Mock CCO '19 Contest 2 Problem 1 - A Dynamic Connectivity Problem

Time limit: 0.6s **Memory limit:** 162M
Java 8: 1.0s

A graph has N vertices and M edges. When a vertex is deleted, all incident edges are deleted.

Given a sequence of K vertices to be deleted one by one, count the number of connected components before and after each deletion.

Constraints

$1 \leq N \leq 2M$

$1 \leq M \leq 2 \cdot 10^5$

All vertices are labeled from 0 to $N-1$.

Input Specification

The first line contains two space-separated integers, N and M.

Each of the next M lines contains two space-separated integers, a_i and b_i, indicating that a_i and b_i are connected with an edge.

Next, a single integer K follows on its own line, indicating the number of vertices that will be deleted.

K lines follow, each indicating a vertex that is to be deleted. A vertex will be deleted at most once.

Output Specification

Output $K+1$ lines. On line i, output the number of connected components after the first $i-1$ vertices have been deleted.

Sample Input

```
8 13
0 1
1 6
6 5
5 0
0 6
1 2
2 3
3 4
4 5
7 1
7 2
7 6
3 6
5
1
6
3
5
7
```

Sample Output

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