IOI Training Camp 2018 Practice Test 3

Offices

Bytel is a mobile telephony potentate. Each employee has been issued a company phone, the memory of which holds the numbers of some of his co-workers (all of them have their own number in their phones as well). Due to dynamic growth of their operations the board of directors intends to move company headquaters to new office buildings. It has been decided - in order to boost work efficiency - that every pair of employees working in different buildings should know (reciprocally) each others phone number i.e. their phone ought to hold necessary phone numbers.

Simultaneously, the board has decided to rent as many office buildings as possible to ensure good working conditions. Help the board of Bytel to plan the number of office buildings and their size in accordance with the aforementioned requirements.

Input

The first line of the input consists of two integers: n and m, denoting the number of Bytel employees and the number of pairs of employees who have their numbers in company phones, respectively. The employees are numbered from 1 to n.

Each of the following m lines contains a single pair of integers a_i and b_i, denoting that employees a_i and b_i have their numbers (reciprocally) in their phones' memory. Each pair of integers denoting a pair of employees shall occur once at the most in the standard input.

Output

The first line of the output should contain a single integer: the maximal number of office buildings that Bytel should rent. The second should contain a non-decreasing sequence of positive integers, separated by singe spaces, denoting the sizes of the office buildings (i.e. the numbers of employees working there). Should there exist more than one correct answer - write out any one of them.

Subtasks

Subtask 1 (100 Points):

- $2 \leq n \leq 100000$
- $1 \leq m \leq 2000000$
- $1 \leq a_i \leq b_i \leq n$

Sample Input 1

```
7 16
1 3
1 4
1 5
2 3
3 4
4 5
4 7
4 6
5 6
```

```
6 7
2 4
2 7
2 5
3 5
3 7
1 7
```

Sample Output 1

```
3
1 2 4
```

Explanation

One correct distribution of employees in the office buildings: employee number 4 in the first office, numbers 5 and 7 in the second office, numbers 1, 2, 3, 6 in the third office building.

Limits

Time: 2 seconds

Memory: 64 MB