A. Fast Maximum Flow

Time limit: 2.766s   Memory limit: 1536 MB

Given a graph with N (2 ≤ N ≤ 5,000) vertices numbered 1 to N and M (1 ≤ M ≤ 30,000) undirected, weighted edges, compute the maximum flow / minimum cut (http://en.wikipedia.org/wiki/Maximum_flow_problem) from vertex 1 to vertex N.

Input
The first line contains the two integers N and M. The next M lines each contain three integers A, B, and C, denoting that there is an edge of capacity C (1 ≤ C ≤ 10^9) between nodes A and B (1 ≤ A, B ≤ N). Note that it is possible for there to be duplicate edges, as well as an edge from a node to itself.

Output
Print a single integer (which may not fit into a 32-bit integer) denoting the maximum flow / minimum cut between 1 and N.

Example

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Input:
4 6
1 2 3
2 3 4
3 1 2
2 2 5
3 4 3
4 3 3

Output:
5
```

Viewing the problem as max-flow, we may send 3 units of flow through the path 1 - 2 - 3 - 4 and 2 units of flow through the path 1 - 3 - 4. Viewing the problem as min-cut, we may cut the first and third edges. Either way the total is 5.

Note: see   also   http://www.spoj.com/problems/MATCHING/ (http://www.spoj.com/problems/MATCHING/).