Negative cycle detection P37940_en

Write a program that, given a directed graph with positive and/or negative costs at the arcs, detects if there is a negative cycle in the graph.

Input

Input consists of several cases. Every case begins with the number of vertices n and the number of arcs m. Follow m triples u, v, c, indicating that there is an arc $u \to v$ of cost c, where $u \neq v$, $-10^6 \leq c \leq 10^6$. Assume $1 \leq n \leq 10^4$, $0 \leq m \leq 5n$, and that for every pair of vertices u and v there is at most one arc of the kind $u \to v$. All numbers are integers. Vertices are numbered from 0 to $n - 1$.

Output

For every case, print "YES" if there is a negative cycle in the graph, and "NO" otherwise.

Sample input

```
4 4
    0 3 6
    1 0 4
    3 1 -11
    1 2 -6

4 4
    0 3 6
    1 0 4
    3 1 2
    1 2 -6

2 2
    0 1 10
    1 0 10

2 2
    0 1 10
    1 0 -20

2 2
    0 1 10
    1 0 -10
```

Sample output

```
YES
NO
NO
YES
NO
```

Problem information

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