ECE30018 Problem Solving Studio, Fall 2023

C1. Task Force

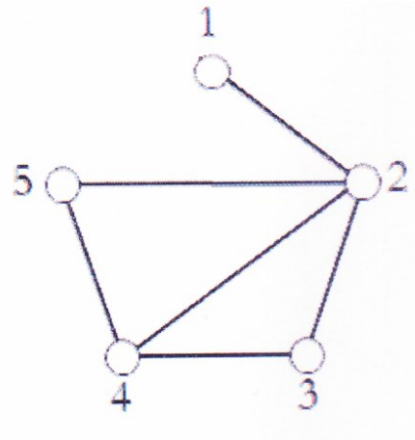
- Submission due: 7:00 PM, 8 Sep Fri

C1. Task Force

The marine corps wants to form a special task-force team for a critical mission. The team members are selected from their soldiers. The marine corps made the following member selection rule for a strong fellowship among the team members: every member of the special force team has at least k friends in the special force team.

Given the friendship relations between the soldiers, write a program that finds the maximum size of the special task-force team that satisfies this rule.

(Continued)



For example, suppose that there are 5 soldiers, and their friendship relations are represented as a graph shown above: a node represents a solider and an edge the friendship between a pair of soldiers. For $k = 2$, there are 3 teams that satisfy the rule, that is, {2,3,4}, {2,4,5} and {2,3,4,5}. Hence, the answer is 4, which is the maximum number of team members over all possible teams satisfying the rule. For k is 3, no team satisfies the rule.

Requirements

Input Data

- The first line from the standard input has three integers n, k and f, where n is the number of soldiers, k is the minimum number of friends that a soldier must have for joining the team, and f is the total number of friendship relations, for $1 \leq k < n \leq 2000$ and $1 \leq f \leq \frac{n(n-1)}{2}$. The soldiers have IDs from 1 to n.
- Each of the next f lines contains two integers that represent the IDs of two soldiers who are in a friendship.

Output Data

- Your program should print out the maximum size (an integer) of the special task-force team to the standard output.
- If there are no teams that satisfy the rule, print out 0 to the standard output.
- Your program should return the result within 0.5 seconds.

Examples of test data

Input data 1

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

Output data 1

```
4
```

Input data 2

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

Output data 2

```
0
```

C1 Team

Team No.	Members
101	윤승재, 최혜림
102	이준명, 백건하
103	소병찬, 박세찬
104	최소미, 백하현
105	최정겸, 박민지
106	전혜림, 유건민
107	강하림, 이원빈
108	이신원, 나보림, 오인혁

- Team members must collaborate in forming ideas, finding solutions and writing a report
  - scores on report and presentation will be shared
  - peer evaluation will be followed
- Yet, in constructing a solution program, each member must implement the solution individually
  - Team members must not share their program code