Problem K. Kingdoms and Quarantine

Input file:	*standard input*
Output file:	*standard output*
Time limit:	8 seconds
Memory limit:	512 mebibytes

There are two kingdoms A (with N_1 cities) and B (with N_2 cities), and M bidirectional roads, each connecting a city from A and a city from B, such that there is no more than one road connecting any pair of cities.

The cities in the kingdom A are enumerated from 1 to N_1, and the cities in the kingdom B are enumerated from $N_1 + 1$ to $N_1 + N_2$. The roads are enumerated from 1 to M; the road i connects two cities a_i and b_i, where a_i and b_i satisfy $1 \le a_i \le N_1$ and $N_1 + 1 \le b_i \le N_1 + N_2$.

Once upon a time, a dangerous virus appeared in one kingdom, so the Kings decided to close some roads.

Let D_j be the initial number of roads connecting the city j with other cities, and d_j be the number of currently active (not closed) roads connecting the city j with other cities.

The road x can be closed if and only if following conditions are met **before** closing the road:

- It was not closed before.
- The numbers d_{a_x} and D_{b_x} must have the same parity (both even or both odd).
- The numbers d_{b_x} and D_{a_x} must have the same parity (both even or both odd).

Find the maximum number of roads that can be closed, and then find a sequence of road closing operations such that this maximum is achieved.

Input

The first line of input contains three integers, N_1, N_2, and M: the number of cities in kingdom A, the number of cities in kingdom B, and the number of roads, respectively ($1 \le N_1, N_2, M \le 3000$, $1 \le M \le N_1 \cdot N_2$).

The i-th of the following M lines describes the road i and contains two integers a_i and b_i ($1 \le a_i \le N_1$, $N_1 + 1 \le b_i \le N_1 + N_2$): the numbers of cities connected by that road. You may assume that, for different i and j, $a_i \ne a_j$ or $b_i \ne b_j$.

Output

On the first line, print the integer K: the maximum number of roads that can be closed. On the second line, print K integers r_i ($1 \le r_i \le M$): the numbers of roads to be closed, in the order of closing them.

If there are several optimal answers, print any one of them.

Examples

standard input	standard output
2 3 5 1 3 1 4 1 5 2 4 2 5	3 1 4 2
1 2 2 1 2 1 3	0
4 3 7 1 5 2 5 2 6 2 7 3 6 4 5 4 7	5 1 7 6 2 4

Note

In the first example, $D_1 = 3$, $D_2 = 2$, $D_3 = 1$, $D_4 = 2$, $D_5 = 2$.

Initially, $d_1 = 3$, $d_2 = 2$, $d_3 = 1$, $d_4 = 2$, $d_5 = 2$, so we can close the following roads:

- Road 1 connecting city 1 and city 3.
- Road 4 connecting city 2 and city 4.
- Road 5 connecting city 2 and city 5.

Let us close road 1, then

$d_1 = 2$, $d_2 = 2$, $d_3 = 0$, $d_4 = 2$, $d_5 = 2$.

After that, the roads that can be closed are the following:

- Road 4 connecting city 2 and city 4.
- Road 5 connecting city 2 and city 5.

Let us close road 4, then

$d_1 = 2$, $d_2 = 1$, $d_3 = 0$, $d_4 = 1$, $d_5 = 2$.

Now, we can close only road 2, connecting city 1 and city 4.

After that, $d_1 = 1$, $d_2 = 1$, $d_3 = 0$, $d_4 = 0$, $d_5 = 2$.

It can be shown that it is impossible to close more than three roads, so the answer is 3.