

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)

[Back to Home \(/home\)](#)

 [Top \(/contests/abc412\)](#)

 [Tasks \(/contests/abc412/tasks\)](#)

 [Clarifications \(/contests/abc412/clarifications\)](#)  [Results ▾](#)

 [Standings \(/contests/abc412/standings\)](#)

 [Virtual Standings \(/contests/abc412/standings/virtual\)](#)  [Editorial \(/contests/abc412/editorial\)](#)



G - Degree Harmony

[Editorial \(/contests/abc412/tasks/abc412_g/editorial\)](#)

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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
A1 A2 ... AN
u1 v1
u2 v2
:
uM vM
```

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
```

Copy

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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'#telegram)

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