Minimum Number of Refueling Stops

Try to solve the Minimum Number of Refueling Stops problem.

We'll cover the following

- Statement
- Examples
- Understand the problem
- Figure it out!
- Try it yourself

Statement

You need to find the minimum number of refueling stops that a car needs to make to cover a distance, target. For simplicity, assume that the car has to travel from west to east in a straight line. There are various fuel stations on the way that are represented as a 2-D array of stations, i.e., stations[i] = $[d_i, f_i]$, where d_i is the distance (in miles) of the i^{th} gas station from the starting position, and f_i is the amount of fuel (in liters) that it stores. Initially, the car starts with k liters of fuel. The car consumes one liter of fuel for every mile traveled. Upon reaching a gas station, the car can stop and refuel using all the petrol stored at the station. If it cannot reach the target, the program returns -1.

Note: If the car reaches a station with 0 fuel left, it can refuel from that station, and all the fuel from that station can be transferred to the car. If the car reaches the target with 0 fuel left, it is still considered to have arrived.

Constraints:

- $1 \le \text{target}$, $k \le 10^9$
- $0 \le \text{stations.length} \le 900$
- $1 \leq d_i < d_{i+1} < \mathsf{target}$
- $1 \le f_i < 10^9$

Examples

Sample example

Starting fuel = 3 target = 15

Stations[distance][fuel]

distance	fuel
2	5
3	1

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Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:

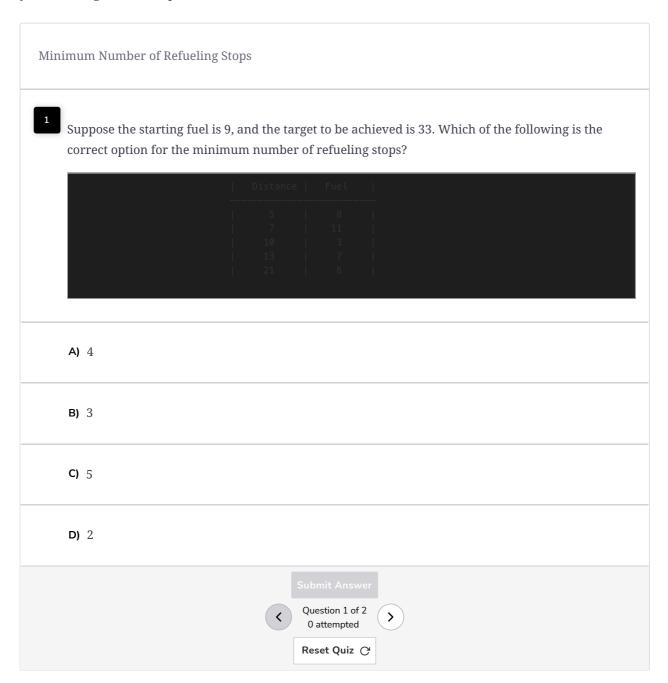
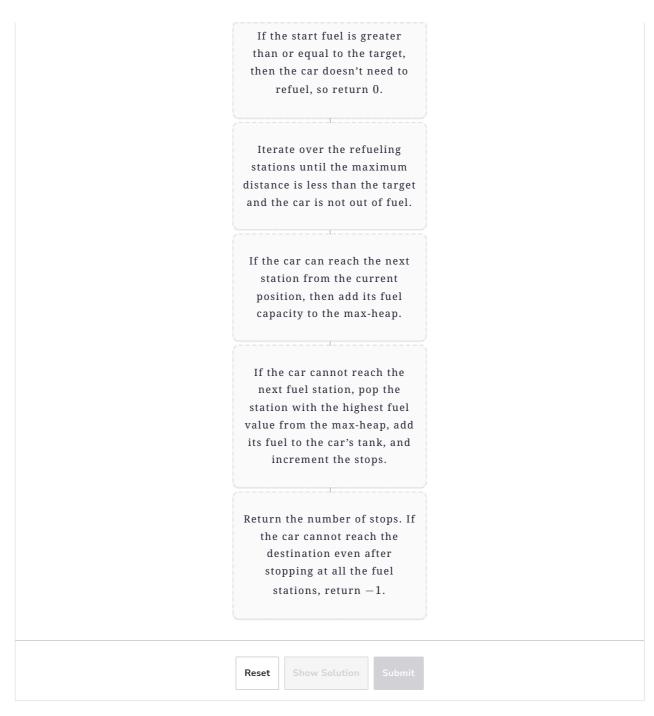


Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.



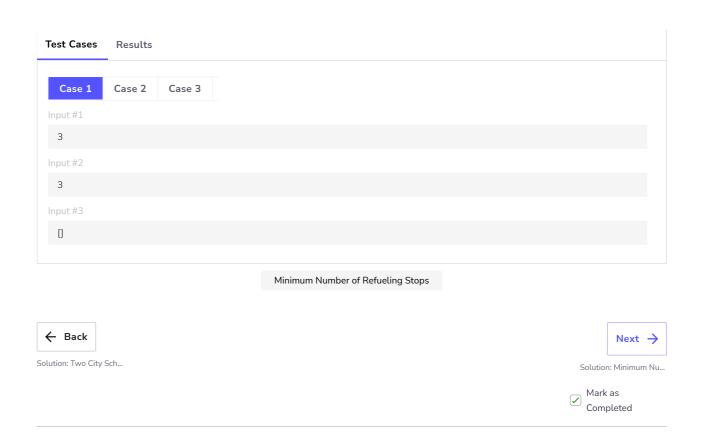
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Try it yourself

Implement your solution in the following coding playground:





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