Bus Rides

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Points: 100 (partial)
Time limit: 1.0s
Memory limit: 64M

Allowed languages
C

You are given a tree consisting of n nodes, numbered from $1, 2, ..., n$. Each node in the tree may or may not have a passenger. A bus can be started from any node and will travel upward along the unique path to the root. While traveling, a bus can pick up passengers from every node along its path (assume the capacity of each bus is infinite). Determine the **minimum number of buses** required so that every passenger is transported from their node to the root.

Input Format

- The **first line** contains a single integer n, the number of nodes in the tree.
- The **second line** contains n space-separated integers representing the **passenger array**:
  - Each integer is either 0 (no passenger) or 1 (one passenger).
- The **third line** contains n space-separated integers representing the **parent array**:
  - The i_{th} integer represents the parent of the i_{th} node. If the integer is -1, the i_{th} node is the root node.

Output Format

Print a single integer representing the **minimum number of buses** required to ensure that all passengers reach the root.

Constraints

- $1 \le n \le 10^3$ **[35 PTS]**
- $1 \le n \le 10^6$ **[65 PTS]**
- -1 ≤ parent[i] ≤ n and parent[i] ≠ 0

Example

```
7
0 1 0 1 0 1 0
-1 1 1 2 2 3 3
```

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Output 1

```
2
```

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Input 2

```
5
1 0 1 0 1
-1 1 1 3 3
```

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Output 2

```
1
```

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Input 3

```
3
1 0 0
-1 1 1
```

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Output 3

```
0
```

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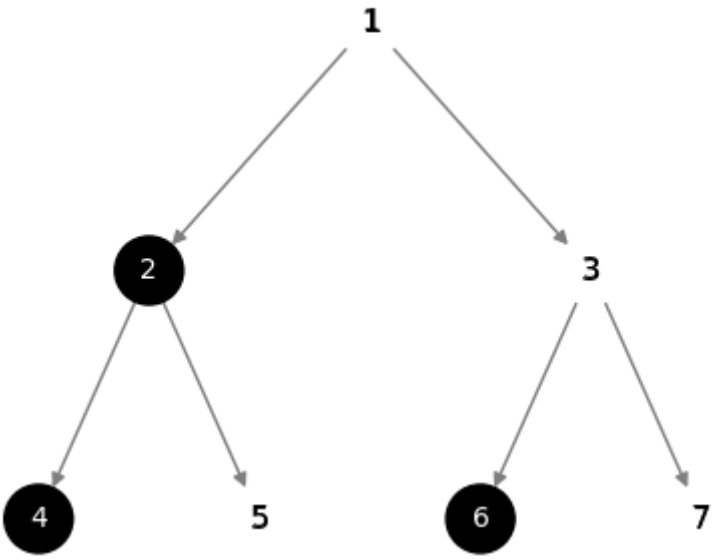
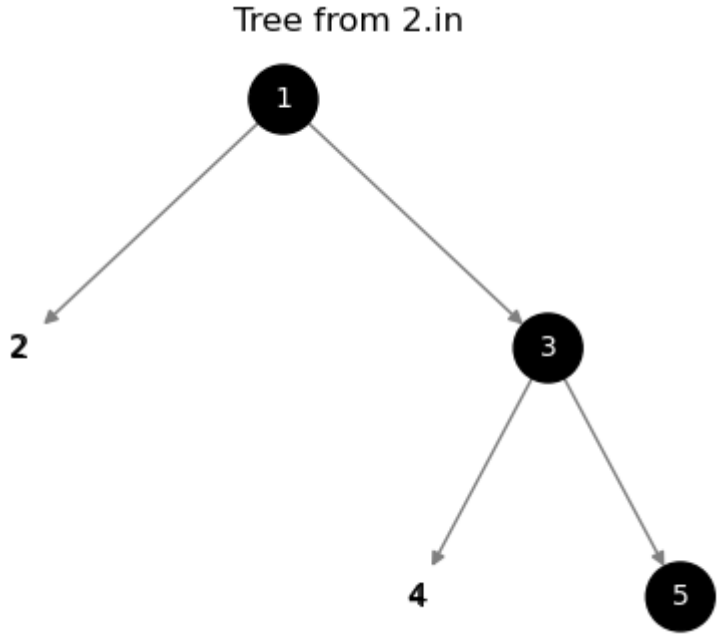
Explanation:

- In testcase 1, passengers are at nodes $2, 4, 6$. Start one bus at node 4 which will also pick up 2 and the

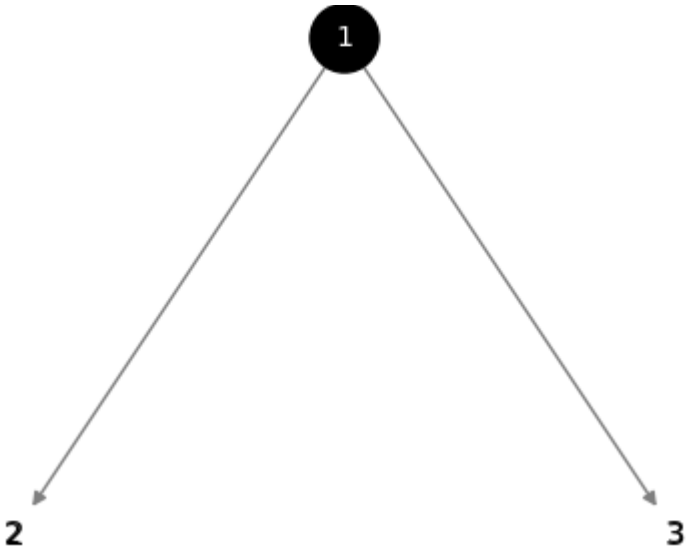
second bus at node 6.



- In testcase 2, start just one bus at node 5 which will pick up node 3.



- In testcase 3, the passenger is already at root, hence no buses are needed.



Clarifications

Request clarification

No clarifications have been made at this time.