Problem C
Connection Plan

The ICPC (International Collegiate Programming Contest) is just around the corner and STMIK Mikroskil is getting ready to host one of the ICPC provincial contests in Indonesia. One of the challenges that STMIK Mikroskil faces to host the ICPC is to ensure continuous power supply for all contest rooms during the contest time. There is no need to mention that power outage is a persistent problem in Medan.

As part of a mitigation plan, STMIK Mikroskil plans to procure at most 2 (electric) generators as backup substitutes for power supply. The management of STMIK Mikroskil wants to power all N classrooms (numbered from 1 to N) around the campus with the available generators either directly or indirectly. A room is powered if and only if it is directly connected to a generator or it is connected to another connected room (i.e. indirectly powered).

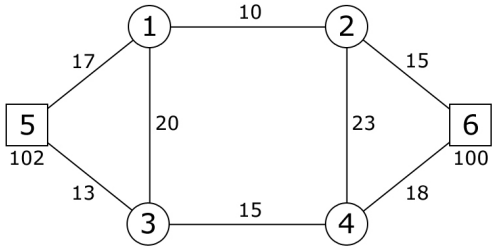
The cost to procure generator $\#1$ is C_1, and it can only be set up at room number $N+1$. The cost to procure generator $\#2$ is C_2, and it can only be set up at room number $N+2$.

After carefully studying the campus layout, the engineers managed to identify M possible connections. The i^{th} possible connection, (u_i, v_i, w_i), connects room u_i and v_i but the cost to build this connection is w_i. A connection plan contains a list of connections to be built. A connection plan is sound if and only if it makes all N classrooms powered. The cost of a connection plan is the sum of all w_i in the plan and the cost to procure the required generator(s).

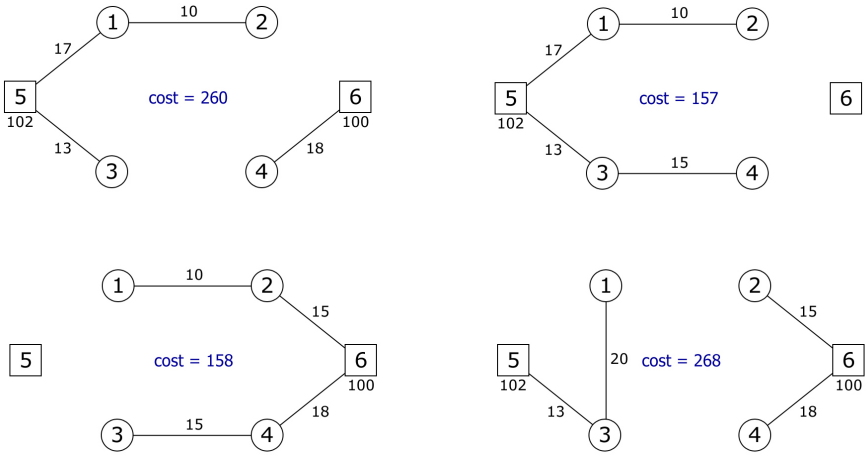
Note that STMIK Mikroskil will not procure a generator that is not used to power any classroom. A connection to room $N+1$ cannot be established if generator $\#1$ is not procured; similarly, a connection to room $N+2$ cannot be established if generator $\#2$ is not procured.

Your task in this problem is to determine the cost of a connection plan with the minimum cost and the cost of a connection plan with the second minimum cost.

For example, consider the following $N = 4$ classrooms and their $M = 8$ possible connections. Let the cost to procure generator $\#1$ and $\#2$ be $C_1 = 102$ and $C_2 = 100$, respectively.



The followings are some examples of sound connection plans.



Among all sound connections plans in this example, the plan with the minimum cost has a cost of 157 while the plan with the second minimum cost has a cost of 158.

Two connections plans are considered as different if and only if there exists a connection in one plan but not in the other one.

Input

Input begins with an integer T $(1 \leq T \leq 20)$ representing the number of cases.

Each case begins with two integers N M $(1 \leq N \leq 100;\ N < M \leq 1000)$ representing the number of classrooms and the number of possible connections, respectively. The next M lines, each contains three integers u_i v_i w_i $(1 \leq u_i \leq N;\ u_i < v_i \leq N + 2;\ 1 \leq w_i \leq 3000)$ representing a possible connection between room u_i and room v_i with a cost of w_i to be built. There is at most one possible connection between any two different rooms, and it is guaranteed that all classrooms can be powered with the existing possible connections. The last line on each case contains two integers C_1 C_2 $(1 \leq C_1, C_2 \leq 3000)$ representing the cost to procure generator #1 and #2, respectively.

Output

For each case, output in a line "`Case #X: Y Z`" (without quotes) where `X` is the case number (starts from 1), `Y` is the cost of a sound connection plan with the minimum cost, while `Z` is the cost of a sound connection plan with the second minimum cost.

Sample Input #1

```
3
4 8
1 2 10
1 3 20
1 5 17
2 4 23
2 6 15
3 4 15
3 5 13
4 6 18
102 100
3 5
1 2 100
1 3 200
1 4 150
2 3 150
3 5 100
100 1000
3 5
1 2 10
1 3 5
2 3 5
1 4 1
2 5 1
1 1
```

Sample Output #1

```
Case #1: 157 158
Case #2: 500 550
Case #3: 9 9
```

Explanation for the sample input/output #1

For the 2^{nd} case,

- The plan with the minimum cost is: $\{(1, 2, 100), (1, 4, 150), (2, 3, 150), (\text{Generator } \#1, 100)\}$ with a total cost of $100 + 150 + 150 + 100 = 500$.
- The plan with the second minimum cost is: $\{(1, 2, 100), (1, 3, 200), (1, 4, 150), (\text{Generator } \#1, 100)\}$ with a total cost of $100 + 200 + 150 + 100 = 550$.

For the 3^{rd} case, there are 2 connections plans with the same cost that is minimum.

- Connection plan 1: $\{(1, 3, 5), (1, 4, 1), (2, 5, 1), (\text{Generator } \#1, 1), (\text{Generator } \#2, 1)\}$ with a total cost of $5 + 1 + 1 + 1 + 1 = 9$.
- Connection plan 2: $\{(1, 4, 1), (2, 3, 5), (2, 5, 1), (\text{Generator } \#1, 1), (\text{Generator } \#2, 1)\}$ with a total cost of $1 + 5 + 1 + 1 + 1 = 9$.