



比赛时间: 2018-06-23(Sat) 20:00 (http://www.timeanddate.com/worldclock/fixedtime.html?iso=20180623T2100&p1=248) - 2018-06-23(Sat) 21:40 (http://www.timeanddate.com/worldclock/fixedtime.html?iso=20180623T2240&p1=248) (当地时间) (100 minutes) 返回主页 (/home)

🏠 首页 (/contests/arc099) 📖 问题集 (/contests/arc099/tasks) 💡 问题答疑 (/contests/arc099/clarifications)

🚀 提交 (/contests/arc099/submit?taskScreenName=arc099_c) 📊 结果 ▾ 🏆 排名 (/contests/arc099/standings) 👤 虚拟排名 (/contests/arc099/standings/virtual)

🔧 自定义测试 (/contests/arc099/custom_test) 📝 题解 (/contests/arc099/editorial) ✎

 VJudge(https://vjudge.net/problem/AtCoder-arc099_c)

 洛谷(https://www.luogu.com.cn/problem/AT_arc099_c)

E - Independence

[题解 \(/contests/arc099/tasks/arc099_c/editorial\)](#)🇯🇵 / 🇬🇧

Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 700 points



Problem Statement

In the State of Takahashi in AtCoderian Federation, there are N cities, numbered $1, 2, \dots, N$. M bidirectional roads connect these cities. The i -th road connects City A_i and City B_i . Every road connects two distinct cities. Also, for any two cities, there is at most one road that **directly** connects them.

One day, it was decided that the State of Takahashi would be divided into two states, Taka and Hashi. After the division, each city in Takahashi would belong to either Taka or Hashi. It is acceptable for all the cities to belong Taka, or for all the cities to belong Hashi. Here, the following condition should be satisfied:

- Any two cities in the same state, Taka or Hashi, are directly connected by a road.

Find the minimum possible number of roads whose endpoint cities belong to the same state. If it is impossible to divide the cities into Taka and Hashi so that the condition is satisfied, print -1 .

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题目描述

在AtCoderian联邦的高桥州，有 N 座城市，编号为 $1, 2, \dots, N$ 。这些城市之间有 M 条双向道路相连。第 i 条道路连接城市 A_i 和城市 B_i 。每条道路都连接两个不同的城市。此外，任意两座城市之间最多只有一条道路**直接**相连。

某日，决定将高桥州划分为两个州：高州和桥州。划分后，原高桥州的每座城市将归属于高州或桥州。允许所有城市都属于高州，也允许所有城市都属于桥州。但需要满足以下条件：

- 属于同一州（高州或桥州）的任意两座城市之间必须直接由一条道路相连。

请求出满足条件时，端点城市属于同一州的道路数量的最小可能值。若无法将城市划分为高州和桥州以满足条件，则输出 -1 。



Constraints

- $2 \leq N \leq 700$
- $0 \leq M \leq N(N - 1)/2$
- $1 \leq A_i \leq N$
- $1 \leq B_i \leq N$
- $A_i \neq B_i$
- If $i \neq j$, at least one of the following holds: $A_i \neq A_j$ and $B_i \neq B_j$.
- If $i \neq j$, at least one of the following holds: $A_i \neq B_j$ and $B_i \neq A_j$.

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约束条件

- $2 \leq N \leq 700$
- $0 \leq M \leq N(N - 1)/2$
- $1 \leq A_i \leq N$
- $1 \leq B_i \leq N$
- $A_i \neq B_i$
- 若 $i \neq j$ ，则至少满足以下条件之一： $A_i \neq A_j$ 且 $B_i \neq B_j$ 。
- 若 $i \neq j$ ，则至少满足以下条件之一： $A_i \neq B_j$ 且 $B_i \neq A_j$ 。

2025-12-10 (Wed)
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Input

Input is given from Standard Input in the following format:

```
N M
A1 B1
A2 B2
:
AM BM
```

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输入

输入通过标准输入按以下格式给出：

```
N M
A1 B1
A2 B2
:
AM BM
```



Output

Print the answer.

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输出

输出答案。



Sample Input 1

Copy

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

Copy

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样例输入 1

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



Sample Output 1

Copy

```
4
```

Copy

For example, if the cities 1, 2 belong to Taka and the cities 3, 4, 5 belong to Hashi, the condition is satisfied. Here, the number of roads whose endpoint cities belong to the same state, is 4.

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样例输出 1

```
4
```

例 ，若城市 1,2 属于 Taka，城市 3,4,5 属于 Hashi，则条件满足。此时，端点城市属于同一州的道路数量为 4。



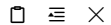
Sample Input 2

Copy

```
5 1
1 2
```

Copy

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样例输入 2

```
5 1
1 2
```



Sample Output 2

Copy

```
-1
```

Copy

In this sample, the condition cannot be satisfied regardless of which cities belong to each state.

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样例输出 2

```
\ -1
```

在此样例中，无论哪些城市归属于哪个州，条件均无法满足。



Sample Input 3

Copy

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

Copy

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样例输入 3

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



Sample Output 3

Copy

```
3
```

Copy

AI 翻译



样例输出 3

```
3
```

2025-12-10 (Wed)
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Sample Input 4

Copy

```
10 39
7 2
7 1
5 6
5 8
9 10
2 8
8 7
3 10
10 1
8 10
2 3
7 4
3 9
4 10
3 4
6 1
6 7
9 5
9 7
6 9
9 4
4 6
7 5
8 3
2 5
9 2
10 7
8 6
8 9
7 3
5 3
4 5
6 3
2 10
5 10
4 2
6 2
8 4
10 6
```

Copy

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样例输入 4

```
10 39
7 2
7 1
5 6
5 8
9 10
2 8
8 7
3 10
10 1
8 10
2 3
7 4
3 9
4 10
3 4
6 1
6 7
9 5
9 7
6 9
9 4
4 6
7 5
8 3
2 5
9 2
10 7
8 6
8 9
7 3
5 3
4 5
6 3
2 10
5 10
4 2
6 2
8 4
10 6
```



Sample Output 4

Copy

21 Copy

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样例输出 4

21

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1

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新建

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