

Contest Duration: 2025-06-28(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250628T2100&p1=248>) - 2025-06-28(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250628T2240&p1=248>) (local time) (100 minutes)

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G - Degree Harmony

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 650 points

Problem Statement

You are given a simple undirected graph G with N vertices and M edges, where vertices are numbered from 1 to N . The i -th edge connects vertices u_i and v_i .

A spanning subgraph G' of G that satisfies the following condition is called a **good graph**:

- For all integers i satisfying $1 \leq i \leq N$, the following condition holds:
 - Let d_i be the degree of vertex i in G' . Then, $d_i \leq A_i$ and $d_i \bmod 2 = A_i \bmod 2$ hold.

Determine whether a good graph exists. If it exists, output the minimum number of edges among all possible good graphs.

Constraints

- $1 \leq N \leq 150$
- $0 \leq M \leq \frac{N(N-1)}{2}$
- $1 \leq u_i < v_i \leq N$
- The given graph is simple.
- $1 \leq A_i \leq 150$
- $1 \leq \sum_{i=1}^N A_i \leq 150$
- All input values are integers.

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Input

The input is given from Standard Input in the following format:

```
 $N$   $M$   
 $A_1$   $A_2$  ...  $A_N$   
 $u_1$   $v_1$   
 $u_2$   $v_2$   
 $\vdots$   
 $u_M$   $v_M$ 
```

Output

If no good graph exists, output -1. If it exists, output the minimum number of edges among all possible good graphs.

Sample Input 1

[Copy](#)

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

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Sample Output 1

[Copy](#)

```
1
```

[Copy](#)

The spanning subgraph whose edge set consists of only the 2nd edge is a good graph.

Sample Input 2

[Copy](#)

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

[Copy](#)

Sample Output 2

[Copy](#)

```
-1
```

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Sample Input 3

[Copy](#)

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

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Sample Output 3

[Copy](#)

```
3
```

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