# Maximum Contiguous Sum of Circular Subsequence

*Time limit: 1 sec*

*THIS IS DIFFERENT FROM THE ORIGINAL MCS PROBLEM IN THE EXERCISE*

Given a sequence $A = a_1, a_2, a_3, \ldots, a_n$, a circular subsequence of **A** is a non-empty set of adjacent members of **A** where $a_n$ is considered to be adjacent to $a_1$. For example, where n = 8, $\langle a_7, a_8, a_1, a_2 \rangle$ is a circular subsequence. Please note that a normal subsequence is also a circular subsequence as well. Hence, $\langle a_3, a_4, a_5 \rangle$, $\langle a_6, a_7, a_8 \rangle$ and $\langle a_8, a_1 \rangle$ are all circular subsequences while $\langle a_1, a_3, a_5 \rangle$, $\langle a_7, a_8, a_2 \rangle$ are not.

We would like to find a circular subsequence of **A** such that the summation of the elements of that subsequence is maximal.

## Input

- The first line of input contains one integers **N** indicating the size of the sequence **A**.
- The second line contains **N** integer a[i] $\left( -1 \times 10^3 \leq a[i] \leq 10^3 \right)$ that indicates the elements of the sequence.

## Input

- For 20% of the test-cases, 1 <= **N** <= 100

- For 50% of the test-cases, 1 <= **N** <= 15,000

- For 100% of the test-cases, 1 <= **N** <= 100,000

## Output

The only line of the output must contain the summation of the maximal contiguous circular subsequence.

## Example

| Input | Output |
|---|---|
| 4<br>1 -2 -3 1 | 2 |
| 15<br>1 2 -1 5 3 -8 -2 4 3 -4 -5 7 -1 -2 4 | 18 |
| 8<br>-1 -2 -2 -2 -2 -2 -2 -1 | -1 |