Problem J. Joining points

Source file name:	joining.c, joining.cpp, joining.java
Input:	`Standard`
Output:	`Standard`
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The annual International Competition for Points Connectors (ICPC) world final is around the corner. a Points Connectors competition is a competition where each contestant is given a board where N points numbered from 1 to N are drawn, to be fair all boards have the same N points drawn. Each contestant will be joining pairs of points with straight lines until all points are connected in such way that you can get from any point to another following only the lines drawn by the contestants, as you can imagine the first contestant that joins all points wins. To make the world finals a more difficult challenge there are two restrictions:

- There is a list of pairs of points that are the only "allowed" moves. This is the final connection that a contestant creates should contain only those that are on this list.
- Each of the allowed moves contain a number of points w_i that will be earned if the pair of points on that allowed move is selected. The grading of a contestant will be the sum of the grades earned by selecting the allowed moves on the list.

Based on these two new restrictions the winner of the world finals will be the contestant that joins the points using only points from the allowed moves list and that his grading is the minimum from all the other contestants.

Last year Toby and Buzz were 1st and 2nd place on the world finals and they will be participating this year again. Toby and Buzz have been training hard connecting the points on all competitions based on the restrictions they will have in the world final, this way they will have less things to worry on the world finals contest.

You are a devoted follower of the Points Connectors contest and after looking to the grades of Toby and Buzz on all the contests that have happen the last 2 years you have found a very interesting pattern: Toby always wins and Buzz is always 2nd place, also, Toby always find the way to connect the points getting the minimum grade possible in the board while Buzz always gets the 2nd minimum grade possible.

Now that everyone is doing bets on who will win the World Finals you will put a difficult bet this time. After the board is disclosed you will bet "Toby will be 1st place getting a grade X, and Buzz will be 2nd getting a grade Y". To do this you have prepared a computer program that given the Board and restrictions will compute what is the grade X Toby will get and the grade Y Buzz will get at the World Finals.

Input

The input consists of several test cases. The first line of each test case contains two numbers N and M, N is the number of points in the board and M is the number of restrictions in the allowed moves list. The next M lines contain three numbers u, v, w separated by a space which represents the points u and v can be connected as an allowed move earning w points. You may assume there is always a way to connect all the points on the board with the given restrictions.

- $1 \leq N \leq 5000$
- $1 \leq M \leq \frac{(N)(N-1)}{2}$

Output

For each test case your program should print two numbers the grade X that Toby will get and the grade Y that Buzz will get on the world finals.

Example

Input	Output
3 3 2 1 67 3 1 46 3 2 75 5 9 2 1 29 3 2 52 4 1 20 5 3 45 2 5 42 2 4 19 1 5 5 5 4 26 4 3 76	113 121 89 95