In order to prepare the "The First National ACM School Contest" (in 20??) the major of the city decided to provide all the schools with a reliable source of power. (The major is really afraid of blackoutsJ). So, in order to do that, power station "Future" and one school (doesn't matter which one) must be connected; in addition, some schools must be connected as well.

You may assume that a school has a reliable source of power if it's connected directly to "Future", or to any other school that has a reliable source of power. You are given the cost of connection between some schools. The major has decided to pick out two the cheapest connection plans – the cost of the connection is equal to the sum of the connections between the schools. Your task is to help the major — find the cost of the two cheapest connection plans.

Input

The Input starts with the number of test cases, T ($1 < T < 15$) on a line. Then T test cases follow. The first line of every test case contains two numbers, which are separated by a space, N ($3 < N < 100$) the number of schools in the city, and M the number of possible connections among them. Next M lines contain three numbers A_i, B_i, C_i, where C_i is the cost of the connection ($1 < C_i < 300$) between schools A_i and B_i. The schools are numbered with integers in the range 1 to N.

Output

For every test case print only one line of output. This line should contain two numbers separated by a single space – the cost of two the cheapest connection plans. Let S_1 be the cheapest cost and S_2 the next cheapest cost. It's important, that $S_1 = S_2$ if and only if there are two cheapest plans, otherwise $S_1 < S_2$. You can assume that it is always possible to find the costs S_1 and S_2.

Sample Input

```
2
5 8
1 3 75
3 4 51
2 4 19
3 2 95
2 5 42
5 4 31
1 2 9
3 5 66
9 14
1 2 4
1 8 8
2 8 11
3 2 8
8 9 7
8 7 1
7 9 6
9 3 2
3 4 7
3 6 4
7 6 2
4 6 14
4 5 9
5 6 10
```

Sample Output

```
110 121
37 37
```