# The 2021 Freshman Programming Contest

# Hunan University

Problem K

Zby2001

Time Limit: 3 seconds  Memory Limit: 512 MB

---

## Description

Zby2001 is a very clever boy.

One day Sjie gives him a problem:

Giving Zby2001 an array $\boldsymbol{P}$ of length $\boldsymbol{n}(\boldsymbol{1} \leq \boldsymbol{n} \leq \boldsymbol{10^6})$ . For each $\boldsymbol{0} \leq \boldsymbol{i} < \boldsymbol{n}$, i appears exactly once in the array $\boldsymbol{P}$. And Zby2001 can do the following operations any times:

Change $\boldsymbol{P_i}$ to $((\boldsymbol{P_i} + \boldsymbol{1}) \bmod \boldsymbol{n})$ for every $\boldsymbol{0} \leq \boldsymbol{i} < \boldsymbol{n}$ .

Change $\boldsymbol{P}$ to $\boldsymbol{Q}$ , such that $\boldsymbol{Q_{P_i}} = \boldsymbol{i}$ for every $\boldsymbol{0} \leq \boldsymbol{i} < \boldsymbol{n}$ .

Sjie asks how many different arrays he can get. For two arrays $\boldsymbol{A}$ and $\boldsymbol{B}$, if there exists an integer $\boldsymbol{i}$ such that $\boldsymbol{A_i} \neq \boldsymbol{B_i}$, they are different.

Zby2001 doesn't think the problem is worth doing. So Sjie asks you for help.

## Input

The first line contains a single integer $n$ $(1 \leq n \leq 10^6)$.
The second line contains $n$ integers $0 \leq P_0, P_1, P_2, \ldots, P_{n-1} < n$, represents the array $P$. It is guaranteed that P is a permutation from 0 to n-1.

## Output

Print a single integer, represents how many different arrays you can get.

| Sample Input1 | Output for Sample input1 |
|---|---|
| 4<br>0 1 2 3 | 4 |

| Sample Input2 | Output for Sample input2 |
| --- | --- |
| 4<br>0 2 1 3 | 16 |

## Note:

In sample1, 4 arrays you can get are:

P1= [0,1,2,3]

P2= [1,2,3,0]

P3= [2,3,0,1]

P4= [3,0,1,2]