].

# Example

#### Note

In the first example, we can choose l and r to be 1 and 5. So we visit all the sights and the three sights with the maximum beauty are the sights with indices 1, 3, and 5 with beauties 5, 4, and 3, respectively. So the total value is 5+4+3-(5-1)=8.

In the second example, the range [l,r] can be [1,3] or [2,4], the total value is 1+1+1-(3-1)=1.

# Codeforces Round 870 (Div. 2)

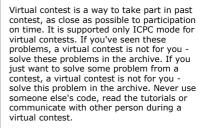
# **Finished**

#### → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

# → Virtual participation



Start virtual contest

#### → Problem tags

(brute force) (dp) (greedy) (\*1700) No tag edit access

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## → Contest materials

- Announcement
- Tutorial

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