ASSESSMENT TASK

In this assessment task, you are required to make an API. Feel free to choose a language of your choice.

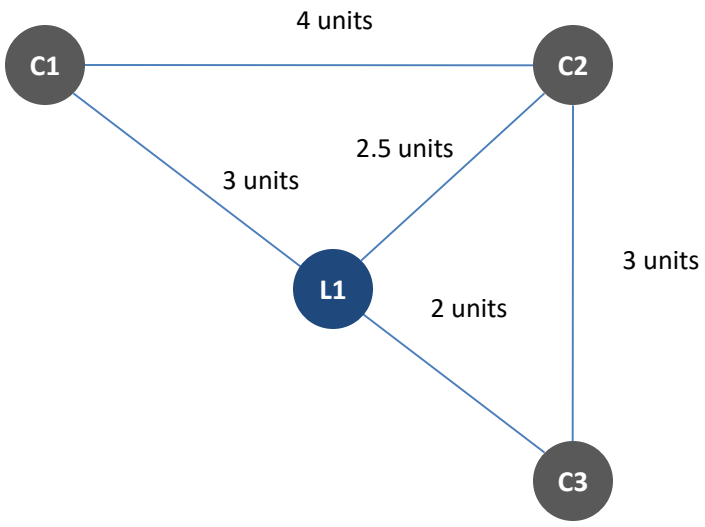
Consider the following situation –

There are 3 centers C1, C2 and C3 which act as warehouses and stock products in the following way.

Center	Stock Product	Weight
C1	A	3kg
C1	B	2kg
C1	C	8kg
C2	D	12kg
C2	E	25kg
C2	F	15kg
C3	G	500g
C3	H	1kg
C3	I	2kg

One or all of these can deliver their respective products A, B, C, D, E, F, G, H or I to a customer location L1 depending upon the order request from customer. But only one delivery vehicle would be deployed (from either C1, C2 or C3) to fulfill this request.

The distance between C1, C2, C3 and L1 is as follows



Your task is to create an API which calculates the minimum cost to deliver any given order to location L1 with the following conditions –

1. One and only one delivery vehicle would be deployed, either from C1, C2 or C3 to fulfill the order
2. In case orders from multiple centers need to fulfilled, this same vehicle would then pickup from different locations and then deliver to L1. However, it is not necessary that all pickups must be made before final delivery. It can be C1 (start)->L1 (drop)->C3 (pick up)->L1(drop).

3. The cost of running the vehicle as follows

Total Weight	Cost/unit distance
0-5 kgs	10
Ever additional 5 kgs	8

4. **Input** for API would be the quantity of each product in the order. **Output** would be the minimum cost to deliver the above input quantity.

Make appropriate assumptions (if required) and state them clearly.

Here are some **test cases** for your reference:

- A-1, G-1, H-1, I-3 will give the output as 86
- A-1, B-1, C-1, G-1, H-1, I-1 will give the output as 118
- A-1, B-1, C-1 will give the output as 78
- A-1, B-1, C-1, D-1 will give the output as 168