Rajas' Herculean Task

Time Limit: 1 second

IIIT offers a lot of courses and each course has particular prerequisites which must be completed *before* taking that course. Sometimes the head course administrator, Ammaji, can make mistakes and might provide wrong information about courses which can lead to some courses whose prerequisites can never be completed.
Rajas must complete his research by 7 years but he is lazy. For that, he has to take some courses. There exists $\boldsymbol{n}$ courses out of which he is forced to take $\boldsymbol{k}$ courses. We have to provide him a strategy that allows him to take those $\boldsymbol{k}$ courses with the least effort. More formally, we need to provide him:

- The minimum number of courses that he must take so that he can complete the $\boldsymbol{k}$ courses successfully.
- An order for taking the courses such that:
  - All the $\boldsymbol{k}$ courses are taken.
  - The number of courses taken in total is minimal.
  - Every *chosen* course's prerequisites must be completed.

Input

The first line contains $\boldsymbol{n}$, $\boldsymbol{m}$ and $\boldsymbol{k}$ denoting the total number of courses, the number of dependencies and the number of courses he is forced to take.
Next $\boldsymbol{m}$ lines contains the description for each dependency: two space-separated integers $\boldsymbol{u}$ and $\boldsymbol{v}$ which denotes that course $\boldsymbol{u}$ must be completed before $\boldsymbol{v}$.
The next line contains $\boldsymbol{k}$ space-separated integers denoting the courses Rajas is forced to take.

Output

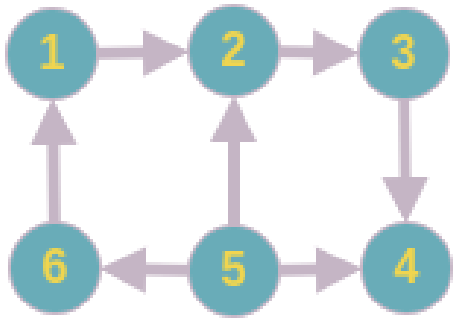
If such a strategy is possible which satisfies the above constraints then:

- Print the minimal number of courses he has to take on the first line. Note that this number is $\geq \boldsymbol{k}$.
- On the second line, print those courses in the order in which Rajas is supposed to take. If there exists more than one way, then Rajas would prefer the lexicographically smaller way.

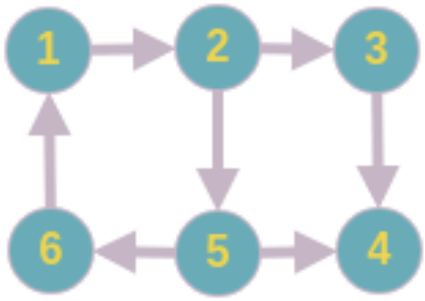
Else print `"GO HOME RAJAS"` without the quotes.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq m \leq 2$ x 10^5
- $1 \leq k \leq n$



(a) Graph for first sample case.



(b) Graph for second sample case.

Sample Cases

Input :
6 7 3
1 2
6 1
5 6
5 2
2 3
3 4
5 4
1 2 3

Output :
5
5 6 1 2 3

Input :
6 7 3
1 2
6 1
5 6
2 5
2 3
3 4
5 4
1 2 3

Output :
GO HOME RAJAS

Sample Cases Explanation

1. In the first case, we see that to do course 1, he needs to do course 6 and to do course 6 he needs to do course 5. Course 5 has no prerequisites and so Rajas completes course 5. Then, he completes courses 6, 1, 2 and 3.
2. In the second case, we see that to do course 1, he needs to do course 6. For course 6, he needs to do course 5 and for course 5 he needs to do course 2 and for course 2 he has to do course 1. We see in this case that Ammaji has done a mistake.