Temperature

Time limit: 1 second   **Memory limit: 256 MB**

The Lioville Meteorological Institute is the organization responsible for monitoring and publishing climate indicators for the surrounding region, including, among others, the annual average temperature.

More precisely, the institute has access to the temperature variation data over the past N years, represented as $V_i(1 \leq i \leq N)$. where: $V_i = T_i - T_{i-1}$ .The values $T_i(0 \leq i \leq N)$ denote the average temperatures for the last $N + 1$ years.Using this data, the institute aims to determine the maximum increase in temperature between any two years (not necessarily consecutive), defined formally as:

$$\mathbf{inc_{max}} = \max_{0 \leq i < j \leq N} \{T_j - T_i\}$$

If the temperatures decrease from year to year, then by definition, the maximum increase is 0.

Task

You must write a program that determines the maximum increase in temperature between two years.

Input

The first line contains an integer N, the number of measurements that follow. The second line contains N integers $V_1, V_2, ..., V_n$, representing the variations in average temperatures over the last N years.

Output

The maximum increase in temperatures

Constraints

- $1 \leq N \leq 10^5$
- $-100 \leq Vi \leq 100$

Subtasks

Subtask	Score	Description
1	20	$N \leq 5$
2	40	$N \leq 1000$
3	40	No additional constraints.

Input

```
3
3 -2 1
```

Output

```
3
```

Let $T_0 = 0$ be the first temperature recorded by the institute. Since $V_1 = 3$, we have $T_1 = T_0 + V_1 = 0 + 3$. Similarly, we calculate $T_2 = 3 + (-2) = 1$ et $T_3 = 1 + 1 = 2$. The maximum increase among all the measurements occurs from year 0 to year 1, with an increase of 3 units of temperature..

Input

```
5
5 -19 13 -1 2
```

Output

```
14
```

Let us fix $T_0 = 0$. We then compute: $T_1 = 5$, $T_2 = -14$, $T_3 = -1$, $T_4 = -2$, $T_5 = 0$, with the maximum increase occurring between year 2 and year 5, corresponding to a jump of 14 units of temperature.

Input

```
4
-2 -1 -3 -1
```

Output

```
0
```

Let us fix $T_0 = 0$. We then calculate $T_1 = -2$, $T_2 = -3$, $T_3 = -6$, $T_4 = -7$.. Since there are no increases, the maximum increase is defined to be 0.