Sequence Equation ★

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Given a sequence of n integers, $p(1), p(2), \ldots, p(n)$ where each element is distinct and satisfies $1 \le p(x) \le n$. For each x where $1 \le x \le n$, that is x increments from **1** to n, find any integer y such that $p(p(y)) \equiv x$ and keep a history of the values of y in a return array.

Example

$$p = [5, 2, 1, 3, 4]$$

Each value of ${\pmb x}$ between ${\pmb 1}$ and ${\pmb 5}$, the length of the sequence, is analyzed as follows:

1.
$$x = 1 \equiv p[3], p[4] = 3$$
, so $p[p[4]] = 1$

2.
$$x = 2 \equiv p[2], p[2] = 2$$
, so $p[p[2]] = 2$

3.
$$x = 3 \equiv p[4], p[5] = 4$$
, so $p[p[5]] = 3$

4.
$$x = 4 \equiv p[5], p[1] = 5$$
, so $p[p[1]] = 4$

5.
$$x = 5 \equiv p[1], p[3] = 1$$
, so $p[p[3]] = 5$

The values for y are [4,2,5,1,3].

Function Description

Complete the permutation Equation function in the editor below.

permutationEquation has the following parameter(s):

• int p[n]: an array of integers

Returns

ullet int[n]: the values of $oldsymbol{y}$ for all $oldsymbol{x}$ in the arithmetic sequence $oldsymbol{1}$ to $oldsymbol{n}$

Input Format

The first line contains an integer n, the number of elements in the sequence.

The second line contains n space-separated integers p[i] where $1 \leq i \leq n$.

Constraints

- $1 \le n \le 50$
- $1 \le p[i] \le 50$, where $1 \le i \le n$.
- Each element in the sequence is distinct.

Sample Input 0

3 231

Sample Output 0

2

3

Explanation 0

Given the values of p(1) = 2, p(2) = 3, and p(3) = 1, we calculate and print the following values for each x from x fr

1. $x = 1 \equiv p(3) = p(p(2)) = p(p(y))$, so we print the value of y = 2 on a new line.

```
2. x=2\equiv p(1)=p(p(3))=p(p(y)), so we print the value of y=3 on a new line.
3. x=3\equiv p(2)=p(p(1))=p(p(y)), so we print the value of y=1 on a new line.
Sample Input 1
  5
  43512
Sample Output 1
  1
  3
  5
  4
  2
                                                           Change Theme Language C++14
                                                                                                              0
           #include <bits/stdc++.h>
       2
       3
           using namespace std;
       4
           string ltrim(const string &);
       5
           string rtrim(const string &);
       7
           vector<string> split(const string &);
       8
       9
      10
           * Complete the 'permutationEquation' function below.
      11
      12
            * The function is expected to return an INTEGER_ARRAY.
      13
            * The function accepts INTEGER_ARRAY p as parameter.
      14
      15
      16
           vector<int> permutationEquation(vector<int> p) {
                vector<int> indexes(p.size() + 1), result;
      17
                for(int i = 1; i <= p.size(); i++) indexes[p[i-1]] = i;</pre>
      18
                for(int i = 1; i <= p.size(); i++) result.push_back(indexes[indexes[i]]);</pre>
      19
      20
                return result;
           }
      21
      22
      23
           int main()
      24
      25
               ofstream fout(getenv("OUTPUT_PATH"));
      26
      27
                string n_temp;
      28
                getline(cin, n_temp);
      29
               int n = stoi(ltrim(rtrim(n_temp)));
      30
      31
                                                                                                           Line: 100 Col: 1
```

Congratulations

 $^{\uparrow}$ Upload Code as File

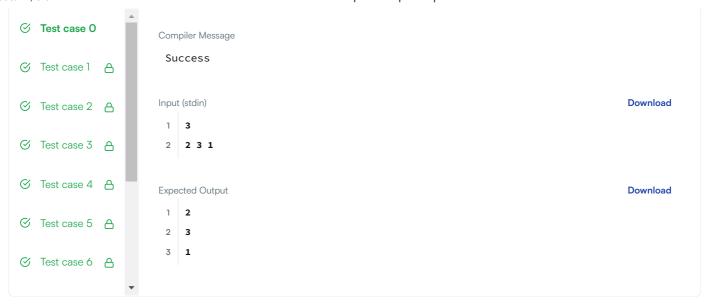
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