



Drive or Walk

Problem Statement

King Oski, the wise ruler of the Kingdom of Mirokil, has announced the annual IdeaFuse Competition, to be held in the capital.

The kingdom has N cities connected by M roads. Each road connects City U to City V and has a base travel time W .

There is one delegate in every city from 1 to $N - 1$, and all of them must reach the capital for the competition. City N is the **capital**.

A road from U to V can be used in two ways:

- By car: A delegate can drive from U to V in W units of time (One-way: only from U to V);
- On foot: A delegate can walk between U and V in either direction in $2W$ units of time.

Every delegate starts their journey from their home city with their own car. At any city along the way, a delegate may choose to leave their car behind and continue on foot. Once a car is abandoned, it cannot be used again.

King Oski wants to start the competition as soon as possible, but he has to wait until **all delegate** arrives. Determine the minimum time he must wait.

Input Format

The first line contains two integers N and M ($2 \leq N \leq 2 \times 10^5$, $N - 1 \leq M \leq 2 \times 10^5$), representing the number of cities and the number of roads, respectively.

Each of the next M lines contains three integers U , V , and W ($1 \leq U, V \leq N$, $U \neq V$, $1 \leq W \leq 10^9$), representing a road from City U to City V and has a base travel time of W .

It is guaranteed that every city can reach the capital (City N) by at least walking. Note that there may be multiple roads between the same pair of cities.

Output Format

Print a single integer representing the minimum time King Oski must wait for all delegates to arrive in the capital.

Sample Input 1

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5 4
1 5 5
2 1 5
2 3 2
4 3 2
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Sample Output 1

26

Explanation of Sample

Delegate 1 drives directly from City 1 to City 5 in 5 units of time.

Delegate 2 drives from City 2 to City 1, taking 5 units of time, then continues driving from City 1 to City 5, taking another 5 units of time. Total time is $5 + 5 = 10$.

Delegate 3 immediately leaves their car and walks all the way to the capital via $3 \rightarrow 2 \rightarrow 1 \rightarrow 5$. The walking time is $(2 \times 2) + (5 \times 2) + (5 \times 2) = 4 + 10 + 10 = 24$.

Delegate 4 drives from City 4 to City 3, taking 2 units of time. From City 3, they abandon the car and walk the rest of the journey via $3 \rightarrow 2 \rightarrow 1 \rightarrow 5$, which takes 24 units of time. Total time is $2 + 24 = 26$.

King Oski must wait until all delegates arrive, which means waiting for Delegate 4 who arrives last at 26 units of time.