Problem D
Distinctive Tours

The city of Hanoi has n sightseeing spots, which are numbered from 1 to n, inclusive. There are m two-way roads connecting these spots. These roads form a simple graph: no two roads connect the same pairs of spots, and no road connects a spot to itself.

Each road is decorated with a different type of tree. Hanh is a tree-lover and he wants to create a set of k tours which satisfy:

- Each tour is a cycle of length $t (t > 2)$ that passes through t sightseeing spots $p_1, p_2, \cdots, p_t$. More precisely,
  - for all i that $1 \le i \le t - 1$, p_i and p_{i+1} must be directly connected by some road;
  - p_t and p_1 must also be directly connected by some road;
  - all p_i are pair-wise distinct.
- Each tour must have at least one road which does not belong to any of the other $k - 1$ tours.

Hanh realizes that it might not be possible to create such a set using the current road network. Therefore, he wants to add some two-way roads so that:

- The new set of roads (including the added and the original ones) still form a simple graph: no two roads connect the same pairs of spots, and no road connects a spot to itself.
- The number of added roads should be minimal.

Your task is to help Hanh add new roads and create a k-tour set.

Input

- The first line contains three integers n, m and k ($3 \le n \le 50, 0 \le m \le \frac{n \cdot (n-1)}{2}, 0 \le k \le 2\,000$).
- In the next m lines, each contains two integers u and v ($1 \le u, v \le n$) meaning that initally there is a road connecting two spots u and v. It is guaranteed that these m roads form a simple graph.

Output

If it is impossible to create a k-tour set no matter how Hanh adds new roads, print a single line containing the word `NO`. Otherwise:

- The first line contains the word `YES`.
- The second line contains a single integer w — the minimal number of added roads.
- In the next w lines, each contains two integers x and y ($1 \le x, y \le n$) meaning that a road connecting two spots x and y should be added.

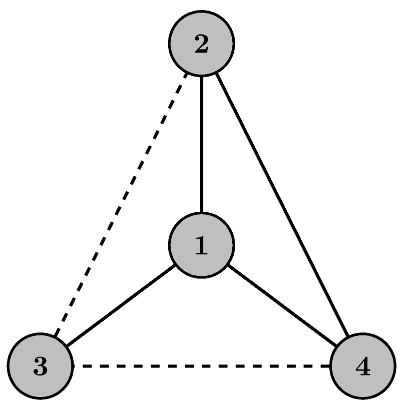
- In the last k lines, each describes a tour in the below format:
  - The first integer is t — the number of spots of the tour.
  - The last t integers are $p_1, p_2, \ldots, p_t$ — the spots of the tour.

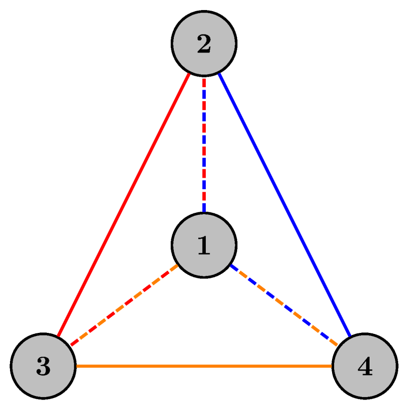
If there are multiple optimal solutions, you can output any of them.

Explanation of the samples

The figures below shows the first sample.

- On the left, the original roads are represented by solid segments, the added roads are represented by dashed segments.
- On the right, there are 3 tours: red, blue and orange. Roads are colored with tours that used them. You can see that each tour has one road that does not belong to the other tours: $(2,3)$ for red, $(2,4)$ for blue and $(3,4)$ for orange.





In the second sample, the current roads form a complete graph, so you can not add any roads. You can only create 1 tour using all these current roads.

Sample Input 1

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

Sample Output 1

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

Sample Input 2

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

Sample Output 2

```
NO
```