2013 ... AND THE DEMOCRATIC COUP

In *The Masked Lady and the Democratic Coup* our heroine was sent to D— (a country unnamed by the author but thought by many experts to be based on T— and F—) where she infiltrated a junta who had taken control of the country. By analysing the voting preferences of its members and manipulating their agenda, she managed to get herself elected High Muckamuck and went on to restore democracy to that much maligned corner of the world.

The election consisted of several rounds, each pitting two candidates against each other. After each round the losing candidate was no longer eligible for future rounds.

In the tale, the first voter's preferences were 1←2←3←4←5 (in any vote they would prefer the candidate leftmost in their list), the second voter's preferences were 2←3←4←5←1 and the third's were 3←4←5←1←2. The agenda was organised so that the first round was 3 against 4 (3 won by 3 votes to 0), the second was 2 against 3 (2 won by 2 votes to 1), then 1 against 2 (1 won) and finally 1 against 5 (5 won).

Write a program that takes several lists of preferences and a desired candidate, and produces a sequence of rounds leading to a final vote won by the desired candidate. The first line of input will contain three integers, n ($1 < n \leq 2^{10}$) indicating the number of candidates (who will be numbered from 1 to n), then p ($1 \leq p < 2^8$) an *odd* number of voters, and finally w ($1 \leq w \leq n$) the desired winner. The next p lines will each contain n numbers, the ith line being the preference list for the ith voter. In each list the earlier of two candidates in the list is always the preferred candidate.

You should output $n-1$ lines, each containing two integers, the ith line containing the two candidates to be played against each other in the ith round. If you do not believe there is a solution you should just output the word IMPOSSIBLE.