Cartman's Dilemma

Our beloved hero from South Park, Eric Cartman, finds himself in yet another peculiar situation. He is stuck in a strange country, with n cities and m roads connecting them, each having some fixed length.

Thankfully, his friend Kenny told him how to get out before he died. Cartman must find the minimum distance he must travel, so as to visit every city in the country, and also being the eccentric person he is, the path he takes must contain at least one loop(cycle). He can start at any city, and each road is counted only once, even he traverses it more than once.

You must help Cartman get out safely before it is too late, as the future of South Park rests in his hands!

Input

First line contains T, number of testcases.
Each testcase starts with two integers N and M, denoting the number of cities and roads respectively. M lines follow, each containing 3 integers X,Y,Z, denoting that there exists a road from road X to road Y with length Z. No more than 1 road connects a given pair of cities.

Output

For each testcase, output the desired answer in a separate line. It is guaranteed that answer always exists.

Constraints

1 <= T <= 10
1 <= N <= 10^5
1 <= M <= min(N*(N-1)/2, 5*(10^5))

0 <= X,Y <= N-1
0 <= Z <= 10^9
M>N

Sample Input

1
4 5
0 1 1
0 2 2
0 3 3
1 2 4
2 3 5

Sample Output

10

Sample Explanation

All edges except the last one will be included in our answer. Note that this path connects all cities, and has one loop as well.