D. Dima and Trap Graph

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Dima and Inna love spending time together. The problem is, Seryozha isn't too enthusiastic to leave his room for some reason. But Dima and Inna love each other so much that they decided to get criminal...

Dima constructed a trap graph. He shouted: "Hey Seryozha, have a look at my cool graph!" to get his roommate interested and kicked him into the first node.

A trap graph is an undirected graph consisting of n nodes and m edges. For edge number k, Dima denoted a range of integers from l_k to r_k ($l_k \le r_k$). In order to get out of the trap graph, Seryozha initially (before starting his movements) should pick some integer (let's call it x), then Seryozha must go some way from the starting node with number 1 to the final node with number n. At that, Seryozha can go along edge k only if $l_k \le x \le r_k$.

Seryozha is a mathematician. He defined the *loyalty* of some path from the 1-st node to the n-th one as the number of integers x, such that if he initially chooses one of them, he passes the whole path. Help Seryozha find the path of maximum loyalty and return to his room as quickly as possible!

Input

The first line of the input contains two integers n and m ($2 \le n \le 10^3$, $0 \le m \le 3 \cdot 10^3$). Then follow m lines describing the edges. Each line contains four integers a_k, b_k, l_k and r_k ($1 \le a_k, b_k \le n$, $1 \le l_k \le r_k \le 10^6$). The numbers mean that in the trap graph the k-th edge connects nodes a_k and b_k, this edge corresponds to the range of integers from l_k to r_k.

Note that the given graph can have loops and multiple edges.

Output

In a single line of the output print an integer — the maximum loyalty among all paths from the first node to the n-th one. If such paths do not exist or the maximum loyalty equals 0, print in a single line "`Nice work, Dima!`" without the quotes.

Examples

input
4 4 1 2 1 10 2 4 3 5 1 3 1 5 2 4 2 7
output
6

input
5 6 1 2 1 10 2 5 11 20 1 4 2 5 1 3 10 11 3 4 12 10000 4 5 6 6
output
Nice work, Dima!

Note

Explanation of the first example.

Overall, we have 2 ways to get from node 1 to node 4: first you must go along the edge 1-2 with range [1-10], then along one of the two edges 2-4.

One of them contains range [3-5], that is, we can pass through with numbers 3, 4, 5. So the loyalty of such path is 3.

If we go along edge 2-4 with range [2-7], then we can pass through with numbers 2, 3, 4, 5, 6, 7. The loyalty is 6. That is the answer.

The edge 1-2 have no influence on the answer because its range includes both ranges of the following edges.