2012 CLEARANCE

After several embarrassing security breaches at *Alpha Complex* they have finally reached a mutual non-infiltration pact with the spies from *Beta Complex*. This new world order has brought with it a new threat — they have now been infiltrated by spies from *Gamma Complex*.

The infiltrated bureau is strictly hierarchical with each agent, except the bureau head, having a single boss. Multiple agents are able to share the same boss. A new security procedure is in place and each agent either has clearance or not. An agent can have their clearance added or removed by their direct boss (if cleared) but only if none of the agents working for them currently has clearance.

When the procedure was instigated only the bureau head had clearance. On each successive hour a single change of clearance has occurred and no two hours have had the same combination of agents with clearance.

For example, suppose agents 2 and 3 both have agent 1 as their boss, and that agent 4 has agent 3 as their boss. A possible sequence of cleared spies would be 1 → 12 → 123 → 1234 → 134 → 13. Note that, for example, it would not be possible for the sequence to have gone 1 → 14 since only agent 3 can add or remove agent 4's clearance. The sequence could not have included 1234 → 124 since agent 3's clearance can not be removed whilst agent 4 holds clearance.

SAMPLE INPUT

```
4 6
1
1
3
```

Write a program that gives a possible sequence of clearances. The first line of the input will contain two integers s ($2 \le s \le 64$) then h ($1 \le h \le 2^{20}$) indicating the number of spies and number of hours for which the procedure has been in operation. The next *s-1* lines will contain details for agents 2 to s (one per line and in order). Each of these lines will contain a single integer indicating the boss for this agent. Starting from any agent, if you keep moving up to their boss, you will ultimately reach agent 1; the bureau head.

SAMPLE OUTPUT

You should output h lines, giving a valid sequence of cleared agents. The bureau head cannot have their clearance removed.

```
1
1 2
1 2 3
1 2 3 4
1 3 4
1 3
```