

# 3 NEAREST VILLAGES

Assume the locations of any three villages are  $(x_1, y_1, z_1)$ ,  $(x_2, y_2, z_2)$  and  $(x_3, y_3, z_3)$ . The distance of the paths passing through any three villages are defined as

$$D = d_{12} + d_{23}, \text{ where } d_{ij} = |x_i - x_j| + |y_i - y_j| + |z_i - z_j|.$$

Determine the shortest path passing through the three **closest** villages.

## Input

The first line specifies the number of villages,  $N$  (where  $3 \leq N \leq 10,000$ ). Each of the following  $N$  lines specifies the location  $(x, y, z)$  of each village (where  $-1000 \leq x, y, z \leq 1000$ ).

## Output

One line specifies the length of the shortest path passing through the three closest villages.

## Examples

Nº	stdin	stdout
1	9 0 0 1 0 0 2 0 0 3 0 0 4 0 0 6 0 0 8 0 0 7 0 0 9 0 0 10	2