Alice and Bob are playing game. Firstly, Alice drew a regular polygon with \( n \) vertices, then assigned each vertex a number.

Then Bob’s goal is to change all the numbers to non-negative numbers. He can do following operation in each step: choose one vertex \( i \), supposed \( A_i \) is the number on vertex \( i \), then add \( A_i \) to it’s left and right adjacent vertex, and turn \( A_i \) into \(-A_i\).

Now you are to help Bob to find out the minimum step to reach his goal.

**Input**

Multiple test cases ended with EOF.

Each test case begins with one integer \( n \), followed a line consist of by \( n \) integers representing the numbers on the vertices clockwise.

\[
2 < n \leq 10^5 \\
|A_i| \leq 10^5 \\
|sum\{A_i\}| \leq 10
\]

**Output**

If Bob cannot end this game, then output ‘Endless’ (without quotes), otherwise output the minimum step for Bob to end this game.

**Hint:** In the sample, first turn -2 to 2, then the sequences became -1 2 1, then choose -1, the result is 1 1 0, all the numbers are non-negative, so the minimum step would be 2.

**Sample Input**

3
1 -2 3

**Sample Output**

2