Programming 3

In the realm of delivery apps, a company called Allo Jibli exists (they're overpriced and slow), there exists a road network, comprising cities numbered from 0 to n - 1 interconnected by roads (all cities have atleast 1 road connected to them). City 0 serves as the main hub, hosting a significant event called AlphaCTF. Each city features a pizza shop contributing to this event.

The delivery company operates a fleet of delivery vehicles, with each city having its designated pizza delivery car. All cars have a maximum capacity available for pizzas. Allo Jibli drivers can either use their own car or swap vehicles with another driver along the route. The fuel cost for traversing between any two cities is fixed at one liter per trip.

The challenge at hand is to pick the minimum amount of fuel required for Allo Jibli to collect pizzas from all the pizza shops and deliver them to the event venue in City 0.

you will be given:

- roads: array of arrays roads[i] = [a,b] ⇒ city "a" is connected to city "b"
- capacity: maximum amount of pizzas a car can pick up

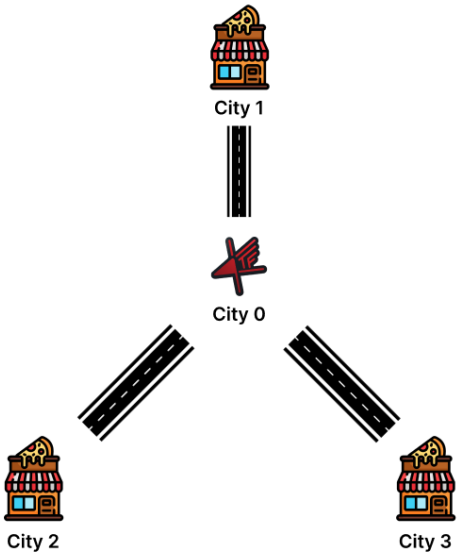
and you must return

- integer: minimum amount of fuel to deliver all pizzas

PS:

- get 100 correct to get the flag
- 5 sec t submit answer

Example 1:

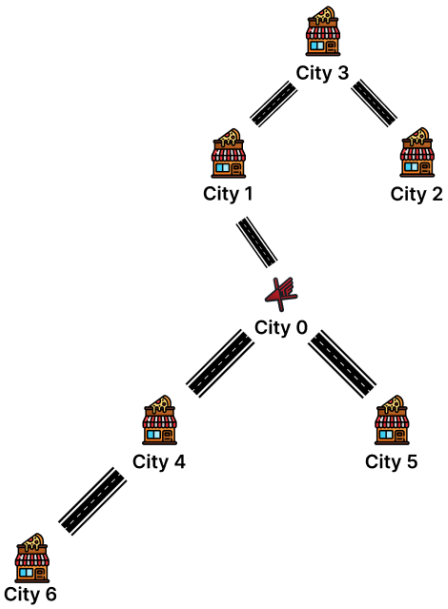


Suppose pizzas from shops in cities 1, 2, and 3 need to be delivered to the event. Each pizza delivery car has a capacity of 5. The only way Allo Jibli can deliver the pizzas is to pick it up from each shop and deliver them directly to the event, consuming 1 liter of fuel per trip. Thus, the minimum fuel required is 3 liters.

Input: `roads = [[0,1],[0,2],[0,3]], capacity = 5`

Output: `3`

Example 2:



Now, imagine pizzas from various shops must be collected and delivered to the event. Each pizza delivery car has a capacity of 2 seats. By strategically coordinating their routes, Allo Jibli manages to minimize fuel consumption. The total fuel consumption is 7 liters, representing the minimum amount needed for all pizzas to reach the event.

Input: `roads = [[3,1],[3,2],[1,0],[0,4],[0,5],[4,6]], capacity = 2`

Output: 7

- city 6 and city 4 can be delivered in same car (2 fuel)
- city 5 is delivered directly (1 fuel)
- city 3 and city 2 can be delivered in same car (3 fuel)
- city 1 is delivered directly (1 fuel)