

# Task: SPO

## Late Arrival

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UFAM Workshop, contest #3. Source file spo.\* Available memory: 256 MB.

Byteasar has been working for his corporation for the last 10 years. During this time, he was elected Employee of the Month 83 times, was praised by the high-level, mid-level and low-level management, and reached 142% effectivity. He was always helpful, diligent, polite and precise. And he was never, ever, late for work.

Until now.

Something has changed in Byteasar. He knows that he can no longer cope with this reality and that it is due time for a rebellion against the system. The system that was changing him into a soulless machine.

That is why Byteasar is going to be late for work today. By exactly one minute.

If only this would be so easy! Byteasar always leaves home to arrive to work precisely on time. He cannot change the time of his departure (the habit is too strong), but he can change his route. Byteasar's town has  $n$  junctions with  $m$  roads connecting them. We will treat all the roads as one-directional, as Byteasar is only accustomed to use them in one particular direction. For every road we know the time (in minutes) needed to travel it. Byteasar's home is at junction  $s$ , while his workplace is at junction  $t$ .

Byteasar has always taken the shortest route to get to work, but today he needs a route that takes exactly one more minute. Tell him if such a way is possible.

### Input

The first line of the input contains four integers  $n, m, s, t$  ( $1 \leq n \leq 100\,000, 1 \leq m \leq 500\,000, 1 \leq s \neq t \leq n$ ). These are the number of junctions, the number of roads, the home's and the workplace's junction number.

Next  $m$  lines describe roads – each line consists of three integers  $a, b, w$  describing a road from junction  $a$  to junction  $b$ , which Byteasar travels in exactly  $w$  minutes ( $1 \leq a \neq b \leq n, 1 \leq w \leq 10\,000$ ). You may assume that a route always exists from Byteasar's home to his workplace.

### Output

Your program should output YES if there is the desired one-minute-longer route, and NO otherwise.

### Example

For the input data:

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

the correct answer is:

NO

For the input data:

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

the correct answer is:

YES