Cat in a tree
Problem ID: catinatree

A cat lives in a tree that has N nodes. She will demarcate her territory by "marking" some of the tree nodes. Marked nodes may not be closer to each other than distance D. Find the maximum number of nodes that the cat can mark.

Input

First line has two integers, N and D. The 0'th node is the root node of the tree. Then follows $N-1$ lines, the i-th of which contain a single integer x_i with $0 \leq x_i < i$ (starting with $i = 1$). This means that node x_i is connected to node i.

Constraints We always have $1 \leq N, D \leq 2 \cdot 10^5$. For subcases, the inputs have these further restrictions:

- **Group 1: 11 points** $N \leq 18$
- **Group 2: 40 points** $N \leq 1\,500$
- **Group 3: 49 points** No further restrictions.

Output

Output should contain one integer: the maximum number of nodes that can be marked.

Sample Input 1

```
4 3
0
0
1
```

Sample Output 1

```
2
```

Sample Input 2

```
3 1000
0
0
```

Sample Output 2

```
1
```