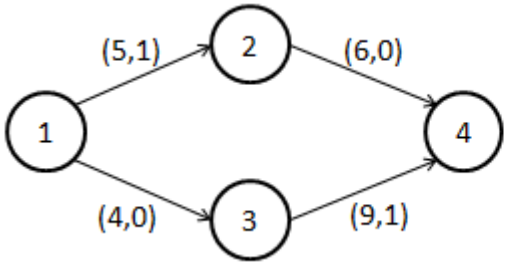
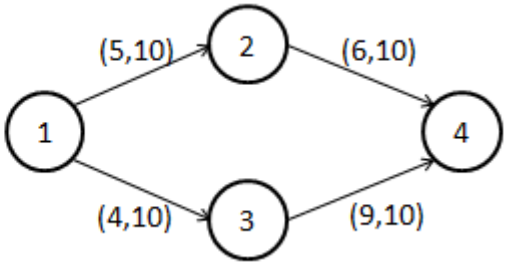
D Double Shortest Paths

Input: Standard Input
Output: Standard Output

Alice and Bob are walking in an ancient maze with a lot of caves and one-way passages connecting them. They want to go from cave 1 to cave n. All the passages are difficult to pass. Passages are too small for two people to walk through simultaneously, and crossing a passage can make it even more difficult to pass for the next person. We define d_i as the difficulty of crossing passage i for the first time, and a_i as the additional difficulty for the second time (e.g. the second person's difficulty is d_i+a_i).

Your task is to find two (possibly identical) routes for Alice and Bob, so that their total difficulty is minimized.





For example, in figure 1, the best solution is 1->2->4 for both Alice and Bob, but in figure 2, it's better to use 1->2->4 for Alice and 1->3->4 for Bob. **It's always possible to reach cave n from cave 1.**

Input

There will be at most 200 test cases. Each case begins with two integers n, m (1<=n<=500, 1<=m<=2000), the number of caves and passages. Each of the following m lines contains four integers u, v, d_i and a_i (1<=u,v<=n, 1<=d_i<=1000, 0<=a_i<=1000). Note that there can be multiple passages connecting the same pair of caves, and even passages connecting a cave and itself.

Output

For each test case, print the case number and the minimal total difficulty.

Sample Input	Output for Sample Input
4 4 1 2 5 1 2 4 6 0 1 3 4 0 3 4 9 1 4 4 1 2 5 10 2 4 6 10 1 3 4 10 3 4 9 10	Case 1: 23 Case 2: 24

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