Indices

Java May'19 Advanced Practice 3 - 06:24:12

Submit solution

All submissions
Best submissions

Points: 100 (partial)
Time limit: 0.3s
Java: 1.0s
Memory limit: 64M
Java: 32M
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Tags
Arrays
Difficulty
Intermediate

Allowed languages
C#, java, JavaScript

You are given a zero-based array ARR with N integer numbers in it. Each element of ARR is an index in the ARR (seems like a recursive definition, right?).

You are also given the sequence that starts from the first element (0) then moves to the element with index ARR[0], then moves to the element with index ARR[ARR[0]], then moves to the element with index ARR[ARR[ARR[0]]], and so on…

The full sequence is generated by performing these actions until you reach an index that is outside the bounds of the array ARR. Of course cycles are absolutely possible. When a cycle is started in the sequence it may never reach any index that is outside the bounds of the ARR.

Write a program that outputs the elements in the given sequence. When you find cycle you should output it in round brackets as shown in the examples below. Please note that no spaces should be printed between the brackets and the number.

Input

- Read from the standard input
- On the first line you are given the number **N** of the elements in **ARR**
- On the second line there will be **N** numbers separated by a single space
    - The numbers of **ARR**
- The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- On the only output line you should print the described sequence
  - All the cycles should be printed with round brack
    numbers

Constraints

- **N** will be between 1 and 200 000, inclusive.
- Numbers in ARR will be between -2 000 000 000 and 2 000 000 000, inclusive.

Sample Test

Input

```
6
1 2 3 5 7 8
```

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Output

```
0 1 2 3 5
```

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Input

```
6
1 2 3 5 7 1
```

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Output

```
0(1 2 3 5)
```

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Clarifications

No clarifications have been made at this time.