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:

$$
\begin{array}{llll}
N & M & & \\
A_1 & A_2 & \ldots & A_N \\
u_1 & v_1 & & \\
u_2 & v_2 & & \\
\vdots & & & \\
u_M & v_M & &
\end{array}
$$

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

Copy

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

Sample Output 1 Copy

Copy

```
1
```

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

Sample Input 2 Copy

Copy

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

Sample Output 2 Copy

Copy

```
-1
```

Sample Input 3 Copy

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

Sample Output 3 Copy

```
3
```

'#telegram)

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