
Maximum and minimum connected component

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Given an undirected graph, compute the number of vertices of the smallest and largest connected component.

Input

Input consists of several graphs. Each of them starts with the number of vertices n and the number of edges m , followed by m pairs $x y$ that correspond to an edge between vertices x and y . It holds that $1 \leq n \leq 10^4$, $0 \leq m \leq 5n$, vertices are numbered from 0 to $n - 1$, and there are neither repeated edges nor edges of the form $x x$.

Output

For each graph, write the minimum and maximum size of its connected components.

Sample input

```
3 1 0 2
1 0
6 5 0 1 4 2 2 1 5 3 4 0
```

Sample output

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

Problem information

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