

## 8264 Threesome

There is a student association  $S$  formed by  $n$  college students and every student has a unique ID that is a positive integer. For convenience, we use  $\{1, 2, \dots, n\}$  to represent the  $n$  students. Any two students  $i$  and  $j$  have a *social connectivity*, denoted by  $c(i, j)$ , between  $i$  and  $j$ , where  $1 \leq c(i, j) \leq 10000$ . Three students  $i, j, k$  are best threesome if the sum of their mutual social connectivities  $c(i, j) + c(j, k) + c(i, k)$  is maximum among all the threesomes, i.e.,  $\max_{i, j, k \in S} \{c(i, j) + c(j, k) + c(i, k)\}$ .

Your task is to write a computer program to compute the sum of their mutual social connectivities of a best threesome.

### Technical Specification

- $3 \leq n \leq 300$
- Each ID is at least 1 and at most  $n$ .
- For any two students  $i$  and  $j$ ,  $1 \leq c(i, j) \leq 10000$ .

### Input

The first line of the input contains an integer, denoting the number of test cases to follow.

For each test case, the association  $S = \{a_1, a_2, \dots, a_n\}$  is given with the following format:

The first line contains a positive integer  $n$ . In the following  $\frac{n(n-1)}{2}$  lines, each line contains three integers representing  $i, j$ , and  $c(i, j)$  such that any two integers are separated by a space.

### Output

For each test case, output the sum of their mutual social connectivities of best threesome.

### Sample Input

```
2
3
1 2 1
1 3 1
2 3 1
4
1 2 2
1 3 2
1 4 1
2 3 2
2 4 1
3 4 1
```

### Sample Output

```
5
6
```