알고리즘
Programming Assignment

08 [Challenge]:
Pashmak & graph

2014/12/03

미디어소프트웨어학과
민경하

Pashmak & graph

- **Problem**

Pashmak's homework is a problem about graphs. Although he always tries to do his homework completely, he can't solve this problem. As you know, he's really weak at graph theory; so try to help him in solving the problem.

You are given a weighted directed graph with *n* vertices and *m* edges. You need to find a path (perhaps, non-simple) with maximum number of edges, such that the weights of the edges increase along the path. In other words, each edge of the path must have strictly greater weight than the previous edge in the path.

Help Pashmak, print the number of edges in the required path.

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- **Input**

The first line contains two integers n, m ($2 \le n \le 3 \cdot 10^5$; $1 \le m \le min(n \cdot (n - 1), 3 \cdot 10^5)$). Then, m lines follows. The i-th line contains three space separated integers: u_i, v_i, w_i ($1 \le u_i, v_i \le n$; $1 \le w_i \le 10^5$) which indicates that there's a directed edge with weight w_i from vertex u_i to vertex v_i.

It's guaranteed that the graph doesn't contain self-loops and multiple edges.

- **Output**

Print a single integer — the answer to the problem.

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- **Test case**

input
3 3 1 2 1 2 3 1 3 1 1
output
1

input
3 3 1 2 1 2 3 2 3 1 3
output
3

input
6 7 1 2 1 3 2 5 2 4 2 2 5 2 2 6 9 5 4 3 4 3 4
output
6

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- **Note**

In the first sample the maximum trail can be any of this trails: 1 → 2, 2 → 3, 3 → 1.

In the second sample the maximum trail is 1 → 2 → 3 → 1.

In the third sample the maximum trail is 1 → 2 → 5 → 4 → 3 → 2 → 6.

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- **Evaluation strategy**

Term		Credit
Track 1	Design an algorithm that can solve the given problem (Algorithms in pseudo code or flowchart is accepted)	40
Track 2	Implement an algorithm that can solve the given problem (3 cases will be tested)	60

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- 제출
  - 12월 9일 PM 11:59
- 제출 방식
  - ecampus
  - 가능하면 Visual Studio 2013을 사용하며, project 전체를 zip해서 올릴 것
  - 컴파일시 에러가 발생하면 0점 처리함
  - 만약 ecampus가 안되면 roboteck@naver.com
- 감점
  - 1시간 늦을때마다 10%씩 감점
  - 1회 copy or copied일 때 해당 숙제 0점 처리
  - 2회 copy or copied일 때 F
  - 지인의 도움시에도 copy or copied를 적용함