# **Sequence Equation** ★

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Given a sequence of n integers,  $p(1), p(2), \dots, p(n)$  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  ${\boldsymbol x}$  between  ${\boldsymbol 1}$  and  ${\boldsymbol 5}$ , 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**

 $\label{lem:complete} Complete \ the \ permutation \ Equation \ function \ in \ the \ editor \ below.$ 

permutationEquation has the following parameter(s):

• int p[n]: an array of integers

#### Returns

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

# Input Format

The first line contains an integer  $\boldsymbol{n}$ , 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 O

2

3

1

5 4

### **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 1 to n:

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.

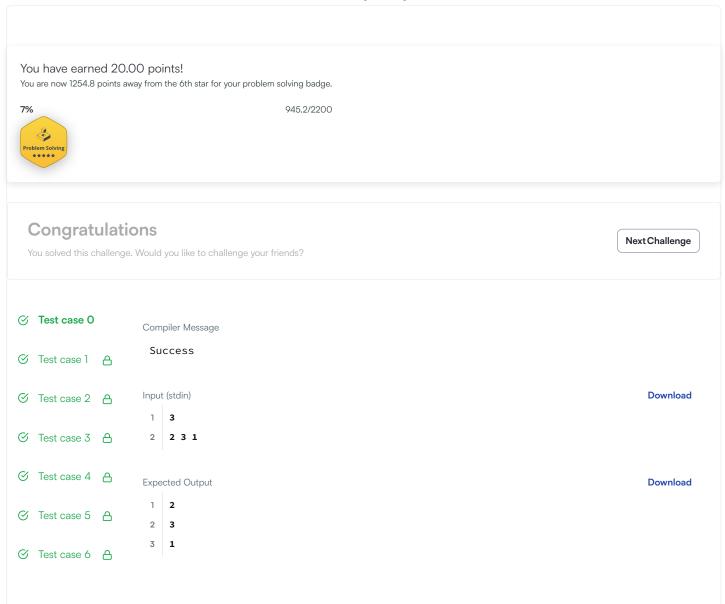
3. x = 3 \equiv p(2) = p(p(1)) = p(p(y)), so we print the value of y = 1 on a new line.

Sample Input 1

5
4 3 5 1 2

Sample Output 1
```

```
Change Theme Language Python 3
                                                                                                              0
          π comptete the permutationEquation runction below.
     エ∪
     11
     12
          # The function is expected to return an INTEGER_ARRAY.
     13
          # The function accepts INTEGER_ARRAY p as parameter.
     14
     15
          def permutationEquation(p):
     16
              # Write your code here
     17
              d = {val: idx+1 for idx, val in enumerate(p)}
     18
     19
              result = []
     20
     21
              for i in range(1, len(p)+1):
                   px = d[i]
     22
     23
                   y = d[px]
     24
                   result.append(y)
     25
              return result
     26
     27
          if __name__ == '__main__':
              fptr = open(os.environ['OUTPUT_PATH'], 'w')
     28
     29
              n = int(input().strip())
     30
     31
              p = list(map(int, input().rstrip().split()))
     32
     33
     34
              result = permutationEquation(p)
                                                  . . . . .
EMACS
                                                                                                          Line: 26 Col: 1
                                                                                                     Run Code
                                                                                                                Submit Code
 1 Upload Code as File
                      Test against custom input
```



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