

Tree Median

Input file: **standard input**
Output file: **standard output**
Time limit: 1.5 seconds
Memory limit: 64 megabytes

You are given a tree with N nodes, numbered from 1 to N . The edges are numbered from 1 to $N - 1$, and edge i has a weight w_i .

Consider a simple path connecting two different nodes. If the weights on this path are $w_{i_0} \leq w_{i_1} \leq \dots \leq w_{i_k}$ (not necessarily in this order), then we define its median as $w_{i_{\lfloor k/2 \rfloor}}$.

Let M be the list of medians of all such simple paths (that is, $|M| = \frac{N(N-1)}{2}$). What is the K th smallest element of M ?

Input

The first line contains two integers, N and K ($1 \leq N \leq 50000$), ($1 \leq K \leq N * (N - 1) / 2$). The i -th of the following $N - 1$ lines contains three integers u_i , v_i and w_i ($1 \leq u_i, v_i \leq N$), ($1 \leq w_i \leq 10^9$), corresponding to an edge of weight w_i between nodes u_i and v_i .

For tests worth 8 points, $N \leq 100$.

For tests worth 19 more points, $N \leq 1000$.

For tests worth 24 points, The tree is a bamboo (no node has a degree greater than 2).

Output

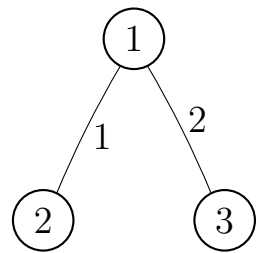
The first and only line must contain a single number: the unique integer that solves this task.

Examples

standard input	standard output
3 3 1 2 1 1 3 2	2
7 15 1 2 3 1 3 1 1 4 4 3 5 1 3 6 5 5 7 9	3

Note

In the **first sample case**, the elements of M in increasing order are 1, 1 and 2.



In the **second sample case**, the elements of M in increasing order are 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 3, 3, 3, 3, 4, 4, 5, 5 and 9.

