

## Problem J. Graph and Cycles

Input file:            `standard input`  
 Output file:        `standard output`  
 Time limit:         2 seconds  
 Memory limit:      256 megabytes

There is an undirected weighted complete graph of  $n$  vertices where  $n$  is odd.

Let's define a *cycle-array* of size  $k$  as an array of edges  $[e_1, e_2, \dots, e_k]$  that has the following properties:

- $k$  is greater than 1.
- For any  $i$  from 1 to  $k$ , an edge  $e_i$  has exactly one common vertex with edge  $e_{i-1}$  and exactly one common vertex with edge  $e_{i+1}$  and these vertices are distinct (consider  $e_0 = e_k$ ,  $e_{k+1} = e_1$ ).

It is obvious that edges in a cycle-array form a cycle.

Let's define  $f(e_1, e_2)$  as a function that takes edges  $e_1$  and  $e_2$  as parameters and returns the maximum between the weights of  $e_1$  and  $e_2$ .

Let's say that we have a cycle-array  $C = [e_1, e_2, \dots, e_k]$ . Let's define the *price of a cycle-array* as the sum of  $f(e_i, e_{i+1})$  for all  $i$  from 1 to  $k$  (consider  $e_{k+1} = e_1$ ).

Let's define a *cycle-split* of a graph as a set of non-intersecting cycle-arrays, such that the union of them contains all of the edges of the graph. Let's define the *price of a cycle-split* as the sum of prices of the arrays that belong to it.

There might be many possible cycle-splits of a graph. Given a graph, your task is to find the cycle-split with the minimum price and print the price of it.

### Input

The first line contains one integer  $n$  ( $3 \leq n \leq 999$ ,  $n$  is odd) — the number of nodes in the graph.

Each of the following  $\frac{n \cdot (n-1)}{2}$  lines contain three space-separated integers  $u$ ,  $v$  and  $w$  ( $1 \leq u, v \leq n, u \neq v, 1 \leq w \leq 10^9$ ), meaning that there is an edge between the nodes  $u$  and  $v$  that has weight  $w$ .

### Output

Print one integer — the minimum possible price of a cycle-split of the graph.

## Examples

standard input	standard output
3 1 2 1 2 3 1 3 1 1	3
5 4 5 4 1 3 4 1 2 4 3 2 3 3 5 2 1 4 3 4 2 2 1 5 4 5 2 4 3 4 2	35

## Note

Let's enumerate each edge in the same way as they appear in the input. I will use  $e_i$  to represent the edge that appears  $i$ -th in the input.

The only possible cycle-split in the first sample is  $S = \{[e_1, e_2, e_3]\}$ .  $f(e_1, e_2) + f(e_2, e_3) + f(e_3, e_1) = 1 + 1 + 1 = 3$ .

The optimal cycle-split in the second sample is  $S = \{[e_3, e_8, e_9], [e_2, e_4, e_7, e_{10}, e_5, e_1, e_6]\}$ . The price of  $[e_3, e_8, e_9]$  is equal to 12, the price of  $[e_2, e_4, e_7, e_{10}, e_5, e_1, e_6]$  is equal to 23, thus the price of the split is equal to 35.