NOIP '18 P3 - Constructing Tracks

Time limit: 1.0s **Memory limit:** 512M

Given a tree with n vertices. Edge i of the tree has length l_i. We need to choose m edge-disjoint paths such that the length of the path with minimum length is maximized.

Input Specification

The first line contains two integers n and m denoting the number of vertices and the number of paths to be chosen.

In the following $n-1$ lines, the i^{th} line contains three positive integers a_i, b_i, l_i denoting the i^{th} edge goes from a_i to b_i and has length l_i.

Output Specification

The output contains an integer denoting the maximum possible minimum length of the m tracks chosen.

Sample Input 1

```
7 1
1 2 10
1 3 5
2 4 9
2 5 8
3 6 6
3 7 7
```

Sample Output 1

```
31
```

Note: the chosen path is the path from vertex 4 to vertex 7.

Sample Input 2

```
9 3
1 2 6
2 3 3
3 4 5
4 5 10
6 2 4
7 2 9
8 4 7
9 4 4
```

Sample Output 2

```
15
```

The chosen paths are the path from vertex 1 to vertex 7, vertex 6 to vertex 9, and vertex 8 to vertex 5.

Additional Samples

Additional samples can be found here.

Constraints

Test Case	$n \leq$	m	$a_i = 1$	$b_i = a_i + 1$	Degree of vertex ≤ 3
1	5	$= 1$	No	No	Yes
2	10	$\leq n - 1$		Yes	
3	15		Yes	No	No
4	$1\,000$	$= 1$	No		Yes
5	$30\,000$		Yes		No
6			No		

7		$\leq n-1$	Yes		
8	$50\,000$				
9	$1\,000$		No	Yes	Yes
10	$30\,000$				
11	$50\,000$				
12	50			No	
13					
14	200				
15					
16	$1\,000$				
17					No
18	$30\,000$				
19					
20	$50\,000$				

For all test cases, $2 \leq n \leq 50\,000$, $1 \leq m \leq n-1$, $1 \leq a_i, b_i \leq n$, $1 \leq l_i \leq 10\,000$.